



Murray-Darling Basin water markets inquiry

Interim report

30 June 2020



Australian Competition and Consumer Commission
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Introduction

The ACCC is conducting this inquiry in response to a direction by the Treasurer, the Hon Josh Frydenberg MP, to examine markets for tradeable water rights in the Murray–Darling Basin (the Basin). The ACCC is asked to recommend options to enhance markets for tradeable water rights, including options to enhance their operations, transparency, regulation, competitiveness and efficiency.

This interim report draws upon analysis of comprehensive water market data from 2012 onwards, and the views of a broad range of people with interests in the use and trade of water in the Basin. The ACCC thanks all who provided their views for contributing to this inquiry.

Feedback is now invited on the preliminary conclusions and options outlined in this report, to assist the ACCC's preparation of a final report to the Treasurer by 30 November 2020.

Summary

Water trading has brought substantial benefits to water users across the Basin. Water markets allow irrigators to increase their water supplies, to earn income by selling their water rights when they are more valuable to someone else, to expand production, or to release capital for investment in their businesses. The benefit of water markets is demonstrated by the fact that, despite tough and volatile climatic conditions, the value of production from irrigated agriculture in the Southern Basin has trended upwards in real terms since 2010-11.¹

That is not to say that the benefits derived from water markets are universal, or equally shared between participants and regions. The ACCC acknowledges that some individuals, industries and regions have experienced adverse consequences due to water markets. Governments face challenges in addressing these issues, without negating the benefits that water markets generate.

Water trading in the Basin had its origins in informal arrangements between neighbouring farmers, where one farmer's surplus water could be transferred to a neighbour who needed extra water. Over the past two decades it has evolved into a complex, Basin-wide market with an annual value estimated at more than \$1.5 billion per year. The ACCC's interim conclusion is that the governance, regulatory and operational frameworks supporting water markets have not developed to accommodate a market of this scale, and are no longer adequate.

The many benefits derived from water trading, including maximising the economic performance of irrigated agriculture, rely on fair and efficient water markets, underpinned by an environmentally healthy river system. This depends on:

- a governance framework that ensures trading rules and regulations are developed and implemented with a Basin-wide perspective, and in close connection to the river system's physical characteristics
- clear trading rules that apply consistently across the Basin
- regulation of market participants that promotes open and fair trading, and which is robustly enforced.

¹ Since 2010–11, the Gross Value of Irrigated Agricultural Production (GVIAP) in the southern Basin has increased on average 2.3 per cent a year in real terms (adjusted for inflation to 2018–19 dollars). However, the GVIAP has not uniformly increased over this period, falling by 6.5 per cent in 2015–16 and 5.2 per cent in 2016-17. For further details, see section 3.2.2 of this report.

However, the ACCC's interim view is that the current governance of the Basin and the regulatory frameworks for water trading do not meet these standards. There are significant deficiencies associated with the settings and governance of water trading, which undermines the efficiency of water markets and their dependent industries.

The key problems the ACCC has identified include that:

- water market intermediaries such as brokers and water-exchange platforms operate in a mostly unregulated environment, allowing conflicts of interest to arise, and opportunities for transactions to be reported improperly
- there are scant rules to guard against the emergence of conduct aimed at manipulating market prices, and no particular body to monitor the trading activities of market participants
- there are information failures which limit the openness of markets and favour better-resourced and professional traders who can take advantage of opportunities such as inter-valley trade/transfer openings
- differences in trade processes and water registries between the Basin States prevent participants from gaining a full, timely and accurate picture of water trade, including price, supply and demand
- important information, such as allocation policies and river operations policy, which can significantly impact water pricing, are inadequately communicated to the irrigators and traders who rely on these to make business decisions
- there is a disconnect between the rules of the trading system and the physical characteristics of the river system. For example, on-river delivery capacity scarcity, conveyance losses and adverse environmental impacts are not considered in the processing of trades that change the location of water use, except through some blunt and imprecise rules, such as limits on inter-valley trade/transfers²
- overarching governance arrangements, which result in regulatory fragmentation and overlapping of roles of different governing bodies, contribute to many of these problems, or prevent them from being addressed in an effective and timely way.

A serious additional consequence of these problems is that many water users do not trust that the markets and key institutions are fair or working to the benefit of water users, in particular irrigation farmers. Impediments to informed and confident trading by many irrigators caused by these problems is likely to impede investment that is important for efficient agricultural production.

In response to these concerns, some market participants have called for a return to the system where water was tied to land, perhaps with some limited trade between water users only. The ACCC does not support this position. Dismantling existing water markets would mean the benefits that markets provide to many water users would be lost, and this would be to the detriment of the Australian economy. It would also significantly diminish the value of water entitlements, which make up a substantial proportion of the assets owned by irrigation farmers.

Many of the issues that the ACCC views as harmful to open and efficient water trading are grounded in failures of governance. Water markets have developed at different times across different regions as an adjunct to broader water management reform, resulting in an extremely complex, fragmented and inconsistent system. Many of the historical market settings and governance arrangements are no longer suitable to deliver all of the potential benefits of trade.

² A conveyance (or transmission) loss is the water that is lost, to evaporation or seepage, while flowing through the river system.

The ACCC's preliminary view is there is a need to reconsider governance frameworks focused on the proactive development and regulation of markets, to promote open and fair trade across the Basin.

The ACCC will be considering governance and other options for improving water trading markets, and seeks feedback on these issues, ahead of its final report.

The remainder of this overview discusses:

- benefits provided by trade in water rights
- the increasing demand for water in the Basin, combined with long-term decline in supply and the resulting increase in water prices
- problems with water rights markets, leading to many market participants, particularly farmers, failing to experience their full benefits; and other harms and further problems arising
- options for addressing many of these problems.

Water trade benefits users

Water rights markets connect the Basin's agricultural producers, and give them flexibility in how they access and trade water.

Trading in water rights can allow irrigators to supplement their water supply in the short and long term, earn income from selling their water rights when they are more valuable to someone else, expand production, develop new business models or free up capital that can be invested elsewhere in their businesses.

Other groups who trade in water markets include irrigation infrastructure operators (IIOs), urban water authorities, environmental water holders, First Nations and Traditional Owner representative groups, water brokers and exchanges, investors—that is, parties holding water assets for financial gain, not production—and others, with some being significant users and traders of water at different times and for a range of reasons.

The value of trade in Basin water rights, encompassing permanent and temporary rights, now averages about \$1.5 billion per year. In the Southern Basin alone, from mid-2012 to near the end of last year, parties traded about \$10.1 billion in permanent water access entitlements and \$2.2 billion of annual water allocations.³

Particularly since the National Water Initiative⁴ was agreed in 2004, the Basin's water markets have developed and become more complex, and new market participants have emerged. These include intermediaries such as brokers and water exchanges, and investors who do not use water for primary production but who trade and hold water rights as a financial investment.

Intermediaries provide services that reduce some barriers to entry in the complex and fragmented Basin water markets. By connecting potential traders with each other, brokers and exchanges can increase market liquidity and depth, reduce searching and transaction costs and improve information availability and market transparency.

Water investors, meanwhile, can help irrigators free up capital by buying and leasing out water; they can increase water market liquidity; and they can help irrigators manage water-supply risks, by providing water products such as leases and forward contracts.

³ ACCC analysis based on Bureau of Meteorology and Australian Bureau of Statistics data.

⁴ Council of Australian Governments, Intergovernmental Agreement on a National Water Initiative, <https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/water/Intergovernmental-Agreement-on-a-national-water-initiative.pdf>, 2004, viewed 19 June 2020.

Box 1: Water trade affects Basin communities.

Many people and their communities in the Basin are experiencing disruptive changes. Factors driving these range from short-term swings in commodity prices and long-term changes in export-trade environments, through technological and demographic change, to changes in how governments and others are delivering services.⁵

One of the factors driving some of these changes is the availability of, and trade of water.

Water markets affect where and for what purpose water is used, which will also affect economic activity associated with that water use.

The draft report of the Independent assessment of social and economic conditions in the Basin (the Sefton report) found that: ‘sustained trading of water into a region increases economic activity in that region and leads to reductions in economic activity in regions from which the water is traded’; and there ‘is clear evidence that market reforms have had uneven impacts, with some communities feeling like the collateral damage of improved outcomes in another region’.⁶

The Australian community benefits overall from water trade, which helps people access water where and when it is wanted and valued most—to put the water to its most productive use. The result is more economic activity and economic growth.

In situations where adverse socio-economic consequences emerge from markets (including water markets), Governments may choose to implement policy measures to moderate these impacts via targeted policies that have specific distributional, equity and regional-development objectives. It is always preferable to use focused policy tools to achieve these objectives, rather than to use policies which undermine the efficient operations of markets, including water markets, to the disadvantage of all participants in those markets.

Water rights are a significant asset for many farmers

Tradeable water rights are now a significant asset for many farmers. The value of water entitlements on issue across Australia in 2018–19, held by active and retired farmers and others, has been estimated to be \$22.7 billion.⁷

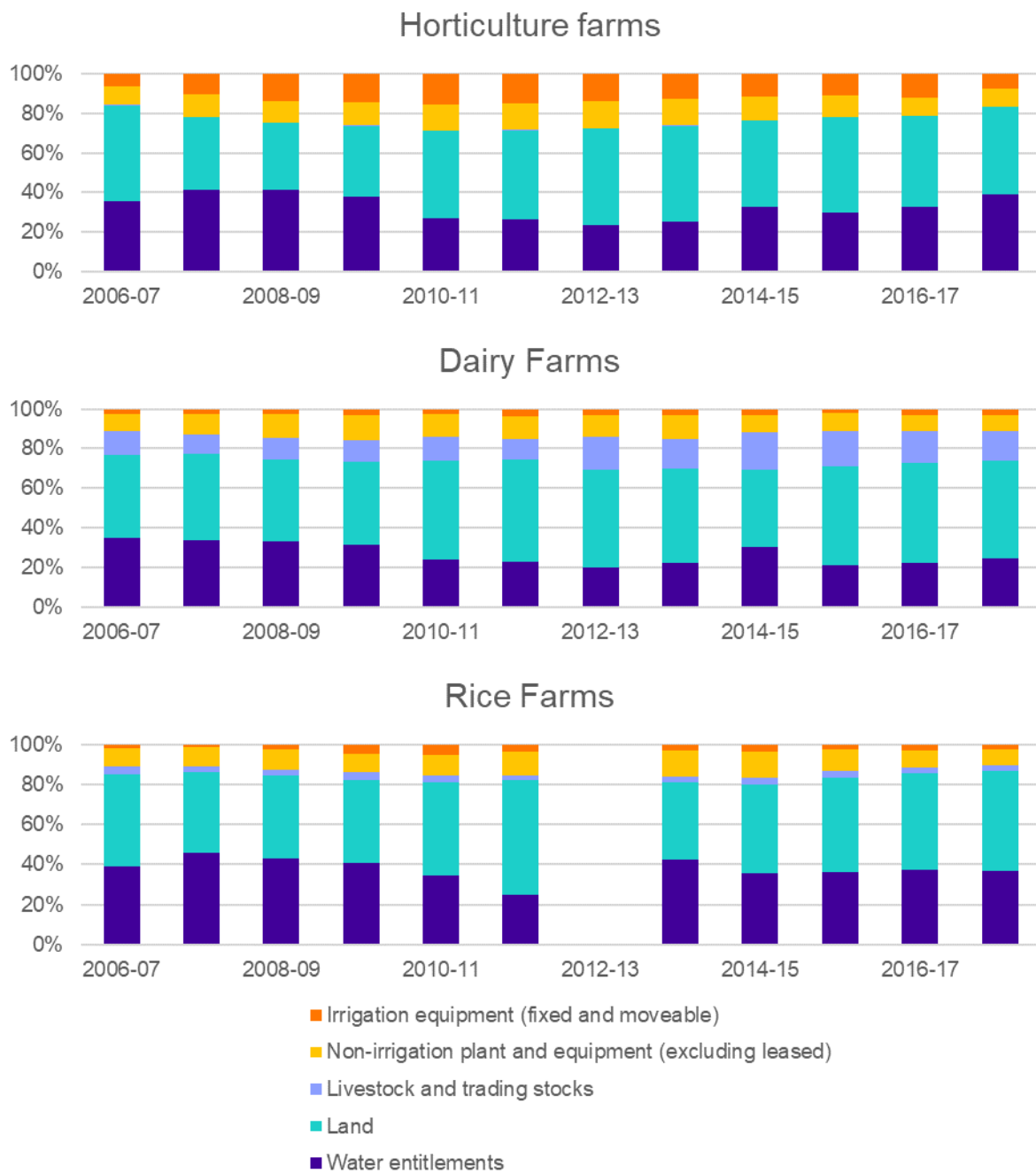
As figure 1 below indicates, water entitlements comprise a substantial proportion of the capital assets of most irrigated farms, although this varies by sector. The Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) has found that on average in the Southern Basin in 2017–18, water entitlements comprised around 40 per cent of capital assets for horticulture farms, 37 per cent for rice farms and 25 per cent for dairy farms. Importantly, for some farms, the value of their water entitlements is equal to or even exceeds the value of land assets. This means that improving the efficient operation of water markets is likely to enhance the financial position of many farmers, while impeding them is likely to have the opposite effect.

⁵ Panel report: *Independent assessment of social and economic conditions in the Basin—Draft Report*, 16 March 2020, p. v, <https://www.basin-socio-economic.com.au/stay-informed/widgets/250651/documents>, viewed 18 June 2020.

⁶ *ibid*, p. 44.

⁷ *Water markets report—2018–19 review and 2019–20 outlook*, Aither, Melbourne, cited in S Wheeler and others, *Water market literature review and empirical analysis*, Consultant report prepared for the ACCC Water Market inquiry, 2020, p. 9.

Figure 1: Average proportion of capital assets by asset class, by farm type, 2006–07 to 2017–18



Source: ABARES irrigation survey, <https://www.agriculture.gov.au/abares/research-topics/surveys/irrigation>. Notes: Average per farm. For horticulture: average of three regions (Goulburn, Murray, Murrumbidgee); for rice: average of two regions (Murray and Murrumbidgee); for dairy: average of two regions (Murray and Goulburn-Broken).

Demand for water is increasing, inflows are variable and limited, and prices are volatile

In most markets the primary driver of price is the balance of supply and demand, and water is no exception.

Water supply in the Basin is often scarce. The volume of surface water supply in the Basin is mainly determined by the amount of rain and snow that falls in water catchments. In recent years, supply has been especially limited, with many parts of the Basin experiencing a prolonged and severe drought. Average inflows into the Basin have declined in the last 20 years compared to the previous 100 years.

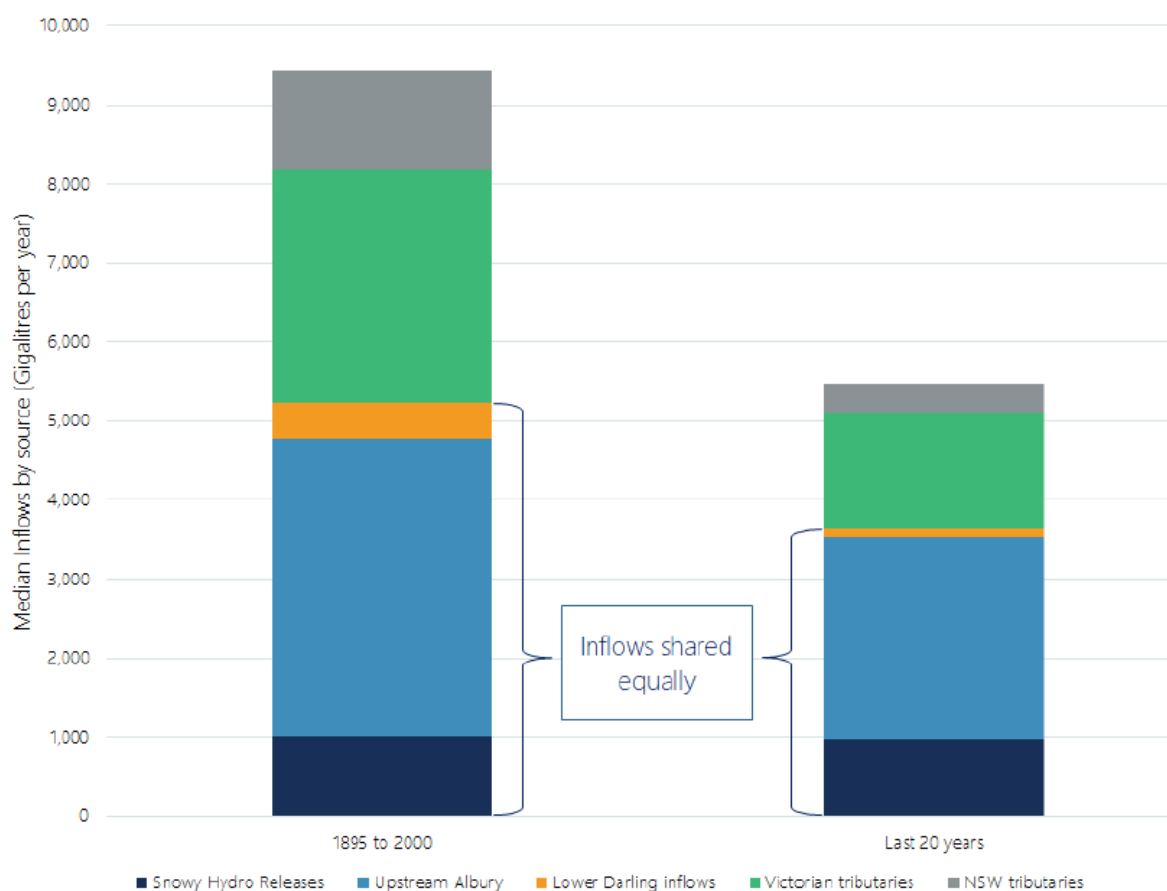
Climate analysis by the Bureau of Meteorology and the Commonwealth Scientific and Industrial Research Organisation indicates that April to October rainfall between 1999 and 2018 was either the lowest on record or very much below average across most of the Basin, compared to average rainfall since 1900.⁸

As cited in a recent report from the Interim Inspector-General of Murray–Darling Basin Water Resources, Mick Keelty AO, median inflows from the tributaries of New South Wales over the past 20 years are almost two-thirds lower than those experienced during the previous century (see figure 2 below). The report stated that irrigation expanded rapidly in a relatively wet period during the 1990s, and that many water users' memories of water availability may have been formed during this period, which had less frequent dry years than the period since. The report also found that dry periods in different parts of the Darling and the Murray are increasingly occurring at the same time.⁹

⁸ Bureau of Meteorology and Commonwealth Scientific and Industrial Research Organisation, State of the Climate 2018, 19 December 2018, <http://www.bom.gov.au/state-of-the-climate/australias-changing-climate.shtml>, viewed 18 June 2020

⁹ Interim Inspector-General of Murray–Darling Basin Water Resources, *Impact of lower inflows on state shares under the Murray–Darling Basin Agreement*, 2020, p. 9, <https://www.igmdb.gov.au/reviews>, viewed 18 June 2020.

Figure 2: Change in River Murray system inflows, 1895 to 2000 and past 20 years



Source: Interim Inspector-General of Murray–Darling Basin Water Resources, *Impact of lower inflows on state shares under the Murray–Darling Basin Agreement*, p. 9, https://www.igmdb.gov.au/sites/default/files/documents/ig_final_report.pdf, viewed 18 June 2020.

The volume of water that is available in a particular storage or river reach at any one time is shaped by:

- hydrology, or the amount and timing of water flows relative to the river’s physical limits
- climatic conditions, such as heat that increases evaporation, and
- human decisions on water management.

Water markets in the Basin operate on a ‘cap-and-trade’ system, where the cap is a government-determined ceiling on how much water is made available for consumptive uses; and trade in water rights can occur within the limits imposed by that cap. Most recently, governments have capped the total amount of water that can be extracted in the Basin through the Basin Plan 2012. Capping water extraction aims to balance the amount of water available for consumptive uses with the amount needed to ensure the environmental health of the Basin’s rivers in the long term. Governments have established environmental water holders (EWHs) which have acquired significant volumes of water entitlements in the Basin, and manage the use of this water to achieve environmental outcomes. Acquisition of water entitlement by EWHs has decreased the amount of water available for consumptive use and for trade in the markets.

Rules and policies imposed by Basin State authorities and the Murray–Darling Basin Authority (MDBA)—such as establishing trading zones and inter-valley trade/transfer (IVT) limits—also strongly shape how much water is available in certain places and at given times.

On the demand side, fluctuating rainfall levels also impact water trade. For example, if rainfall levels are lower than a farmer needs to produce a crop, the farmer is more likely to consider purchasing water through the markets. Overall, there is a trend of intensifying demand for water in the Basin.

More farmers are trading water rights. In 2000, less than 10 per cent of irrigators in the Basin had conducted a water trade. By 2015, 78 per cent of Southern Basin irrigators had conducted at least one water allocation trade.¹⁰

In addition, it is clear that more of the water on issue is being traded. While the volume of water allocation trade depends on total water availability in a given year, the data indicate that volumes traded relative to the total water allocated to entitlement holders is growing.

Various other factors have driven more intense demand and higher participation in water markets in recent years.

These include the substantial expansion of the almond industry in the Southern Basin, concentrated on the Murray River below the Barmah Choke, and substantial plantings of cotton, rice and other broadacre crops in New South Wales.

New entrants into water markets have also contributed to higher trade volumes. Investors and fund managers now account for significant proportions of water allocation and access entitlement trade in the Southern Basin. In 2018–19 these traders accounted for, at least: 16 per cent of total number of water purchases and 14 per cent by volume. Their water sales accounted for five per cent of total number and 20 per cent by volume.¹¹

Water allocation prices in 2018–19 and 2019–20 were generally higher, and much more volatile, than in previous years. This trend is illustrated in figures 3 and 4 below, and is explained in more detail in chapter 3. In summary:

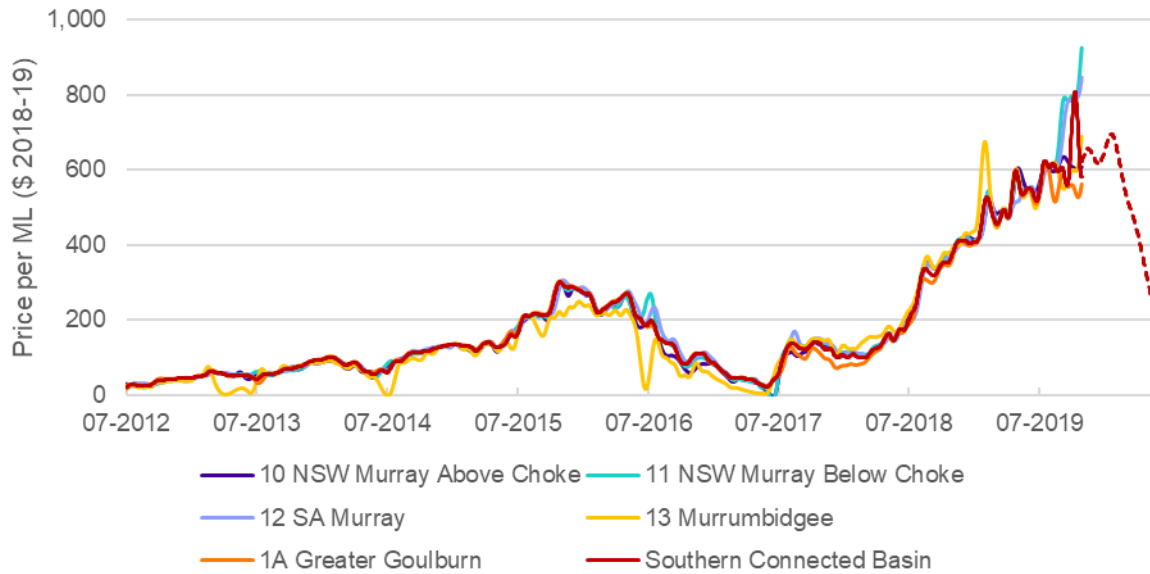
- The red line in figure 3 below shows the average price for water allocations, per megalitre in 2018–19 dollars, in the Southern Connected Murray–Darling Basin from mid-2012 to the start of 2020.¹²
- The triangle above 2018–19 in figure 4 indicates, simply that, in that year, less water was traded but at a higher price.

¹⁰ S Wheeler and others, *Water market literature review and empirical analysis*, Consultant report prepared for the ACCC Water Market inquiry, 2020, p. xi.

¹¹ See chapter 4, sections 4.3.2 and 4.3.3.

¹² At the time of the previous drought in the Basin, the Millennium Drought 1996 to 2010, prices rose to similar levels to those seen in 2018–19.

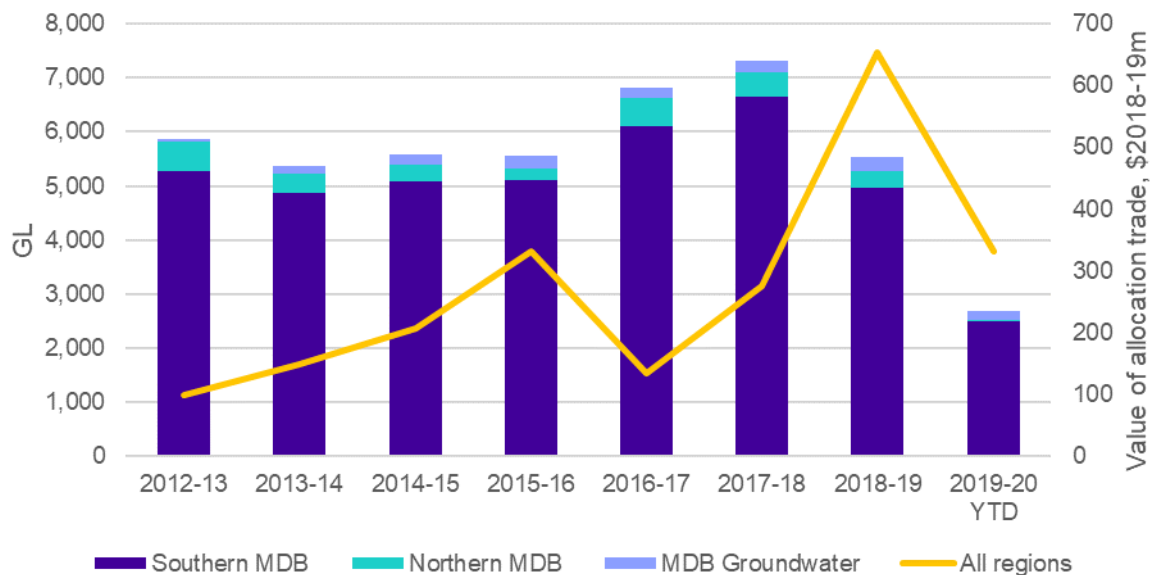
Figure 3: Average allocation prices, by selected trading zones, and average for Southern Connected Basin (\$2018–19)



Source: ACCC analysis based on New South Wales, South Australia and Victoria response to voluntary information request, Waterflow data and Australian Bureau of Statistics data.

Notes: Basin State voluntary information request data used up until 31 October 2019 (solid lines); Waterflow data thereafter dashed line). Daily zone and Southern Connected Basin (all zones) price series derived using ABARES GAM methodology. Excludes zero dollar trades.

Figure 4: Allocation trade volumes and total value, 2012–13 to 2019–20YTD (\$2018–19)



Source: ACCC analysis based on Bureau of Meteorology and Australian Bureau of Statistics data.

Note: 2019-20 YTD is year to date for 2019-20 up to 30 November 2019.

When average water prices are high, the main reasons are strong demand and weak supply. However, the ACCC considers that the markets’ problems exacerbate issues when, for example, supply is tight or demand is changing. They make a difficult situation worse.

Poor regulation and market settings undercut the benefits of water trading

The ACCC's preliminary assessment is that there are significant problems in the markets for water rights in the Basin that need to be addressed. These problems undermine the efficiency of water markets and the industries that depend on them.

One result of these problems is that, despite the opportunities that water rights trade brings, there is significant distrust of the market by some water users, particularly farmers, who are deeply concerned about the fairness of the markets and question whether they are working in their interests and the interests of the nation.

Water markets are complex, made more so by a web of governance and regulatory arrangements in place to manage water trading across the Basin. This complexity, combined with a lack of rules and oversight of trading conduct, creates opportunities for some participants to exploit market flaws.

As Central Irrigation Trust stated in its submission to this inquiry:

...water is very complex, some of which is caused by history and the resulting development of irrigation across the Murray Darling Basin; some of which results from the jurisdictional control over water; and some which results from the delivery of that water through a complex hydrological system of rivers, creeks, dams, lakes and streams. Compounding this complexity is the variable nature of the key ingredient rainfall and runoff. It is not hard to see that there are very few people that have sufficient information or understanding to be considered informed on the water resource and markets.¹³

The ACCC notes that stakeholders' concerns about conduct of some market participants and the impacts of existing market architecture and governance arrangements are strongest in the Southern Basin. In contrast, concerns in the Northern Basin largely related to elements of the market architecture, including to the need to establish or extend trading mechanisms, particularly in relation to trade in unregulated systems or for overland flow licences.

The system has been built for water management, but not for efficient water trading

Effective governance of the Basin is impeded by fragmented roles and responsibilities, and differing rules, as well the inconsistent enforcement of those rules.

The complexity of the markets is increased by ineffective and opaque governance arrangements, and the roles of numerous Australian and state government agencies which sometimes overlap or conflict.

This situation is partly due to how water markets have evolved over time.

Water management in the Basin has been in place for more than 100 years, through arrangements between Basin States to share the Basin's water.

But water trading is relatively new. It was first introduced on a small scale during the 1980s and 1990s, at different times in different regions, to enable trading of small volumes of water between irrigators within the same region; and to help manage the impacts of drought.

From the early days of water trading, the market was expanded and developed as part of broader water management reform.

¹³ Central Irrigation Trust, submission to the Murray-Darling Basin inquiry, January 2020, p. 2.

The Council of Australian Governments' 1994 water reform framework and the 2004 *Intergovernmental Agreement on a National Water Initiative* were landmarks in encouraging national solutions to Australia's chronic and complex water problems.¹⁴

The *Water Act 2007* (Cth) and the Basin Plan sought to address the 'over-allocation' of water in the Basin and to manage the Basin's scarce water resources on a more sustainable footing. The market was viewed as an important means to efficiently allocate scarce water to its most economically valuable use. But the market's evolution was always secondary to the broader reforms.

Market settings, regulation and governance in each jurisdiction evolved from existing structures and arrangements, or were introduced along with new institutions and arrangements that were primarily focused on dealing with broader issues in the management of water resources in the Basin.

Nonetheless, Basin State governments have long agreed on aims for Basin water markets. The *Water Act 2007* (Cth) specifies that the objectives of the water market and trading arrangements for the Basin are:

- to facilitate the operation of efficient water markets and the opportunities for trading, within and between Basin States, where water resources are physically shared or hydrologic connections and water supply considerations will permit water trading
- to minimise transaction cost on water trades, including through good information flows in the market and compatible entitlement, registry, regulatory and other arrangements across jurisdictions
- to enable the appropriate mix of water products to develop based on water access entitlements which can be traded either in whole or in part, and either temporarily or permanently, or through lease arrangements or other trading options that may evolve over time
- to recognise and protect the needs of the environment, and
- to provide appropriate protection of third-party interests.¹⁵

Although governments have attempted to pursue these objectives, the ACCC considers that many have not been achieved.

¹⁴ Australian Government Productivity Commission, *National Water Reform—Inquiry Report, Overview & Recommendations*, p. v, https://www.pc.gov.au/data/assets/pdf_file/0009/228177/water-reform-overview.pdf.

¹⁵ Schedule 3 of the *Water Act 2007* (Cth).

Governance arrangements are creating problems in water markets

Many of the water market issues outlined in this interim report are partly due to issues with the existing governance framework. Governance can be both the source of the problem or can impede the effective and timely resolution of problems.

Market governance refers to the range of institutions, rules and processes through which decisions concerning water trade arrangements are made and implemented, and water markets are regulated.

The government agencies involved in water management include the MDBA, Australian and state government water departments, numerous state water authorities and resource managers, and many regulators and compliance agencies (including the ACCC).

These various agencies are themselves governed by an array of Australian and state government laws and inter-governmental agreements, including the Basin Plan, the Murray–Darling Basin Agreement¹⁶ and the National Water Initiative.¹⁷ At the highest level, the Murray–Darling Basin Ministerial Council is the decision-making forum established to consider and determine outcomes and objectives on major policy issues of common interest to the Basin governments.

One example of how fragmented governance arrangements impeded a positive objective was the failure to deliver the National Water Market System (NWMS).

In 2008, the Council of Australian Governments endorsed the development of a national system to improve the efficiency and effectiveness of water markets by increasing the transparency of market information, reducing transaction costs and improving interoperability of state water ownership registers where water can be traded across state borders, as traders do in the Basin. This was to involve rebuilding and integrating State computer systems that managed water rights (entitlements and allocations). In 2009 the Australian Government committed \$56 million to the project.

The NWMS was due to be completed in 2012. There were significant problems and delays encountered and the project was eventually terminated in 2014, without being completed. The ACCC understands this was due to implementation problems relating to coordination, consensus building and technology. It is estimated that more than \$30 million was invested into the project.¹⁸

Governance issues impacting water markets include that:

- *ineffective decision-making frameworks* can lead to governments being put in positions where they need to make reactive decisions, leading to uncertainty for market participants and a lack of confidence in the stability of market settings
- *fragmentation of roles and functions* leads to inconsistent governance frameworks, and difficulties for stakeholders in understanding and effectively engaging with governing institutions. This also leads to difficulties resolving problems and harmonising systems due to the time, resources and coordination necessary to effectively collaborate, leading to bureaucratic inertia
- *conflicting roles and functions* can lead to some existing government agencies not fulfilling certain roles or functions as well as they could

¹⁶ Schedule 1 of the *Water Act 2007* (Cth)

¹⁷ Council of Australian Governments, Intergovernmental Agreement on a National Water Initiative, <https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/water/Intergovernmental-Agreement-on-a-national-water-initiative.pdf>, 2004, viewed 19 June 2020.

¹⁸ For more information, see section 11.3.8 in this report.

- *regulatory or governance gaps* can lead to the opportunity for misconduct to occur, or mean that third party impacts (externalities) are not being adequately addressed.

The ACCC will further consider the impacts of specific governance arrangements and potential solutions as part of its final report.

A lack of obligations on brokers and inadequate oversight can harm market participants and damage confidence in markets

The ACCC considers there is a strong basis for concerns about the lack of obligations brokers owe to their clients and inadequate regulatory oversight of broker practices in a variety of contexts. Regulatory safeguards which currently apply to intermediaries in other markets, such as real estate agents, stock brokers and stock and station agents, do not apply to water brokers. This means there are opportunities and incentives for brokers to engage in behaviours that would not be permitted in other markets.

Concerns identified by the ACCC include:

- Brokers' roles are often unclear as contracts will often not set out the obligations brokers owes to their clients and it is uncommon for fiduciary duties to arise within this relationship. For example, a client may mistakenly believe their broker is acting solely in their best interests when this is not the case.
- There are perceived or real conflicts of interest arising for brokers, including brokers providing services to both parties in a trade or taking a personal position in a trade. For example, a broker may not disclose to the other party to a trade, that they are trading their own water rights, rather than acting on behalf of a client. The other party to the trade would not be able to confirm if the broker is simply facilitating a trade for their client by using the broker's water account or if they are the principal in the trade.
- Brokers have an advantage in water trading as information asymmetries exist between brokers and water market participants. For example, a broker may over time have acquired and analysed information regarding a number of local irrigators whom they believe may be interested in purchasing a water right, and can use that to their advantage in negotiations.
- Some market participants rely on brokers for market information and advice and this creates the opportunity and incentive for brokers to provide incomplete or misleading information to increase the price or volume of a trade, and to increase the market price of a water right.

Market participants and brokers themselves have called for regulation to address these issues, which undermine confidence and trust in brokers and the practices they engage in. This in turn reduces confidence in the market and its integrity, likely inhibiting full participation by parties that may otherwise engage in trade. The ACCC is considering options to address these concerns through broker-specific regulation, which is described further below.

There may be opportunities for sophisticated traders to exploit market flaws

Specialist water market investors account for large proportions of water allocation and water access entitlement trade in the Southern Basin. As stated earlier, in 2018–19, institutional investors accounted for, at least: 16 per cent of the total number of allocation purchases, and 5 per cent of sales, which accounted for 14 per cent of water volume purchased and 20 per cent of water volume sold.¹⁹

Many stakeholders hold strong concerns about the role of specialist water investors in water markets. These include concerns that the trading behaviour of these investors artificially inflates prices.

The complex nature of the Basin's market settings means the market's trading systems and opportunities are best understood and leveraged by professional traders with the resources to devote to analysing and navigating them.

The existence of well-resourced traders is not necessarily a problem in itself, but the gaps and opportunities created by the complex web of rules, challenges accessing clear and transparent information and the time and cost needed to identify and pursue trade opportunities mean that these traders may have opportunities to use the market to their advantage, in ways that other parties, particularly some smaller irrigators, cannot.

Nut grower Select Harvests has expressed the view to this inquiry that:

A lack of consolidated, accurate, comprehensive and timely data on water rights trading activity gives a significant informational advantage to large, well-resourced and connected Sophisticated Investors and large scale irrigators (like Select Harvests) over smaller market participants.²⁰

NSW Farmers has submitted that:

...of concern is the capacity of many farmers to participate in a market that is so complex, especially where reliable market information is scarce and difficult to find. The level of expertise and experience required to navigate the complexity of the water market unfairly advantages professional and institutional investors, notwithstanding that all farmers who rely on regulated water sources must participate in the market.²¹

The nature of the current market rules and settings discussed throughout this interim report, combined with limited rules and oversight of trading behaviour, mean that there may be opportunities for some market participants to engage in conduct that is detrimental to the efficiency and fairness of the market. This includes conduct that is unlikely to be illegal under current regulations.

The ACCC is continuing to investigate these concerns and other trading activities observed in trading data.

The ACCC is considering whether there is conduct that is harming the efficient working of the water market. For example, the ACCC is examining whether some traders (not just investors) may have previously, or may have opportunities to, manipulate water markets and artificially inflate prices in order to maximise investment returns.

¹⁹ See sections 4.3.2 and 4.3.3 of this interim report.

²⁰ Select Harvests, submission to the Murray–Darling Basin inquiry, April 2020, p. 3.

²¹ NSW Farmers, submission to the Murray–Darling Basin inquiry, February 2020, pp. 5–6.

The ACCC has not formed conclusions at this stage, except to observe the potential opportunity for various well-resourced market participants to exploit the complex market arrangements, and a lack of rules and oversight preventing such conduct.

Our efforts to gather and analyse trading data and other information to assess the impacts of market conduct make it clear that the current information and data collection arrangements across the Basin make analysis of market participants' trading behaviour challenging.

There is no institution responsible for, or capable of, gathering the necessary data to effectively monitor trading behaviour in the Basin. Better data collection and coordination across the Basin would be central to better market oversight.

Clearing, advice and other trade-related services often involve high costs and low transparency

The key services supporting water trade are fragmented, inconsistent and opaque, and create challenges for participants in Basin water markets. A lack of harmonisation impedes traders from accessing the data and information they need for trading and investment decisions.

NSW Farmers has expressed the view to this inquiry that:

...improvements in the transparency of water trade are urgently required. Readily available information including price, location and volume, provide market participants with the information required to make informed decisions. Without transparency and improved functional capacity, trust in the water market and wider water reforms is being eroded, and the ability of the water market to deliver the social, economic and environmental objectives of the Murray–Darling Basin Plan is greatly diminished. Of concern is the lack of centralisation of water market information which means that market participants must know where to source each piece of information they require.²²

SunRice has submitted that:

...transparency is critical—not only for the operation of an efficient market for water rights, but also for small and medium-sized farming operations to manage their participation and investment in the water market. The efficient functioning of markets is based on ready access to information, enabling market participants (including growers who depend on access to annual water entitlements) to make informed purchasing, carry-over and trading decisions.²³

Buyers and sellers of water rely on a range of services to find a trading partner and successfully execute a trade. These include advisory, matching, clearing, settlement, registration and information services. Some of these services are core to the market's functioning, and are needed for every trade, such as clearing, settlement and registration services. Others, while not necessary for every trade, still play important roles, such as advisory, information and matching services.

These trade services are provided by various service providers, sometimes performing multiple roles. It is not always clear who provides which service and, at times, some service providers may perform conflicting roles.

Intermediaries such as exchanges and brokers provide advisory and information services, services to match buyers with sellers, and generally manage the financial settlement of trades they strike. Intermediaries also provide some clearing services, but this role is shared

²² ibid, p. 4.

²³ SunRice, submission to the Murray–Darling Basin inquiry, February 2020.

with IIOs and Basin State trade approval authorities, who are local monopoly service providers in their respective regions. Transfer of title (part of settlement services) and other registry functions are provided by IIOs and Basin State water registers. A range of information services are also provided by a variety of public and private providers, such as the Bureau of Meteorology, Waterflow, the MDBA and Basin States.

These trade-related services are a crucial source of market data and information. If they fail to provide high quality information to the market in a timely manner, prices cannot accurately reflect relevant information, which then inhibits efficient water trade. Potential buyers and sellers may be deterred from engaging in what would be beneficial trade, or may attempt to trade using incomplete or poor quality data, leading to ill-informed decisions and poor outcomes.

If trade services are provided in a way which offers advantage to some users over others, this can potentially form barriers to entry for some participants and, in turn, allow certain participants to capture proportionally more of the gains from trade.

One example of this is that services for processing of inter-valley trades/transfers operate on a 'first come, first served' basis. This has prompted a technological 'arms race' between a limited number of market participants who have the expertise and resources to use digital technologies to help ensure they are at the 'head of the queue' and able to capture the majority of benefits from inter-valley trading opportunities. Another example is that provision of matching services is highly fragmented across different brokers and exchanges. This means that brokers and other participants who have the time and resources to 'sign up' to multiple exchanges and monitor buy and sell offers across exchanges have access to more information than others, which they can then use to advantage when acting as a trading principal. Therefore, provision of trade services can have distributional impacts on market participants generally, and can create space for specific market misconduct—such as insider trading—to occur

Further, if services are provided inefficiently, transactions costs can be 'too high', eroding gains from trade and creating further barriers to entry for some participants. Table 1 below provides estimates of the costs of trade processing and registry services in New South Wales, South Australia and Victoria as a percentage of allocation trade. Trade processing costs are recovered from traders through trade approval fees, while registry costs are recovered from water users more generally as registers serve all water rights holders. The scope of each state's services varies. For example, New South Wales's trade processing costs include trade approvals but also costs of other water licencing and works approval functions, while Victoria's registry resourcing costs include licensing, water usage, compliance, and resource management functions.

Table 1: Estimate of New South Wales, South Australia and Victoria’s operating costs for maintaining water registers and processing allocation and entitlement trade, 2018–19 (\$million)

	Registry resourcing costs	Trade processing costs	Total Southern Connected Basin trade value	Trade processing costs as % of Southern Connected Basin trade value
New South Wales	0.352	8.802	298	2.96
South Australia	0.732	1.493	104	1.44
Victoria	2.862	1.460	705	0.21

Source: ACCC analysis on New South Wales, South Australia and Victorian Governments response to voluntary information request, New South Wales and Victoria responses to ACCC annual Water Monitoring Report Requests for Information, IPART and Bureau of Meteorology data.

Note: Values in 2018–19 dollars. Registry resourcing costs include operating, capital and labour costs for each state’s water registers. Trade approval costs are those incurred by agencies when performing their trade approval and registration functions. New South Wales registry costs are limited to the General Division of the register only (kept by New South Wales Land Registry Services) and do not include the Assignment Division (kept by WaterNSW). New South Wales trade processing costs also include the issuing of licences and the administration of works approvals. Trade value includes allocation and entitlement trades, including zero dollar trades. Provisional estimates.

The ACCC’s analysis of the trade-related services provided by brokers, exchanges, IIOs and Basin States has identified many inconsistencies and other areas of concern which raise the costs of, and barriers to, trade within and across the Basin:

- Certain trade approval processes increase the complexity and cost of trading across Basin States. For example, an irrigator in an IIO network in New South Wales who wants to trade with another inside a South Australia IIO, must obtain the approval of four different authorities (and pay four different fees).
- There are inconsistencies and inefficiencies in trade approval processes in different regions. For example, trade approval times differ across states, trade data in some zones is more up-to-date than in others. In some jurisdictions trade approvals are still processed manually using paper-based forms.
- There are problems with the completeness, availability and consistency of water market data across states and trading zones. For example, many trades are reported as having a ‘zero price’ or a price markedly different from the prevailing market price, and the reasons for this are not recorded.
- Existing rules and frameworks fail to provide accurate market data and a high standard of trade processing service delivery. For example, the Basin Plan Water Trading Rules require all traders selling water access rights to report the price agreed for the trade, but there are no mechanisms to verify the reported prices, or to enforce the requirement to report them correctly. Some trade approval authorities—particularly IIOs—do not even ask traders to report price, or keep records of price data.
- Gaps in rules and regulations mean that certain important market data is not reported. For example, data on the dates and types of trade (such as forward, spot or carryover parking) is held by brokers, exchanges and traders, and is not required by trade approval authorities. It is therefore not reported in historical registry trade data.
- Some data held by trade approval authorities is generally not publicly reported (except to some extent in Victoria), making it difficult to review trade approval services and to understand how water markets and markets for trade services are developing. For

example, data can include the date trades are submitted, the number of refused trades, and the lodging party.

- There is minimal data available publicly on trade that occurs within IIOs. Trade within IIOs accounts for a large proportion of trade within the Basin, meaning that large segments of the markets are opaque.
- State-specific legislation results in differing water rights, and trading is set up differently in each state water management act. These underlying differences mean that terminology, types of trade, and trade approval processes can all differ across Basin States, resulting in complexity for water users and differences in trade approval fees.
- State legislation (except in Victoria) does not provide a mandate for approval authorities or water registers to provide information services, whereas these could complement the services that these authorities already provide.

Trade approval processes and the accuracy and availability of water market data need to be improved, simplified and standardised across states and trading zones, particularly in the Southern Connected Basin.

Improved integration between service providers, such as private exchanges and brokers, public approval authorities and water registers, and IIO registers, as well as between these providers and broader water accounting, trade processing, and information frameworks, would help to address many of these problems.

Further, to assist market participants, water market information needs to be available in one place, be easily understood, be made available quickly, and in a way that users can easily customise. There needs to be greater use of innovative digital technologies to deliver water market information in 'user-centric' ways.

The ACCC acknowledges that service providers—both public and private—are already aware of many of these shortcomings, and that there have been recent and promising developments. Movement toward greater digitisation and integration, and timelier information provision is already underway. However, significant additional steps and decisions need to be taken. The ACCC also considers that the nature of the existing regulatory and governance frameworks has at times inhibited the timely and effective resolution of these issues.

One important factor which contributes to the fragmented landscape of trade service provision is that public trade service providers are local monopolies, each operating in their separate jurisdictions.

In the past, and particularly while inter-zone trade was limited, there was little need for coordination, and so service provision by governments developed in an inward-looking, insular way, with each entity looking mostly to its own legislation and own context, having only limited incentive to work with others. Past attempts to develop a common registry system failed, due to cost overruns and technical challenges, but also to the fundamental difficulty of applying a centralised technical solution over a distributed governance framework.

Water markets are maturing and inter-zone trade is becoming more important, but market governance is still distributed. If there were to be a more centralised approach to governance, this would also open up options to centralise trade administration and technological solutions. The ACCC is considering whether changes to the underlying governance frameworks are needed, with one option being greater centralisation of some roles and functions. While governance remains distributed, harmonisation and co-ordination are becoming increasingly important.

There are disconnects between market design and the physical system, and arrangements have not kept pace with changing trade activity

The Basin States have created markets for water rights by establishing the regulatory and legal ‘architecture’ that enables and supports these markets and allows trade to occur. The ACCC uses the term market architecture to refer to the rules and regulatory settings that govern water supply (allocation), storage and delivery, trading and other operational decisions. Market architecture sets the rules about what water can be traded, where and when, and within which river systems and reaches; it defines the elements necessary to manage water resources and create water markets.

Key elements of market architecture discussed in this interim report include:

- the ‘cap’ on resource usage—now in effect through the Sustainable Diversion Limit under the Basin Plan—that limits how much water users can extract
- allocation policies—these determine how Basin States allocate available water to users, as a proportion of their entitlement, in light of how much water is available and rules determining priority of allocation to different classes of user
- carryover policies—these rules and arrangements allow water allocated to an entitlement in one year to be used in a subsequent year (or years), instead of being required to use or trade it in the year it is allocated. Carryover arrangements allow water users to manage water availability risk. Where a user cannot access enough carryover capacity, they may seek to take advantage of different carryover arrangements by trading water between locations and classes of entitlement under ‘carryover parking’ arrangements
- geographical trade rules, including inter-valley trade/transfer limits and other trade rules that regulate the movement of water between valleys and zones, and that manage the physical constraints that limit the storage and delivery of water between locations
- river operations requirements—these physical constraints, operating rules, water delivery and trade accounting arrangements govern how water is moved around the system by river operators to meet demand when and where it is needed, including how conveyance losses—that is, water that is lost to seepage and evaporation as it moves through the system—are managed and accounted for
- metering requirements—these rules and policies determine the arrangements for recording how much water users extract (and how frequently meter readings and account reconciliations occur) and provide a framework for managing trade, ensuring compliance with individual entitlement limits and system limits, and limiting the opportunities for water theft.

Basin market architecture is complex and fragmented. Policies and rules can lack transparency and it can be challenging for water users to understand the responsibilities for, and the relationships between, different market architecture settings. For example, allocations policies and carryover arrangements influence water supply but the relationship between those policy settings (and the role of individual water users’ decisions) is not well understood by water users. Alterations in one policy area can have flow on effects and unintended consequences for other policy areas.

Basin States have taken different approaches to developing key aspects of market architecture, such as metering obligations, carryover arrangements and allocations rules and policies. Where these variations result in market participants facing different opportunities or obligations, this can undermine confidence in the integrity of the market, as participants can begin to doubt that the market architecture treats all participants fairly. The existing market architecture’s complexity and opacity contribute to the wider problems that smaller water users and individuals have in navigating the water markets, making it harder for them to use

markets to their advantage. Rules and arrangements may also give rise to opportunities for participants to take advantage of loopholes or differences between Basin States' approaches, which may impact on other water users or the environment and distort market activity or create incentives that lead to inefficient trade.

Water is a limited and valuable resource, but so too is storage capacity in dams and the capacity for delivery of water through the river system. The market architecture needs to be designed to ensure these limited resources are allocated in ways that achieve the best—the most efficient—outcomes for water users and the environment. However, there are signs that this is not currently always occurring. The existing market architecture does not always reflect and efficiently manage the physical constraints and hydrological characteristics of the river and storage systems. As trade volumes have increased and locations of trade have changed, problems with the current arrangements have begun to emerge.

One resulting issue is the complication of 'delivery risk': the risk that due to system constraints, a water user does not receive the full supply of water at the time and place it is needed. Part of the issue underlying this risk is that the means to deliver water, through the river system to an 'on river' extraction point, does not have an allocation mechanism such as price, to allocate capacity when demand approaches or exceeds the capacity limit. The delivery service is bundled with the water access right but the delivery timing cannot always be assured and the farmer has limited ability to manage the risk that delivery will occur when needed.

A second example arises when a party wants to carry over water to a subsequent period in excess of their allowed carryover. The ability to carry over water is bundled with the entitlement to access water, and is not a separate 'right to storage' in a dam. To secure storage, market participants have resorted to using a 'proxy market' in the form of trade for the purpose of parking the water in another entitlement holder's account to access that user's carryover right—so called 'carryover parking'.

A third example is that inter-valley trade/transfer limits are increasingly 'binding'. IVT limits are used to protect the reliability of third parties' entitlements from the impacts of trade. Increasingly market participants cannot trade between valleys for extended periods due to these limits being reached, however a limited number of market participants are able to circumvent these limits through the effect of a loophole in trading rules.

These market design issues can result in failures in the market's ability to deliver efficient outcomes, and mean that the use of water resources and delivery and storage capacity is sub-optimal. Significant instances that occur in the Southern Basin include:

- that in some circumstances and depending on the particular policy arrangements, carryover may give rise to impacts on other water users or the environment. If present, these third party effects arise whether carryover occurs on the water user's own entitlement or through a parking transaction
- concerns about the markets' fairness and transparency can reduce confidence in the market and, hence, discourage trade. Many stakeholders expressed confusion around the purpose for IVT limits, when they were open and the fairness of the processes
- the absence of markets for on-river delivery capacity means that operational and trading decisions are unlikely to allocate these scarce resources efficiently and sub-optimal outcomes result for irrigators and total agricultural production.

Two paths: more of the same, or more comprehensive and immediate reform

The ACCC sees two possible options.

To continue on the path of recent years by largely maintaining arrangements while attempting important but incremental fixes to targeted problems.

The ACCC is concerned that such a ‘more-of-the-same’ approach will not decisively or urgently fix the markets’ existing flaws, or set up the markets, their participants and their institutions to overcome new challenges.

To implement comprehensive change to address the markets’ problems, and create the necessary arrangements to solve problems as they will inevitably arise in these complex and dynamic markets. These reforms would allow the full benefits and opportunities of water trading to be harnessed, while addressing the negative impacts of unfettered or poorly-designed markets.

The ACCC strongly recommends this second path as the best way to address many of the issues identified during this inquiry.

The ACCC does not consider it a viable option to entirely or substantially dismantle existing water markets, or to make them much more restricted. While this may limit some of the poor outcomes caused by problems with the current markets, it would also mean that the Basin’s farmers, other water users, and the nation would lose some of the considerable benefits of water trading.

The Basin’s markets need decisive and comprehensive reform

The Basin’s water rights markets have serious problems that have to be fixed now, to generate more of the potential benefits of water trade.

In the ACCC’s observation, the current markets’ rules are deficient; enforcement of them is inconsistent and limited; and the overall governance of the Basin’s water trade is troubled.

This interim report outlines various options to enhance markets for tradeable water rights.

It is clear that the market settings need to change.

The ACCC is continuing to consider the best approach to address each of the issues identified in this interim report, and has outlined various options for reform. The ACCC has not yet decided which options are preferred, and seeks feedback on the options presented, or suggestions of alternative options to address the concerns identified.

To make real and lasting improvements, there is a need to change the Basin’s ‘governance’ arrangements

In deciding the best way to resolve the issues identified in this interim report, the ACCC considers it important to reconsider governance frameworks and identify areas for improvement. Improved governance should seek to effectively resolve the issues identified and strengthen the system so fewer problems emerge in the future and, when they do, the system is capable of resolving them in a more effective and timely manner.

The ACCC has not identified specific solutions at this stage, and will consider potential changes to governance arrangements in more detail prior to its final report. The ACCC may look to other sectors, such as energy, or other jurisdictions, to help determine the best governance options that could help to enhance water markets in the Murray–Darling Basin.

At this time, the ACCC seeks stakeholders' feedback on its preliminary views, and stakeholders' views on governance issues more generally.

The ACCC's preliminary view is there is a need to reconsider governance frameworks to:

- reduce the impacts of fragmentation by standardising or harmonising governance roles, and how governance roles are carried out, across entities
- reduce governance gaps by the creation of new roles or functions
- address overlaps and perceived or actual conflicts of interest
- reduce uncertainty in decision-making and a resulting lack of confidence in the stability of market settings, by governments delegating certain roles and functions to independent institutions.

The ACCC will consider whether there are market-focused roles and functions currently performed by each of the States separately where there would be benefit in consolidating these into more centralised governance arrangements.

There is a need to bolster enforcement and address regulatory gaps so as to create a fair and efficient water markets characterised by integrity and transparency

Broadly, the ACCC considers that options for regulatory reform must:

- address gaps in existing regulation so as to prohibit harmful conduct, such as potential market manipulation
- address gaps in existing regulation so as to increase transparency, for example through the use by water brokers of trust accounts for client money and assets, and by introducing conflict disclosure obligations to ensure that customers' needs are prioritised
- address gaps in existing regulation to ensure that the services provided by intermediaries are clearly defined, for example through a requirement to keep written records of client instructions
- take action to ensure that existing rules are operating as intended, for example, that water announcements are generally available and that a consistent approach is taken to price reporting
- promote proportionate and visible enforcement and compliance action that is harmonised across Basin States, such as in relation to price reporting requirements
- include consideration of a whole-of-market regulator, such as exists in other markets: for example, the energy and financial services markets.

There is insufficient regulatory oversight, and enforcement and compliance activity, in relation to the some practices of some market participants. The ACCC's preliminary view is that market integrity regulation needs to be improved for water rights trading. This regulation could be limited to brokers, or could cover other market participants such as investors and IIOs. In the case of water brokers, the ACCC's preliminary view is that regulation should be introduced. The ACCC continues to examine the conduct of investors and other market participants, including the need and adequacy of regulation of these parties.

At this interim stage, the ACCC is considering three regulatory options for addressing the problems that have been identified within the Basin water-market regulatory environment. These options have a particular focus on brokers and investors. They are:

- **A government-initiated licensing scheme:** This option proposes a compulsory licensing regime at the federal or Basin State level, which sets out the relevant requirements for intermediaries and is supported through civil penalties for non-compliance. This would be limited to regulating intermediaries.
- **Application of the financial-regulation framework to water products:** The financial regulation framework provides a comprehensive, ready-made market regulation framework that could be applied to tradeable water rights. Its provisions are relevant to the activities of a range of market participants.
- **An independent, market-focused regulator:** This option envisages establishing a market-focused regulator. This could involve creating an entirely new body, or involve giving an existing regulator new functions. For example, this could be achieved through adding market integrity protections to new or existing legislation, such as a rule prohibiting market manipulation, or through introducing a mandatory industry code. This option would enable the regulation of market participants such as intermediaries, investors and IIOs if necessary, and could be used to consolidate some existing regulation.

Improving trade processes and market transparency

There is a need to improve the transparency and accessibility of information necessary to participate in the market, including timely and accurate trade data. This includes providing higher-quality information to market participants and provide it more quickly; and a broader need to streamline trade processes, such as the processes authorities impose to approve transactions.

More transparency in the water-rights markets, such as providing more-accessible information, will help farmers and other water users reach and know the true price or value of the rights—that is, where buyer and seller have access to adequate information to enable proper assessment. This will:

- allow them to make more-informed decisions on whether, how or what to trade
- lessen the time, cost and effort it takes to access the information they need to make trading decisions
- help them be at less of a disadvantage to parties with greater resources to navigate the markets, such as water investors and the largest agribusinesses.

First, there is a need to make practical changes to trade processing, to improve the quality and timeliness of core market data. This includes a need to update trade processes to better reflect current market developments, and ensure generation and transmission of core market data is more 'joined up'.

While significant changes to market operations roles or governance functions may require slight adjustments to the implementation of the proposed practical improvements, the ACCC's preliminary view is that implementation of these practical changes can reasonably commence ahead of any such changes. Potential options are:

- Basin States to improve trade data validation and quality checking processes before providing data to the Bureau of Meteorology as required under the *Water Regulations 2008* (Cth)
- update trade application forms to capture the reason for trade or trade type, struck date, lodging party and matching pathway—for example, matched on exchange or via broker

- removing the ability for zero dollar trades to be approved or recorded unless certain conditions are met (as exception, and with explanation provided) and continue progress to move trade forms online
- increasing harmonisation across the Basin States' registers by working towards consistent terminology and data structures.

Second, these practical changes need to be underpinned by clear and comprehensive mandates to provide efficient trade services and high-quality information to market participants.

The ACCC has identified that current trade application forms and Basin State trade approval processes are strongly linked to the underlying legislation which defines tradeable water rights in each jurisdiction, 'dealing' types (for example, different types of temporary and permanent trades) and procedural requirements for Basin State trade approval processes. As such, legislation can act as a constraint on Basin State's ability to respond to stakeholders' calls for improved water market information and transparency and to respond flexibly to market developments.

The ACCC also notes that there are very limited requirements governing how IIOs keep registers of irrigation rights and water delivery rights within their networks, how they approve trades, and how they collect and transfer market data, and IIO performance on these aspects is correspondingly low.

Further, the ACCC is not aware of any record-keeping or data provision requirements which apply to all brokers and exchanges operating in the Basin²⁴, with the result that the level of data provided by different private exchanges and brokers differs markedly, is incomplete, and is not well-linked to IIO or Basin State registry data.

There is a need to establish a clear and comprehensive framework governing all entities who process trades—including brokers who provide matching services, exchanges, IIOs and Basin State approval authorities. Potential options are:

Potential options are:

- Each Basin State should have a clear legislative mandate to keep a register to record all entitlement trades and all allocation trades.
- Each Basin State water register should have a clear legislative mandate to provide information services based on registry data, and clear publication requirements should be specified (although detailed requirements should be specified in delegated legislation such that they can be changed from time to time as needed).
- IIOs should also be required to establish and maintain comparable registers for both temporary and permanent trades, within, out and into their networks. The ACCC considers this may be by way of partnerships with state agencies.
- Update *Water Regulations 2008* (Cth) to more clearly specify data reporting requirements for trade of irrigation right.
- Create the ability to register contracts with water registers and/or annotate allocation trades conducted pursuant to a contract with an identifier such that all allocation trades arising under one contract can be identified together.
- Introduce standardised single party identifiers across the Basin, for example using ABNs.

²⁴ The ACCC acknowledges that brokers or exchanges holding AFSLs, or those able to access the Victorian Water Register Broker Portal or Broker API may be required to keep certain records in relation to those regimes, but these are voluntary for brokers and exchanges to enter into.

- Standards and agreed processes for processing trade applications and recording and disseminating trade data should be mandated. These should apply to all entities engaged in processing trades—including exchanges, IIOs and Basin State approval authorities.
- Basin States should work towards harmonising trade application fees for allocation trade in the Southern Connected Basin, while also recognising the National Water Initiative principles for cost recovery.
- Basin Plan trading rule 12.48 should be revised to require prices to be reported for all tradeable water rights; that is, including irrigation rights and water delivery rights, not only water access rights.

Third, digital technologies offer the opportunity to streamline trade services, at the same time as improving information quality and availability.

While the practical changes identified above could go a long way towards improving the quality and timeliness of providing information to market participants and streamlining trade processes, the ACCC considers that digital technologies offer the opportunity to make more substantial improvements, and at the same time enable increased market oversight to improve the integrity of Basin water markets.

Potential options are:

- a comprehensive and open digital protocol to enhance interoperability between Basin State approval authorities and registers, IIOs and exchanges, with the ability to securely transmit data, seamlessly interface between private exchanges, IIOs, trade approval authorities and registers, execute instructions, and automate collection, cleaning and publishing of water market information
- a single information portal for publishing water availability and trade information, which collates data from multiple sources, but does not facilitate trade
- a National Electricity Market type approach for water with a spot market and real-time automated matching of buyer and seller offers
- a single exchange platform for posting and matching trade offers by creating a single mandatory online platform for matching buyers and sellers
- an ASX-like approach of a single clearinghouse for administering trading (but connecting via interoperability protocols to trading platforms as overlays and different Basin State registers underneath)
- Distributed Ledger Technology which administers trade through smart contracts and also records all registry information
- a single common register in which all water accounting for both trade and delivery (use) would be accounted for in the same, single system.

The ACCC's preliminary view is that reform of governance arrangements could open up options to centralise and streamline trade services, which could make trade services and information flows more efficient and also facilitate improved oversight of trading activity. However, while governance remains distributed between Basin States and other actors, options which deliver *harmonisation* and *coordination* are more suitable than options which deliver *centralisation*. In line with this, the ACCC's preliminary view is that the digital protocol option combined with a water market information platform which brings together (but does not replace) diverse information sources is the most appropriate pathway. If there were to be a more centralised approach to governance, the digital protocol approach may still be warranted, but should be considered together with options to centralise trade administration and technological solutions.

Market architecture

As outlined above, some of the policies and rules that are essential to the operation of the market—such as arrangements to manage inter-valley trade/transfers, delivery and storage capacity—may not efficiently, and in some cases fairly, manage the underlying physical constraints of the water supply and river system and allocation of scarce resources. This is likely to result in less productive use of water or of delivery or storage capacity, or in impacts on other water users or the environment.

The ACCC considers that the design of key elements of the market architecture may be able to be improved, to better manage trade activity and to address pressures from trade and delivery arrangements that are now affecting the river system and water users. In practice, this could involve reassessing some foundational assumptions and making changes to a number of specific rules or policies: for example, the integrity of the operation of inter-valley trade/transfer limits could be improved by removing the current exemption for ‘grandfathered tags’. A second, related potential option is to develop more ‘dynamic’ inter-valley trade/transfer mechanisms: more timely and responsive tools to allocate access to the limited capacity to deliver water between valleys could improve the efficiency of market operation and opportunities for trade, while also better managing the effects of that trade and delivery on other water users and the environment. The Victorian Government is currently exploring such issues through its review of the Goulburn to Murray trade rule.

Another area where reconsideration of the current approach is timely is in relation to accounting for conveyance (or transmission) losses—that is, the water that is lost while flowing through the river system—in the River Murray System. The MDBA currently sets aside water for conveyance purposes before allocating water to consumptive uses—that is, losses are ‘socialised’. Individual water users may trade water between locations in a way that potentially changes the losses incurred. When trade volumes were insignificant, the complex accounting required to account for losses at an individual level was not felt warranted. However, with growing trade volumes, the impact of incremental losses from trade may no longer be insignificant, with any impacts borne by other water users, not just the beneficiaries of trade. One solution may be to apply particular ‘conveyance loss factors’ to deliveries to particular zones, although this may be technically and administratively difficult to implement.

For the final report, the ACCC will explore a range of potential market architecture reform options with potential to improve the functioning of particular elements of the market architecture, including:

- re-considering how conveyance losses should be accounted for and whether transmission loss factors could be applied to trades and/or deliveries of water
- considering the benefits of formalising the markets for ‘carryover parking’—the carrying over of water from one year to the next on another party’s entitlement:
 - this would require carryover parking transactions to be identified transparently to the market, in water allocation trade data and price reported on; and parties would be required to report the price accurately. This would aid ‘price discovery’ or efficient agreement on price for this service
- creating formal, separate markets for ‘storage’, (as an alternative to ‘carryover parking’ markets by ‘unbundling’—that is, separating—from water entitlements a right or permission to access storage capacity
- considering the feasibility of adopting ‘continuous accounting’, which involves allocating water as it flows into storage, rather than allocating for an annual water year, in the Southern Basin. Under this approach, the concept of the water year has less relevance as resource managers do not reset water account balances to zero at the start of a water

year; and so rights holders do not have to make use of a carryover mechanism to defer usage of water over time

- exploring whether the introduction of ‘capacity sharing’—where each water user is allocated with a share in storage capacity and a share in water inflow—would be practicable and beneficial within the Southern Basin. Individuals could store water subject to the rule that for each individual, if the sum of water usage and water inflows exceeds the allocated storage capacity, the excess is re-allocated in the same period to other users in proportion to their capacity shares
- developing mechanisms to allocate the scarce resource of ‘on-river delivery capacity’ to better manage the ability to move water through natural river systems, particularly at points of capacity constraint. One option is to develop rights frameworks and markets that enable trade of this capacity between water users. Another option could be to distribute use of the capacity through a mechanism, other than a market. These mechanisms would help smooth peaks in water demand, which can cause problems for the parties below the constraint that require water and for the environment
- removing the current exemption for grandfathered tags—tagged entitlement trades created before October 2010—that enables a limited number of licences holders to circumvent the operation of IVT limits, to the potential detriment of other entitlement holders and the environment
- considering appropriate mechanisms for giving effect to trade between zones, valleys and water sources, including whether it would be appropriate to get rid of ‘entitlement tagging’ altogether or to make all allocation trade ‘tagged allocation trade’. ‘Tagged entitlement trading’ is one mechanism available to trade water available under entitlements between water resources. Tagged trading of water access entitlements allows a traded entitlement to retain its original characteristics when traded to a new water resource. That is, the entitlement remains subject to the relevant legislative and administrative arrangements of the valley of origin. However, administrative complexity has seen limited uptake of tagged entitlement trade since arrangements were introduced. Tagged allocation trade works so that water only moves between valley accounts when it is being delivered, and remains in the origin valley accounts at the time of trade and for carryover
- exploring the benefits of further work to harmonise metering requirements and/or increase the frequency of water-account ‘reconciliation’—squaring up extractions to balances on paper—and reducing the ability to maintain a negative account balance and reconcile accounts by entering water markets
- considering how policy design processes, consultation, coordination and reform implementation could be improved.

The ACCC will also continue to consider where market-architecture mechanisms are still immature or are missing altogether, such as with:

- the continuing lack of a framework to allow water-rights trade between the ACT and New South Wales
- the relatively under-developed state of trading rules for unregulated systems in northern New South Wales, or for trade of overland-flow/floodplain-harvesting rights
- arrangement for trade of environmental water such as ‘shepherding’—preferencing or giving high priority—to trade, or change the location of, environmental water.

Targeted changes of the kind described may improve the functioning of particular elements of the market architecture. However, they will not guarantee enduring and effective market architecture reforms that integrate market activity with water storage and delivery system design and operation. In the ACCC’s preliminary view, a comprehensive, forward-looking

and coordinated approach is required to avoid piecemeal, reactive changes and to achieve effective reforms.

The responsible body should have a mandate to consider changes in light of the operation of interconnected water markets, hydrological and technical considerations, and relationships with other areas of water policy (in some cases, being matters beyond the scope of this inquiry). Without such coordination, reforms risk pushing problems to other parts of the system or making other problems worse: for example, managing the environmental impacts of high flows by reducing permissible flows from one valley may shift demand—and associated impacts—to other valleys or river reaches.

Invitation for feedback

This interim report explains the ACCC's preliminary conclusions on what needs addressing in the Basin's water-rights markets; and potential options to do this.

The ACCC seeks feedback on these preliminary conclusions and options. Submissions and feedback in response to the interim report will be requested by a date to be confirmed (approximately six weeks after the interim report is released). The timing and process for submitting feedback will be set out on the ACCC website when the interim report is released. The ACCC can be contacted at:

- waterinquiry@acc.gov.au, or
- Murray–Darling Basin inquiry, Level 17, 2 Lonsdale Street, Melbourne Vic 3000.

The ACCC also continues to consider many issues.

The ACCC will deliver a final report to the Treasurer by 30 November 2020.

Below is a consolidated list of the potential options currently being considered by the ACCC, some questions you may wish to consider in responding to this report, and information on how to make a submission.

The rest of this report contains more detail on the ACCC's preliminary conclusions and proposed options.

Options for Market Reform

This section sets out the findings in the interim report in relation to which the ACCC has a preliminary view that reform is required, and provides options for achieving this reform. The ACCC seeks feedback on these proposals and also welcomes views on additional options. The ACCC will use this feedback when considering recommendations for the final report.

Conduct of market participants

1. There is insufficient regulatory oversight, and enforcement and compliance activity, in relation to some practices of some market participants

The ACCC's preliminary view is that market integrity regulation needs to be improved for water rights trading. This regulation could be limited to brokers, or could cover other market participants such as investors and IIOs. In the case of water brokers, our preliminary view is that regulation should be introduced. The ACCC continues to examine the conduct of investors and other market participants, including the need and adequacy of regulation of these parties.

The ACCC has identified the following three options for improving market regulation and seeks feedback about which option would best improve market integrity. These options are discussed in chapter 7.

- (a) Government-initiated licensing scheme: This option proposes a compulsory licensing regime at the federal or Basin State level, which sets out the relevant requirements for intermediaries and is supported through civil penalties for non-compliance. This would be limited to regulating intermediaries.
- (b) Applying the financial regulation framework to all water products: The financial regulation framework provides a comprehensive, ready-made market regulation framework that could be applied to tradeable water rights. Its provisions are relevant to the activities of a range of market participants.
- (c) Independent market-focused government regulator: This option envisages establishing a market-focused regulator. This could involve creating an entirely new body, or giving an existing regulator new functions. For example, this could be achieved through adding market integrity protections to new or existing legislation, such as a rule prohibiting market manipulation, or through introducing a mandatory industry code. This option would enable the regulation of market participants such as intermediaries, investors and IIOs if necessary, and could be used to consolidate some existing regulation.

Improving trade processes and market transparency

2. Practical changes to trade processing are needed to improve the quality and timeliness of core market data

Market participants face difficulties in accessing reliable and representative market data, such as the current average price, the number and volume of recent trades, and current bids and offers. Trade processes are outdated and fragmented across many public and private service providers. There is a need to update trade processes to better reflect current market developments, and ensure important market data is available to participants. The ACCC has identified several practical improvements that, in its preliminary view, should be made as soon as practicable. These practical improvements are listed below, and are discussed further in chapter 11.

- (a) Basin States to improve trade data validation and quality checking processes before providing data to the Bureau of Meteorology as required under the *Water Regulations 2008* (Cth).

- (b) Update trade application forms to capture the reason for trade or trade type, struck date, lodging party and matching pathway (for example, matched on exchange, via broker, and so forth.).
- (c) Remove the ability for zero dollar trades to be approved or recorded unless certain conditions are met (as exception, and with explanation provided) and continue progress to move trade forms online.
- (d) Increase harmonisation across the Basin States' registers through consistent terminology and data structures.

3. Practical changes need to be underpinned by clear and comprehensive mandates to provide efficient trade services and high quality information to market participants

There is a need to establish a clear and comprehensive trade processing and market reporting framework governing all entities who process trades—including brokers who provide matching services, exchanges, IIOs and Basin State approval authorities. The ACCC's preliminary view is that the following suite of changes could be implemented over the medium term to achieve such a consistent and comprehensive framework.

- (a) Each Basin State should be given a clear legislative mandate to keep a register to record all entitlement trades and all allocation trades.
- (b) Each Basin State water register should be given a clear legislative mandate to provide information services based on registry data, and clear publication requirements should be specified (although detailed requirements should be specified in delegated legislation such that they can be changed from time to time as needed).
- (c) IIOs should be required to establish and maintain comparable registers for both temporary and permanent trades, within, out and into their networks. This might occur in partnerships with state agencies.
- (d) Update *Water Regulations 2008* (Cth) to more clearly specify data reporting requirements for trades of irrigation rights.
- (e) Create the ability to register contracts with water registers, and/or annotate allocation trades conducted under a contract, with an identifier such that all allocation trades arising under one contract can be identified together.
- (f) Introduce standardised single party identifiers across the Basin, for example using ABNs.
- (g) Standards and agreed processes for processing trade applications and recording and disseminating trade data should be mandated and consistent across jurisdictions. These should apply to all IIOs and Basin State approval authorities. Further, there should be standardised record-keeping and continuous disclosure rules placed on exchanges and brokers.
- (h) Basin States should work towards harmonising trade application fees for allocation trade in the Southern Connected Basin, while also recognising the NWI principles for cost recovery.
- (i) Basin Plan trading rule 12.48 should be revised to require prices to be reported for all tradeable water rights; that is, including irrigation rights and water delivery rights, not only water access rights.

4. Digital technologies offer the opportunity to streamline trade services, at the same time as improving information quality and availability

The practical changes identified above could go a long way towards improving the quality and timeliness of providing information to market participants and streamlining trade processes. However, digital technologies offer the opportunity to make more substantial improvements, and at the same time enable increased market oversight to improve the integrity of Basin water markets. Options for using technological change to bring about these improvements include:

- (a) a comprehensive and open digital protocol to enhance interoperability between Basin State approval authorities and registers, IIOs and exchanges, with the ability to securely transmit data, seamlessly interface between private exchanges, IIOs, trade approval authorities and registers, execute instructions, and automate collection, cleaning and publishing of water market information
- (b) a single information portal for publishing water availability and trade information, which collates data from multiple sources, but does not facilitate trade
- (c) a spot market and real-time automated matching of buyer and seller offers, similar to the National Electricity Market
- (d) a single exchange platform for posting and matching trade offers by creating a single mandatory online platform for matching buyers and sellers
- (e) an ASX-like approach of a single clearinghouse for administering trading (but connecting via interoperability protocols to trading platforms as overlays and different Basin State registers underneath)
- (f) Distributed Ledger Technology which administers trade through smart contracts and also records all registry information
- (g) a single common register in which all water accounting for both trade and delivery (use) would be accounted for in the same, single system.

The ACCC's preliminary view is that, while governance remains distributed between Basin States and other actors, options which deliver *harmonisation* and *co-ordination* are more suitable than options which deliver *centralisation*. In line with this, the ACCC's preliminary view is that the digital protocol option combined with a water market information platform, which brings together (but does not replace) diverse information sources, is the most appropriate pathway. If there were to be a more centralised approach to governance, this would open up options to centralise trade administration and technological solutions.

Improving market architecture

5. The design of the southern connected Basin market architecture has not kept pace with increasing trade activity, and the ACCC is seeking to identify options for reform

Reform of the market architecture can build more robust frameworks for trade, and improve arrangements for addressing impacts on other water users and the environment. Market architecture that better integrates trade, operational requirements and the physical characteristics of the system, will improve the operation of water markets. This will help achieve a range of benefits, including properly pricing the costs of trade and protecting other water users and the environment.

The ACCC is seeking to identify appropriate market architecture reform options. Options might include:

- (a) Improvements to policy transparency and consultation processes
- (b) Alternative approaches for allocation and carryover policies, such as continuous accounting and capacity sharing
- (c) The creation of formal markets for storage and delivery capacity
- (d) Application of transmission loss factors to water deliveries in the southern connected Basin
- (e) Removal of the exemption for grandfathered tags or removing entitlement tagging altogether
- (f) Alternative and more dynamic mechanisms to manage inter-valley trades
- (g) Changing all allocation trade to tagged allocation trade
- (h) Improving consistency across Basin States' accounting and metering requirements.

Changes to market governance

6. There is a need to reconsider governance frameworks to enable independent and clear decisions on the development of market settings

The ACCC considers that improved governance will help to effectively resolve many of the issues identified throughout the inquiry, as well as strengthening the system so fewer problems emerge in the future. The ACCC is considering options to improve market governance. Broadly speaking, options may seek to:

- (a) Establish clear, independent decision making structures
- (b) Separate market governance roles from broader water management governance
- (c) Consolidate or harmonise fragmented roles
- (d) Reduce regulatory gaps by creating and assigning new roles or functions.
- (e) Address conflicting roles.

Questions for stakeholders

The ACCC seeks feedback in response to the interim report, including on the specific questions raised throughout chapters. These questions are set out below. Chapters 1 to 3 and chapter 13 contain no questions on which the ACCC seeks specific feedback. The ACCC invites stakeholders to respond to questions of relevance or interest to them.

Chapter 4—Buyers and sellers: Who trades, where and why?

Chapter four describes the different groups that participate in water markets, the relative size of their water ownership and trading behaviours, and identifies possible barriers some groups may face in more effectively engaging in water markets.

- What barriers, if any, prevent an irrigator from buying or selling allocations or entitlements, or using leases, carry over parking or forward contracts? Please describe any barriers and give specific examples where possible.
 - How do these barriers prevent irrigators from using a given water product?
 - What are the impacts of the barriers on irrigators?
- How many and what type of irrigators are adopting these riskier water ownership and trading strategies?
 - Why are they adopting these riskier water ownership and trading strategies?
 - Are irrigators who adopt these riskier strategies able to accurately assess the change to their water supply and price risks?
- What risk management strategies, if any, are they using to mitigate the increase in water supply and price risk? Why are they choosing these risk mitigation strategies?
 - Are their barriers to these irrigators adopting certain risk management strategies over others, including increased use of single and multi-year lease, forward contracts or other strategies?
- Given the benefits to farmers of being able to trade water and the increase in use of allocation and entitlement trade by irrigators in recent years, what do you believe explains the reported decline in irrigators' views that water trading is a good idea?
 - What might explain the difference between irrigators' more positive views on the ease of making an allocation or entitlement trade, and their more negative views on the fairness of water markets and water market rules?
 - What might explain irrigators' lack of confidence in the fairness of water markets and water market rules?
 - What might explain irrigators' beliefs that entitlements held by the government were not subject to the same rules and charges as other participants' entitlements?
 - What might explain irrigators' views that non-farm entities (investors) should not be allowed to buy water, and that retired irrigators should not be allowed to retain their water rights?
- What barriers, financial, regulatory or other, do First Nation and Traditional Owner groups currently face to acquiring permanent and temporary water in Basin water markets? Please provide examples of these barriers, as well as evidence of their magnitude, frequency and impact.

Chapter 5—Investor roles, strategies and conduct

This chapter examines the role and practices of investors in water markets. This chapter has primarily focussed on four large investors in water markets for the interim report. However, the ACCC has the following questions about other investors.

- What types of other water investors participate in the MDB water markets?
- What are the investment objectives and strategies of small water investors?
- What are the investment objectives and strategies of water investors that participate in the water market by buying and selling water allocations but do not own entitlements?
- What are the investment objectives and strategies of irrigators that buy and sell water allocations for profit, alongside their farming operations?
- What are the investment strategies adopted by retired irrigators who have retained their water access entitlements?

Chapter 6—Water broker roles, practices and conduct

This chapter examines the roles, practices and conduct of water brokers.

- Should a broker or brokerage firm be permitted to provide brokerage services to both parties to a trade?
- Should a broker that is providing intermediary services in a trade, be permitted to have an interest as a principal in that trade?
- In what circumstances should individual brokers or brokerage firms be permitted to have water accounts?
- Should individual brokers be permitted to only trade in water markets for personal irrigation purposes and in that case, always through an unrelated broker (in an unrelated firm)?
- What is your experience of brokers holding client funds? Should a broker or brokerage firm have statutory obligations in respect of holding client funds?
- If statutory trust accounts were mandatory for brokers, should any interest on client funds be directed to an assurance or fidelity fund?
- Should brokers be required to hold professional indemnity insurance?
- Have you been provided with misleading information by a broker? Provide details.
- If clear, reliable and timely information about the market was more easily available, would this prevent brokers from providing misinformation to clients?
- Should brokers be required to give reasons for zero dollar trades?
- Do you consider you are able to effectively access inter-valley trade opportunities when they arise? Why/why not?
- For holders of water rights who have traded water into another valley during an inter-valley trade opening, did you use a broker to facilitate the trade? Why/why not? If yes,
 - Does the broker aggregate your water rights on to their water account before an opening? How far in advance of the anticipated inter-valley trade opening do you transfer your water rights on to the broker's water account?
 - When is the price for the water rights agreed on? When do you receive payment for the transfer of your water rights? (Before or after the inter-valley trade is approved?)

- Is there a delay in transferring the water rights off the broker's account in the destination valley? If so, is this because you don't have a water account in that valley, and you require the broker to hold the water rights on their account until you can find a buyer? Or do the water rights remain in the broker's account until they can find a buyer?
- Are you aware/are you able to see the price the buyer pays to the broker for the purchase of your water rights?
- Are you aware of brokers taking a personal position in inter-valley trades? Is this disclosed to the other party to the trade?
- Are you aware of instances where an IIO has prioritised the approval of a trade facilitated by their own brokers or trading platform over other approval requests? If so, provide details.
- Are you aware of instances where an IIO has limited a client's choice of independent intermediary by bundling water delivery services with their own intermediary service? If so, provide details.

Chapter 7—Regulatory settings and solutions

In this chapter, the ACCC examines the effectiveness of the regulatory environment for MDB water markets. The chapter then considers regulatory options to address the problems and harms the ACCC has identified.

- Do you consider that there is a place for bona fide water options and futures in the MDB water market?
- Would you buy or sell water futures on-exchange or over-the-counter, if they were available?
- What records do you keep for calculating the cost base of your allocations and entitlements for CGT purposes, and cost of goods purchased for income tax purposes?
- Do you think that brokers and intermediaries in MDB water markets should be licensed?
- Should a licensing scheme be enforced at the Basin State or federal level?
- Should the licensing scheme be entrusted to an already established body or an independent new body specific to the MDB water market?
- Should the financial regulation framework be applied to basic tradeable water rights and arrangements to buy and sell them, noting that it is a ready-made market regulation framework?
- Should a market focused independent regulator be established for the MDB water market?
- Should the regulation of the water market be entrusted to an already established independent regulator or a new body?

Chapter 8—Trade Processes—advising, matching, clearing, settlement, registration and information

This chapter discusses the roles, functions and services provided by brokers, exchanges, approval authorities and registers in water trading in the Basin. The chapter does not discuss broker and exchange conduct.

- Do you consider that automating the flow of information (price, struck date, product type) from an exchange to a register would greatly improve accuracy of data? Do you consider the benefits of improving price reporting would outweigh the cost of adopting this approach?
- Would you be more likely to trade in derivative products if there was a central clearing house which took on the counterparty risk?
- Do you consider that there would be benefits in aligning the states' water management roles (as much as hydrologically possible)?
- Do you consider, that apart from state-specific or water sharing plan specific rules that each allocation trade within the Basin should be subject to the same assessment framework? For example, that a standard and automatable checklist should be used for each state (including; is there enough water in account balance, check trading rules, check fee is paid, check correct form is used, check consent is given)? Do you consider that this checklist should be made available to water traders so that they understand what assessment process their application is subject to?
- Do you consider that entitlement trades should also be standardised across the states? Do you consider this will create more equal trading opportunities? Do you consider that fees should then also be standardised? Do you consider that New South Wales's framework provides a good starting point for separating out different transfer types?
- Would you like to see one trade form with standardised language be used across the states?
- Would you like to see the trade type and party type (investor, irrigator, other) recorded publicly?
- Would you like to see all state water register websites to provide the same information, presented consistently? If no, why not?
- Do you think there would be value in extending the application of BPWTR 12.48 to include a requirement on trade approval authorities to collect this information? Do you think 12.48 should also include a requirement to report the reason for the trade, and an equivalent provision for the trade approval authorities to collect this information?
- Do you think that the consolidation of trading rules into one document per state/per Basin would assist users in undertaking trades?
- Do you think there would be benefit in standardising and making it clear that each state should have the following separate and distinct registers and information should be published on each:
 - Ownership register (water entitlement)
 - Water entitlement trade/transfer register
 - Water allocation trade/transfer register—including identifying product type
 - Water use register (account balances).
- Do you consider that the roles of approval authorities and registers are clearly understood? Are trade processes, what is actually assessed when a trade form is submitted, well known to participants? Do you consider that the assessment of

applications and how it differs across states and across trade types is well understood? How could this be improved?

- Do you consider that roles, services and products offered by intermediaries are well understood?

Chapter 9—Transaction costs of trade

This chapter examines the transaction costs associated with water trading, considering the impact of regulatory approval processes for individual trade applications and the cost of intermediaries on individual trading decisions.

- Do trade approval authority and irrigation infrastructure operator fees influence your water market trading decisions?
- What actions do you undertake to minimise your transaction costs of trading?
- Do the trade processing times identified reflect your experiences or have you experienced other significant delays in trade processing approvals?
 - What are the impacts of these lags on your approach to water management? For example, you may have invested in on-farm storage to ensure you have immediate access to water when needed.

Chapter 10—Information transparency

This chapter examines information transparency in the Basin water markets by identifying the information necessary for water market traders to make decisions that are in their best interests, which will lead to effective and efficient markets and improved productivity.

- What information do you think is critical to your ability to make water trading and investment decisions?
- How do transparency and data quality issues impact your trading activity?
- Do you agree with the ACCC's preliminary analysis of the key transparency issues? Is anything missing?

Chapter 11—Solutions to improve trade processes, transaction costs and information

This chapter considers short-term and medium-term solutions and a longer term technological solution to address the transparency, fragmented processes and transaction costs issues identified in chapters 8 to 10.

- Do you consider that the Basin Plan Water Trading Rules should be updated to include requirements on trade approval authorities to collect more information on trades?
- Do you consider that price reporting obligations on sellers under Basin Plan Water Trading Rule 12.48 are well understood?
- Do you consider that Basin Plan Water Trading Rule 12.50, which applies to states to make water allocation announcement generally available is sufficient? Would you support extending this obligation to require consistency across the states' announcements?
- Do you consider that each state should make, in one place, the following:
 - How much has been allocated to entitlement holders
 - What the current carryover limit is applying to each zone, with clearly explained reasoning if there are any differences

- Historical trading information, with sufficient detail to understand what products are being traded and for what price
- Current bids and offers to understand market depth and current pricing
- Trading and carryover policies and rules.
- Do existing information platforms (for example, BOM dashboard, Waterflow, private exchanges) meet your information needs? Please provide details of areas you consider are working well, and areas where information needs to be improved.
- What information should a single water market information portal cover?
- If a single information portal was to be adopted, what is the best way to build on existing information platforms?
- Do you consider that the markets for permanent trade, derivatives and temporary transfers can all be dealt with under one technological solution? Do you consider permanent trades less reliant on real-time data and would be better suited to a different solution?
- Do you agree that it is important to preserve the ability for buyers and sellers to strike 'off-market' deals, provided that all approved trades are registered and captured in historical trade data? Why or why not?
- Do you support the short- and medium-terms options proposed? Why or why not? Do you consider alternative options should be considered for implementation in the short- to medium-term? Please provide details.
- Which of the technological options presented in section 11.3 would you support? Please provide reasons supporting your preference. Are there additional technological or policy/governance solutions which should be considered for implementation over the longer term? Please provide details.
- Do you consider the identification of water right holder types (land-owner, brokers, agribusinesses, environmental water holders) in ownership, permanent and temporary trade registers would change your approach to engaging in water markets? How do you consider such a classification would be made—by account or by individual (for example, a farmer may own an ABA that is not connected to a use licence and then own another that is, in the first option that same farmer would have two classifications, in the second option he would be classified as a land-owner for both accounts).
- Do you support disclosing some ownership information for those who own more than a certain amount of entitlement in a system? If yes, what proportion should this be and how will this change your approach to engaging in the water market? If no, why?
- Do you support the mandatory collection of broker details in trade forms where the trade was facilitated by a broker? Do you consider that reporting (in an aggregate manner) on broker facilitated trades could increase transparency and reduce concerns about broker misconduct?
- Do you consider the publication of IIO trading data (internal and external) would be of benefit to all water traders?
- Would a customisable IT application be an efficient solution for standardisation of IIO registers and trading data? Would the National Irrigation Corporations Water Entitlement Register form a useful basis for this?

Chapter 12—Market architecture and the impacts of trade

This chapter provides information on some key elements of the Basin market architecture, and describes the main stakeholder concerns with the different rules and regulatory settings.

- Has the ACCC identified the main concerns with trade activity and Basin market architecture, and in particular, with the key elements, as set out below?
 - Extractions cap (Sustainable Diversion Limit)
 - Allocation policies and available water determinations
 - Carryover
 - Geographical trade rules (including inter-valley trade (IVT) limits)
 - River operations
 - Metering.
- Are there gaps in or issues with other areas of the market architecture that you would like the ACCC to consider?

Chapter 14—Market architecture reform options

This chapter explores how and why the Basin market architecture might need to evolve and seeks feedback on some potential options to address issues identified by the analysis to-date.

- The ACCC seeks stakeholder feedback on the merits and drawbacks of, and the potential to adopt, the options outlined below:
 - re-evaluating the assumption that conveyance losses should be socialised and considering whether transmission loss factors can be applied to deliveries to particular zones (that is, all zones would have a transmission loss factor applied, and inter-zone trade would apply a factor that is the difference between two ‘zone factors’, like the approach taken in some systems in Queensland)
 - making carryover parking markets more formal
 - unbundling storage access/carryover eligibility from water access entitlements and creating formal, separate markets for carryover storage
 - introducing continuous accounting in the southern Basin
 - introducing capacity sharing in the southern Basin
 - harmonising or increasing the frequency of water account reconciliation and reducing the ability to reconcile accounts by entering water markets (this would require upgrades to metering technology, the cost of which would vary by location)
 - removing the exemption for grandfathered tags or getting rid of entitlement tagging altogether
 - developing more dynamic IVT mechanisms (that is, timely and responsive tools to allocate access to limited delivery capacity and manage impacts on other water users and the environment, as are being explored in the Victorian Government’s review of the Goulburn to Murray trade rule)
 - make all allocation trade tagged allocation trade (so that water only moves between valley accounts when it is being delivered, and remains in the origin valley accounts at the time of trade and for carryover)
 - developing markets for on-river delivery capacity

- non-market allocation mechanisms for on-river delivery capacity, that allocate capacity on a less than annual accounting period and are defined with respect to specific constraints.
- The ACCC seeks feedback on the need to further develop missing or underdeveloped market architecture mechanisms, including:
 - the continuing lack of a framework to allow trade between Australian Capital Territory and New South Wales
 - limited development of trading rules for unregulated systems in northern New South Wales, or for trade of overland flow/floodplain harvesting rights.
 - shepherding and other arrangements available to trade/change the location of environmental water.

Chapter 15—Governance

This chapter draws together issues identified in previous chapters and explores whether these issues have a common basis in the underlying frameworks for market governance.

- In what ways is the ‘governance’ of the Murray–Darling Basin’s water-rights markets helping or harming those markets? Please give examples to help explain your answer.
- What changes to the governance arrangements (if any) should be made; how, and why?

Part I—About the inquiry

This part contains:

- a glossary of selected terms used in this report, and
- information about the conduct of this inquiry, including its Terms of Reference. Chapter 1 sets out the stakeholder engagement and information gathering activities undertaken by the ACCC for the interim report.

Glossary

the Act	<i>Water Act 2007</i> (Cth)
ACCC	the Australian Competition and Consumer Commission
allocation, water allocation	the specific volume of water allocated to a water access entitlement in a given water accounting period, defined according to rules established in the relevant water plan. The size of the allocation depends on how much water is available in the water resource in that season. Also referred to as a seasonal water assignment in Queensland
allocation trade, water allocation trade	change of ownership and/or location of a particular volume of water allocation
approval authority	in relation to the proposed trade of a tradeable water right: a person whose approval is required under State water management law for the trade to proceed
Basin Plan	a high level framework on which the Australian Government and Basin States agreed, and that sets standards for the management of the Murray–Darling Basin’s water resources in a coordinated and sustainable way in collaboration with the community. Officially known as the Basin Plan 2012
Basin Plan Water Trading Rules (BPWTR)	rules set out in Part 12 of the Basin Plan that relate to the trade or transfer of tradeable water rights. The rules commenced on 1 July 2014 and are enforced by the Murray–Darling Basin Authority
Basin States	New South Wales, Victoria, Queensland, South Australia and the Australian Capital Territory
carryover	arrangements that allow water entitlement holders to hold allocated water in storages so it is available in subsequent years
CCA	the Competition and Consumer Act 2010 (Cth)
conveyance water	water required primarily to operate regulated rivers and utility supply networks to enable the delivery of water
delivery right, water delivery right	right to have water delivered by an infrastructure operator. It typically represents the holder’s right of access to an irrigation network (there may also be a right to drainage), and can be terminated.
entitlement, water access entitlement	a perpetual or ongoing entitlement, by or under a law of a state, to exclusive access to a share of the water resources of a water resource plan area. Also referred to as a water share (Victoria), water access licence (New South Wales) and water allocation (Queensland)
entitlement trade, water access entitlement trade	change of ownership and/or location of a water access entitlement (including through the establishment of a tagging arrangement).
gigalitre (GL)	one billion litres
grandfathered tag	tagged entitlement trades created prior to October 2010 (and see definition of tagged entitlement below)

gravity-fed irrigation system	an irrigation system comprising channels and/or pipes that relies on the movement of water due to the force of gravity
infrastructure charge	charges that infrastructure operators impose for access to their water service infrastructure, and for services provided in relation to that access
infrastructure operator	any person or entity that owns or operates infrastructure for one or more of the following purposes: <ul style="list-style-type: none"> • the storage of water • the delivery of water • the drainage of water • for providing a service to someone who does not own or operate the infrastructure.
infrastructure service	access, or a service provided in relation to access, to water service infrastructure. It includes the storage, delivery, drainage and taking of water
inter-valley trade/transfer (IVT)	trade in water access rights between trading zones or valleys
irrigation infrastructure operator (IIO)	an infrastructure operator that owns or operates water service infrastructure for delivering water for the primary purpose of irrigation
irrigation network	as defined in subsection 7(4) of the <i>Water Act 2007</i> , the water service infrastructure of an irrigation infrastructure operator. In practice, an irrigation network typically constitutes a network of carriers (open channels, pipes and / or natural waterways) that convey water from a water source through customer service points to customer properties. It may be either a gravity fed network (typically using channels and/or natural waterways) or a pressurised network (using pipes)
irrigation right	a person's right against an irrigation infrastructure operator to receive water, which is not a water access right or a water delivery right. It usually can be transformed into a water access entitlement
megalitre (ML)	one million litres
Murray–Darling Basin	has the meaning given in the <i>Water Act 2007</i> (Cth)
National Water Initiative	Intergovernmental Agreement on a National Water Initiative, between the Commonwealth of Australia and states and territories, 2004
private diverter	an irrigator that extracts water directly from a natural watercourse (either a regulated or unregulated river)
Southern Connected Murray–Darling Basin (SCMDB)	refers to the Southern Murray–Darling Basin catchments that are hydrologically connected, where water can be traded between any of these catchments
tagged allocation trade	water that is allocated in one location (that is, catchment or trading zone) can be physically extracted (used) in another, as a result of a 'tag' placed on the water user's account in the state water register. Water only moves between valley accounts when it is being delivered and remains in the origin-valley accounts at the time of trade and for carryover.
tagged entitlement	allows a traded entitlement to retain its original characteristics when traded to a

trade	new water resource, rather than being converted into a form that is issued in the new water resource. The entitlement remains subject to the relevant legislative and administrative arrangements of the valley of origin. When an allocation announcement is made on the entitlement in the source zone, the tag is automatically activated and the purchaser is credited with the volume allocated and can order water for delivery in the destination zone.
telemetry	meters that allow reading to occur remotely, with the data being sent to a centralised database for monitoring
termination	when a person terminates or surrenders the whole or part of a right of access to an irrigation infrastructure operator's network, typically by terminating a water delivery right
termination fee	a fee that an irrigation infrastructure operator may impose when an irrigator terminates
trade	includes a transfer (that is, a trade that does not involve the payment of consideration; a trade between places under which ownership of the right being traded does not change; the establishment of a leasing arrangement; and the establishment of a tagged water access entitlement). Trade can include transfers of water within an irrigation network, into or out of a network, entirely outside of an irrigation network, within and between trading zones and between states
tradeable water rights	<ul style="list-style-type: none"> • water access rights (including water access entitlements, and water allocations) • water delivery rights or • irrigation rights
trading zone	zones established to simplify administration of a trade by setting out the known supply source or management arrangements and the physical realities of relevant supply systems within the zone so that trade can occur within and between zones without first having to investigate and establish the details and rules of the system in each zone
transformation	process by which an irrigator permanently transforms their entitlement to water under an irrigation right against an irrigation infrastructure operator into a water access entitlement held by the irrigator (or anybody other than the irrigation infrastructure operator), thereby reducing the volume (for example, the share component) of the operator's water access entitlement
water access right	any right conferred by or under a law of a state to hold and/or take water from a water resource, including: <ul style="list-style-type: none"> • stock and domestic rights • riparian rights • a water access entitlement • a water allocation
water account	an account established with an Approval Authority used to record the account-holder's Water Allocation. For example, an allocation account or allocation bank account (Victoria) or water account (South Australia)
water broker	a water market intermediary who, for a commission or fee or other form of remuneration or payment, offers one or more of the following Services: <ul style="list-style-type: none"> • trading tradeable water rights on behalf of another person

- investigating tradeable water right trading possibilities on behalf of another person
- preparing documents necessary for the trade of a tradeable water right on behalf of another person

water exchange	a water market intermediary who provides a trading platform that matches buyers and sellers of tradeable water rights, for example through an automated process or bulletin board for a commission or fee or other form of remuneration or payment
water holding account	an account established with an Approval Authority used to record the account-holder's water allocation. Also referred to as an allocation account or allocation bank account (Victoria), water account (South Australia and Queensland) and water allocation account (New South Wales)
water market intermediary	a person who is a water broker and/or a water exchange
water market participants	includes those persons involved in water markets through the holding, use, leasing, trade, or regulation of tradeable water rights, and includes irrigation farmers, investors, water brokers, water exchanges, water registries and other service providers that facilitate the trade of water, environmental water holders, urban water authorities, other infrastructure operators, indigenous users and communities, and market advisors and analysts
water market products	includes tradeable water rights, and statutory or contractual arrangements associated with tradeable water rights, including but not limited to leases, forwards and options
Water Market Rules 2009 (WMR)	rules dealing with actions or omissions of an IIO that prevent or unreasonably delay transformation arrangements or trade of the resulting water access entitlement
water service infrastructure	<p>infrastructure for one or more of the following purposes:</p> <ul style="list-style-type: none"> • the storage of water • the delivery of water • the drainage of water • for providing a service to another person
watercourse	<p>a river, creek or other natural watercourse (whether modified or not) in which water is contained or flows (whether permanently or intermittently). It may be a:</p> <ul style="list-style-type: none"> • a dam or reservoir that collects water flowing in a watercourse • a lake or wetland through which water flows • a channel into which the water of a watercourse has been diverted • part of a watercourse • an estuary through which water flows

1. Conduct of the inquiry

On 8 August 2019 the Government directed the ACCC to conduct an inquiry into markets for tradeable water rights in the Murray–Darling Basin.

The Terms of Reference for the inquiry, as set by the Treasurer, state that matters to be taken into consideration in the inquiry must include:

- (a) market trends since 2012, including demand for water, changes in the location where water is used, the quantity of water traded, water availability, changes in water users and their communities, development of new trading products, and the number of participants and sectors participating in the water markets
- (b) the role of carryover arrangements, and the trading of water allocations which have been carried over, on water markets
- (c) the role and practices of market participants, including water brokers, water exchanges, investment funds and significant traders of water allocations and entitlements
- (d) the availability to the public of information on water market activities and tradeable water right holdings
- (e) the timeliness, accuracy, and completeness of public information released on water market activities and tradeable water right holdings, including true trade price reporting and the types of trade (for example, immediate purchases, forward contracts, leases)
- (f) barriers to entry, expansion and exit, including transaction costs
- (g) the management of constraints on the storage or delivery of water, including adjustments made to give effect to trades and intervalley transfers.

The ACCC has received information from a variety of sources, including through submissions, public forums, data from state and commonwealth government agencies, compulsory information requests, voluntary information requests and meetings with a range of stakeholders.

The ACCC is continuing to analyse information and data prior to the release of the final report.

1.1. Inquiry framework

The ACCC is required to hold an inquiry in public pursuant to s. 95R (1) of the CCA. As the inquiry is a public process, the ACCC has published written feedback from stakeholders on its website.

A number of submitters have made confidentiality claims over the information they provided to the ACCC. Where the ACCC considered that disclosure of information was necessary in the public interest, the ACCC consulted with the relevant parties before disclosing that information.

1.2. Submissions

The ACCC released an issues paper for public consultation on 17 October 2019.

The ACCC received over 130 submissions in response to the issues paper from a range of stakeholders. Submissions were received from irrigators and their representatives, commonwealth, state and local government bodies, brokers and exchanges, investors,

indigenous water user representative groups, environmental groups and members of regional communities. All public submissions are available on the ACCC's website.²⁵

1.3. Public forums

In November 2019 the ACCC held ten public forums across the Basin. The forums were focused on hearing the views of those engaged in, or affected by, markets for tradeable water rights in the Basin.

Location	Date
Mildura, VIC	7 November 2019
Renmark, SA	8 November 2019
Griffith, NSW	11 November 2019
Deniliquin, NSW	12 November 2019
Kerang, VIC	12 November 2019
Shepparton, VIC	13 November 2019
Dubbo, NSW	18 November 2019
St George, QLD	20 November 2019
Narrabri, NSW	21 November 2019
Murray Bridge, SA	29 November 2019

The forums were attended by ACCC Commissioners and staff. The ACCC heard a range of views from the approximately 800 market participants and interested parties in attendance. The summaries of these forums are available on the ACCC website. The ACCC thanks all attendees for their time and contributions.

The ACCC has also held over 100 meetings with stakeholders and site visits during the inquiry, including with irrigators and their representatives, IIOs, government agencies, brokers and intermediaries, and investors.

1.4. Compulsory information requests

The ACCC has used its compulsory information gathering powers under part VIIA of the CCA to obtain information and documents. The ACCC has issued 26 notices under s. 95ZK of the CCA to investors, brokers and intermediaries and large water users.

These notices enable the ACCC to examine a wide range of information and documents that have not been available to past examinations of water markets. This included reviewing internal strategy documents, communications, contracts and data. Notice recipients claimed confidentiality over the majority of material submitted.

The ACCC may issue further compulsory information requests. The ACCC can also summon market participants to provide oral evidence and produce documents under oath or affirmation at hearings.²⁶

²⁵ <https://www.accc.gov.au/focus-areas/inquiries-ongoing/murray-darling-basin-water-markets-inquiry>.

²⁶ *Competition and Consumer Act 2010* (Cth), s.95R and s. 95S.

1.5. Voluntary information requests

The ACCC also issued voluntary information requests to a number of Commonwealth and state government agencies, in order to analyse substantial volumes of data that exists relating to water markets. This has enabled the ACCC to conduct an in-depth examination of trade data to inform the analysis contained in the interim report.

The ACCC also issued eleven voluntary information requests to IIOs to obtain further information and data. The ACCC is continuing to examine the trade data prior to the release of the final report.

The ACCC acknowledges the ongoing cooperation by Commonwealth and Basin State government agencies, IIOs and other market participants in responding to information requests.

1.6. Reports

The ACCC has engaged researchers at the Centre for Global Food and Resources at the University of Adelaide and the Health Research Institute at the University of Canberra to analyse data collected in surveys undertaken across the Basin between 1998 and 2018. The ACCC has incorporated relevant data and analysis from these reports in the interim report and will further consider the analysis in the ACCC's final report.

The ACCC also acknowledges the range of other past reports and work undertaken in relation to water markets, and has considered many of these materials as part of the analysis for the interim report.

1.7. Next steps

The ACCC welcomes feedback in response to the interim report, including the specific questions raised by the ACCC. Submissions and feedback in response to the interim report will be requested by a date to be confirmed (approximately six weeks after the interim report is released). The timing and process for submitting feedback will be set out on the ACCC website when the interim report is released. The ACCC can be contacted at:

- waterinquiry@acc.gov.au, or
- Murray–Darling Basin inquiry, Level 17, 2 Lonsdale Street, Melbourne Vic 3000.

The ACCC also continues to undertake analysis in a number of areas, and will comment further on these issues in the final report. The ACCC's final report is due to be provided to the Treasurer by 30 November 2020.

Part II—Market trends

This part comprises three chapters which provide an overview of Basin water markets and introduce key concepts and issues which are explored in greater detail in other parts of this report.

Chapter 2 briefly describes the purpose, function and governance of Basin water markets, and the kinds of rights that are traded.

Chapter 3 provides an overview of recent trends in water markets, for the period 2012–13 to the present. It then examines key supply and demand side drivers, and considers some implications of trends and drivers for water market outcomes.

Chapter 4 describes the different types of traders who participate in Basin water markets, and discusses traders' 'Water Ownership and Trading Strategies'. It then considers potential barriers to more effective water market engagement, with a particular focus on irrigators as the largest group of water users, and traditional owner groups, who face unique issues in accessing water and water markets.

2. Water-markets basics

Key Points

Key reasons for having water markets are:

- Water is scarce; and its most valuable use will often change over time as commodity prices change. Trading in water markets helps people access water where it is wanted most; to put it to its most productive use. With water trade, Australia produces more of the things people value the most. The Australian economy benefits as a result.
- Markets and trading give individual people and businesses more choice in, and more responsibility for, what happens to the Murray–Darling Basin’s water.
- Water trading is an opportunity not just for buyers but also for sellers, who can earn an income from their water rights when they are more valuable to someone else.
- Trading and markets can be used as tools to make the best—the most cost-effective and least wasteful—use of the scarce natural resource of water.

Markets for tradeable water rights in the Murray–Darling Basin involve many participants and facilitators, variously under private, co-operative and government control. Key participants include:

- irrigation infrastructure operators, such as Murray Irrigation and Coleambally Irrigation Corporation, who are holders of significant amounts of water access rights in the Basin
- irrigators, being the group that uses the most water in the Basin. Irrigators are buyers of water but also significant holders and sellers of access rights
- infrastructure operators, such as Goulburn-Murray Water and WaterNSW, which own and operate the largest facilities for storing and delivering water
- investors, being parties that hold water assets to make money out of trading or holding them
- intermediaries, such as brokers.

The Basin is not characterised by just one market for just one product called ‘water’. There is a set of interrelated markets, split across product types and geographic areas, that support the trade of:

- rights to access or receive water (water access rights and irrigation rights)
- rights to delivery capacity or to have water delivered through certain specified infrastructure (water delivery rights).

The dominant determinant of total supply across the Basin is rainfall, followed by the Murray–Darling Basin Plan. Rules and policies, such as trading zones and Basin State water regulations, also strongly shape how much water is available, where and when. River-flow and state-border issues have led to the development of a complex set of location-based trading rules, particularly rules governing trade between trading zones.

There are also trading rules which support ‘fair trading’ and govern the behaviour of market participants to some extent.

This chapter aims to explain how and why water is traded in the Murray–Darling Basin (the Basin) and to give a broad overview of who is trading, what and where.

2.1. Introduction to the Murray–Darling Basin

The Basin extends across southern Queensland, New South Wales, the Australian Capital Territory, Victoria and South Australia (the Basin States). The rights to water traded in the Basin largely relate to the water flowing in the catchments of the Basin's rivers, such as the Murray, the Goulburn, the Murrumbidgee and the Darling. Basin water users also use groundwater, from underground aquifers, and enjoy the benefits of the rains that fall directly on their properties.

The Basin is broadly split into two large regions: the Southern Basin and the Northern Basin (Figure 2.1).

Figure 2.1: Map of Northern Murray–Darling Basin and Southern Murray–Darling Basin



Source: Murray–Darling Basin Authority.²⁷

²⁷ MDBA 2018, <https://www.mdba.gov.au/discover-basin/landscape/geography>, viewed 25 June 2020.

2.1.1. Southern Murray–Darling Basin

The Southern Murray–Darling Basin (Southern Basin) comprises surface-water systems—that is, rivers, lakes and wetlands—incorporating the Murray River and its various tributaries across New South Wales, Victoria and South Australia, as well as the groundwater systems (not including the Great Artesian Basin) underlying these surface-water systems.²⁸

The Southern Basin accounts for a large proportion of Australia’s irrigated agricultural production, which includes significant broadacre cropping in southern New South Wales (including annual crops such as rice, cotton and pasture), dairy farming and horticulture in northern Victoria, and horticulture in South Australia. The Southern Basin also contains many significant communities and internationally recognised environmental sites.

The Southern Basin also accounts for a large volume of Australia’s ‘water access entitlements’ (entitlements) on issue. Entitlements are one of the most commonly held ‘permanent’ water rights in the Basin. These are explained in more detail in section 2.3. Over 95 per cent of the nominal volume of entitlements on issue in the Southern Basin are within regulated surface water systems. A ‘regulated system’ is one where the entitlement on issue is for a river or stream where the flow is managed through artificial structures such as dams and weirs. This means that water management authorities can, to a degree, manage the amounts and timing of water flowing down the river and also store it. Many sections of the largest rivers are ‘regulated’. For example, the New South Wales, Victorian and South Australian Murray water systems are regulated by Hume Dam and other water infrastructure along the Murray River. Smaller water courses are often ‘unregulated’—that is, they do not have the infrastructure to allow regulation of the flow.

Groundwater and unregulated surface water are also important water resources for producers, consumers, communities and the environment in the Southern Basin. For groundwater, key water systems in the Southern Basin include Murray Alluvium and Murrumbidgee Alluvium in New South Wales and Goulburn-Murray in Victoria.

Importantly, there is a high degree of ‘hydrological connectivity’ between many of the regulated surface water systems in the Southern Basin. In general terms, this means the water sources are connected and water from one can be diverted or extracted from the other, within certain limits. This has meant that the Southern Basin has become Australia’s most significant water market, accounting for between 80 and 90 per cent of all water rights trading activity across Australia.²⁹ Further, it is regarded by many as the most sophisticated water market in the world.³⁰ For this interim report, these connected regulated surface water systems are defined as the Southern Connected Murray–Darling Basin (Southern Connected Basin) and include:

- in New South Wales, the New South Wales Murray, Murrumbidgee and Lower Darling systems
- in Victoria, the Goulburn, Victorian Murray, Ovens and Loddon systems

²⁸ Groundwater is the water that sits beneath the earth’s surface. It is stored in fractured rocks, porous rocks and soils called aquifers or groundwater systems. Groundwater can be connected to surface water, which includes the water in our rivers and wetlands. Unlike surface water, groundwater resources can take longer to recharge—or refill with water—when water is taken. This may be weeks, months, years or even hundreds of years in some systems.

Source: Murray–Darling Basin Authority (MDBA) 2019, <https://www.mdba.gov.au/basin-plan-roll-out/groundwater>, viewed 11 June 2020.

²⁹ Bureau of Meteorology, *Australian Water Markets Report 2017–18: Southern Murray–Darling Basin section*, BOM, Melbourne, 2019, p. 5.

³⁰ Australian Bureau of Agricultural and Resource Economics and Sciences, *Australian Water Markets Report 2016–17*, ABARES, Canberra, 2018, p. 16.

significant proportion of irrigation production relies on diverting unregulated flows directly into large, privately constructed, off-stream storages.³⁴

In general, water markets are less developed for the Northern Basin compared to the Southern Basin. This has been attributed to a range of factors, including that, compared with the Southern Basin, the Northern Basin:

- suffers from more variation in water supply
- has fewer regulated systems, with less hydrological connectivity—that is, in general terms, water from one cannot be diverted or extracted from the other easily or at all
- relies more on groundwater
- uses on-farm storage more
- has fewer irrigators
- historically has been monitored less strictly for extractions
- has greater ‘homogeneity’ among water users—that is, less differences in demand, which is a key driver of potential gains from trade.³⁵

2.2. Water sources and uses in the Murray–Darling Basin

The starting point for and dominant determinant of how much surface water can be supplied is the amount of precipitation—rain and snow—into the catchments. How much of that water is available in a particular storage or river reach at any one time is then shaped by:

- hydrology—the amount and timing of flows and physical limits on them
- climatic conditions, such as evaporation rates
- human decisions on water management.

By agreement, Basin State governments have capped the total amount of water that can be extracted in the Basin. This is designed to ensure that the total amount users can extract is sustainable. The exact level of the cap has changed over time. Basin States introduced the first cap on diversions in 1995. The Murray–Darling Basin Plan 2012 (the Basin Plan) introduced a new water accounting and compliance framework based on ‘sustainable diversion limits’ that came into force on 1 July 2019.

The water held in storages and flowing down the rivers broadly falls into one of several different use classes. Much of the water is assigned, through the entitlement framework, to ‘consumptive uses’, to be consumed by people for drinking and other domestic use (‘critical human needs’); watering cattle and other stock; and in business activities that use water intensively, including mining and irrigated agriculture. The single sector that uses the most water in the Basin is irrigated agriculture, which includes crops such as cotton and rice, horticulture (including nuts, fruit and vegetables) and dairy (see chapter 3).

Some of the flows are dedicated to sustaining the natural environment. As governments established environmental water holders (see section 2.10), they granted to them, or acquired for them, large amounts of entitlements (through direct market purchases and infrastructure investment programs), changing those volumes from consumptive water to environmental water. As part of their management of environmental water portfolios, environmental water holders can in limited circumstances sell water back to consumptive

³⁴ Murray–Darling Basin Authority, *Constraints Management Strategy 2013 to 2024*, 2013, p. 13.

³⁵ S Wheeler and others, *Water market literature review and empirical analysis*, Consultant report prepared for the ACCC Water Market inquiry, 2020, p. 46.

users: generally ‘temporary’ Water Allocations (allocations) rather than ‘permanent’ entitlements. The nature of entitlements and allocations is discussed in section 2.3.

2.3. Types of tradeable water rights

To best understand the markets for tradeable water rights in the Basin, it helps to understand that the Basin area is not characterised by just one market for just one product called ‘water’. There is a set of interrelated markets, split across product types and geographic areas, supports the trade of rights to *access* or *receive* water; and rights to delivery capacity or to have water delivered through certain specified infrastructure.

Not all rights to water are tradeable. The key types of tradeable water rights are:

- water access rights, including entitlements and allocations
- water delivery rights (delivery rights)
- irrigation rights.

Another key concept to understand is ‘carryover’, which involves carrying allocated water over to a later period (see Box 2.1).

Box 2.1: Timing mechanisms—carryover and continuous accounting

Historically, water accounting operated on a simple annual basis, under which users forfeited any water not used by the end of the water year back into the general pool of water available to be re-allocated in the following water year. Under this system, users had incentive to maximise their water use in the current water year, because they could never be certain how much water they would be allocated in the following year. This was one driver of inefficient water use.

In recognition of this incentive encouraging inefficient water use, and to help water users to plan, governments have developed several mechanisms to allow water users to retain at least some of the water allocated to them over time, regardless of the artificial boundaries imposed by the concept of annual water accounting. These mechanisms give individual entitlement holders tools to better manage their access to water over time, allowing farmers to save their unused water from wet years to use in dry years. These mechanisms differ between states, irrigation infrastructure operators (IIOs) and river systems, and are affected by how allocations are made by states and the license type.

- Carryover is a mechanism used in systems that have kept the annual approach to water accounting. Instead of re-setting account balances to zero at the start of the new water year (as happened under the historical approach), carryover allows water users to keep at least some (if not all) of their water in their water accounts at the end of the year, for use or trade in the next water year. Carryover was initially introduced by states as a temporary measure during the Millennium Drought (1996 to 2010³⁶). Its aim was to help farmers deal with the impacts of the drought, allow farmers to smooth out their consumption of water and reduce the ‘use-it-or-lose-it’ mentality. All states kept carryover following the end of the Millennium Drought. Carryover can be particularly beneficial to water users where there are limited opportunities for on-farm storage (as is the case in much of the Southern Basin) or to trade water.
- Continuous accounting adopts a slightly different approach. It effectively removes the artificial construct of the annual water accounting period, and simply allocates water resources as inflows occur. There is no re-setting of account balances to zero at the start

³⁶ Bureau of Meteorology 2015, www.bom.gov.au/climate/updates/articles/a010-southern-rainfall-decline.html, viewed 11 June 2020.

of a water year, and so there is no need for an additional ‘carryover’ mechanism, since account balances in a sense automatically carry over.³⁷ Annual accounting may still be used for reporting on aggregate allocation, trade and use, and still may be a relevant concept in terms of setting the maximum amount of water any person is eligible to receive or use³⁸, but the key difference is that the end of the water year (usually 30 June) does not have a significant impact on water users’ account balances.

Carryover and continuous accounting mechanisms have important implications for trade, as they allow water users to move water in time as well as geographically. The contribution of these mechanisms to water market trends is discussed further in chapter 3. Carryover policy is discussed in more detail in chapters 12 to 14.

Different Basin States use different terminology for tradeable water rights (Table 2.1). This interim report uses the generic terms for tradeable water rights as defined in the Commonwealth *Water Act 2007* (Water Act), such as water access entitlements, or a shorthand term for these, such as entitlements.

Table 2.1: Types of tradeable water rights—Basin State terminology

Terms used in this interim report:	Water Access Entitlement ('entitlement')	Water Allocation ('allocation')	Water delivery right	Irrigation right
NSW	Water Access Licence	Water Allocation	Varies by operator (often 'delivery entitlement')	Varies by operator (often 'water entitlement')
Vic	Water share Take and use licence	Water Allocation	Delivery share (off-river) Extraction share (on-river)	-
South Australia	Water Access Entitlement	Water Allocation	Varies by operator (often 'delivery entitlement')	Varies by operator (often 'water entitlement')
Qld	Water Allocation	Seasonal water assignment*	Water supply contract	-
ACT	Water Access Entitlement	Allocation	-	-

Note: * 'Seasonal water assignment' is defined under Schedule 4 of the Water Act (2000) (Qld), and refers to the assignment to another person of all or part of the water that may be taken under certain instruments, including 'water allocations' and 'water licences'.

³⁷ C Ribbons, *Water availability in New South Wales Murray–Darling Basin regulated rivers*, 2009, New South Wales Department of Water and Energy.

³⁸ That is, a person may be allocated water as inflows occur, but there may still be a cap on their overall use in a given accounting period. For example: 'A continuous accounting system operates for the New South Wales Border Rivers allowing general security users to accrue water in their accounts up to 100 per cent of entitlement (264,411 ML). The maximum usage (including trade out) in any year is 1.0 ML per unit share (264,411 ML).' C Ribbons, *Water availability in New South Wales Murray–Darling Basin regulated rivers*, 2009, New South Wales Department of Water and Energy, p. 7.

2.3.1. Water access rights

A water access right is a generic term referring to statutory rights to take water.³⁹

Historically, water access rights were tied to land. Increasingly in the Basin, certain forms of water access rights have been separated or ‘unbundled’ from the land.⁴⁰ The original right holder can keep the water access right, in effect, associated with the land; or can liberate it and trade it away, permanently or temporarily (and see ‘transformation’ in ‘Irrigation rights’, further below in this section).⁴¹ In simple terms, such unbundling reforms allow an amount of water that used to be pumped on that original property to be diverted somewhere else, temporarily or permanently. There are some significant exceptions, where the rights holder cannot trade away the right. These include what are called ‘riparian’ (essentially riverside) rights and rights for watering stock.

The two key categories of water access rights are entitlements and allocations.

An entitlement is a perpetual or ongoing right or permission connected to a share of a water resource. It is often called a ‘permanent’ right; and so when it is traded, this is often called a ‘permanent trade’. It is often specified as a volume amount per year, typically in megalitres (ML). There are different classes of entitlement, often relating to ‘reliability’ or ‘security’, which each Basin State assigns different names (Table 2.2). Given water is scarce and the amount available varies greatly from time to time, classes of rights holders are often ranked in terms of who will be supplied ‘first’ and who will miss out, and how much of their nominal full entitlement they are likely to receive. That is, entitlement classes can be distinguished in terms of their historic reliability, which is a parameter indicating the likelihood that an entitlement will receive 100 per cent of its face value by the end of the water year (see also the similar but separate concept of allocations, discussed further below).

³⁹ See *Water Act 2007* (Cth), s. 4.

⁴⁰ For more information, see, for example, ACCC Water Trading Rules—Final Advice, 2010, p. 43 at <https://www.accc.gov.au/regulated-infrastructure/water/water-trading-rules-advice-development/final-advice>, viewed 11 June 2020.

⁴¹ The water rights holder could also sell the land and keep the water rights.

Table 2.2: Examples of entitlement classes in regulated surface water systems

State	Class	Explanation of right	System
NSW	High security	Holder will generally receive its full water allocation before general security entitlements receive an allocation. New South Wales high security entitlements are generally not eligible to access carryover.	Belubula, Gwydir, Lachlan, Lower Darling, Macquarie–Cudgegong, Murrumbidgee, Namoi, New South Wales Border Rivers, New South Wales Murray, Peel
	General security	A lower priority to receive allocation. Once system commitments have been met, the available water asset is then available for distribution to the access licence categories in order of priority; general security entitlements have a lower priority than high security and conveyance entitlements. New South Wales general security entitlement are generally eligible to access carryover; carryover access limits vary across systems.	Belubula, Gwydir, Lachlan, Lower Darling, Macquarie–Cudgegong, Murrumbidgee, Namoi, New South Wales Border Rivers ^b , New South Wales Murray, Peel
	Supplementary	Supplementary flow events are announced periodically during the season when high flow events occur, with the period of extraction and volume of water to be extracted determined based on the rules as set out in the relevant water sharing plans.	Belubula, Gwydir, Lower Darling, Macquarie–Cudgegong, Murrumbidgee ^c , Namoi, New South Wales Border Rivers, New South Wales Murray
	Conveyance	Water needed to keep the river systems running. Some irrigation infrastructure operators (IIOs) (discussed in Box 2.3) receive specific allocations of such water. New South Wales conveyance entitlements are generally not eligible to access carryover.	Lachlan, Murrumbidgee ^d , New South Wales Murray
Vic	High reliability	Holder will generally receive its full water allocation before Low reliability entitlement holders receive an allocation. Victorian high reliability entitlements generally have access to carryover, with carryover in excess of 100 per cent of entitlement volume subject to spillable water account rules.	Broken, Bullarook, Campaspe, Goulburn, Loddon, Victoria Murray, Ovens and King
	Low reliability	A lower priority to receive allocation. Victorian low reliability entitlements generally have access to carryover, with carryover in excess of 100 per cent of entitlement volume subject to spillable water account rules.	Broken, Bullarook, Campaspe, Goulburn, Loddon, Victoria Murray
	Spill reliability	Available to customers while the storages in these systems are spilling.	Ovens and King

State	Class	Explanation of right	System
Qld	High priority	Chinchilla Weir Water Supply Scheme (WSS) and Upper Condamine WSS: Announced allocations for High Priority water allocations are calculated and announced to take effect on the first day of each water year. St George WSS: continuous sharing rules apply (which operates as an alternative to carryover), but High priority is prioritised over medium priority.	Chinchilla Weir WSS, St George WSS, Upper Condamine WSS ^a , Border Rivers WSS

Source: Adapted from water products information available on MDBA website.

Notes: This table summarises the main categories of entitlements on issues but is not an exhaustive list. WSS = Water Supply Scheme.

a Upper Condamine WSS has High Priority Class A and High Priority Class B.

b New South Wales Border Rivers has General Security A and General Security B.

c Murrumbidgee has Supplementary and Supplementary (Lowbidgee).

d Murrumbidgee has Conveyance, Coleambally Irrigation Conveyance and Murrumbidgee irrigation Conveyance. Further information on how carryover eligibility varies by entitlement class and water system is available in section 12.4 in chapter 12.

An allocation is a specific volume of water allocated to an entitlement in a given water accounting period, usually a water year.

It is set by the manager of a water resource, in light of what precipitation has fallen and the resulting inflows into storage, and in line with that jurisdiction's allocation rules and policies. That is, given a range of factors such as the rainfall or snow melt and how empty the reservoirs are (and, if applicable, whether the entitlement is high or low security), the manager will supply, for example, 40 per cent of the amount the rights holder would get in a year of adequate rainfall.

Routinely, the amount is incremental over time. That is, the authority sets a starting allocation and then may increase or 'improve' it over the course of the water year, as additional inflows are received into storages; or decrease it, if needed.⁴²

2.3.2. State governments allocate water

The Basin States and the Murray–Darling Basin Authority effectively jointly manage the Basin's rivers. The Murray–Darling Basin Authority (MDBA) operates the River Murray on behalf of New South Wales, Victoria and South Australia (the MDBA is explained in more detail in section 2.11). Under the Murray–Darling Basin Agreement, the MDBA determines the amount of water available to each state each year. It is then up to the states to determine how that water is allocated to individual entitlement holders, and the MDBA is not involved in these decisions or processes.

Water allocations, water extraction or water orders and the delivery of water work in a different way from state to state.

⁴² Note that the timing of announced allocations, while an important factor for water users, does not factor into reliability calculations. Therefore, historic reliability only partially characterises the 'yield' of different entitlement classes.

Allocations and entitlements in regulated systems

Most regulated systems in the Basin operate on an ‘announced-allocation’ system, where allocations are made against entitlements on a periodic basis and up to a nominal volume. For example, for an entitlement of 100 ML, an announced allocation of 30 per cent would mean that 30 ML of allocation would be available for use. Water users then effectively order that water against their water access right, placing obligations on infrastructure operators to provide access to it. Box 2.2 gives further detail on this process.

Box 2.2: Allocation processes in regulated systems that operate on an annual basis⁴³

Allocation in most regulated systems involves the initial determination of available water for consumptive use at the start of the water year (1 July across the Basin).

Authorities—for example, WaterNSW in that state—assess water in storage and assess the outlook for inflows and losses under a worst-case scenario. In systems with annual accounting rules, agencies make announcements ranging from 0 per cent to 100 per cent availability, depending on the class of entitlement and water source. Using the examples of Victoria and New South Wales, as noted in Table 2.2, authorities will generally give High Reliability and High Security entitlement holders their full water allocation before they give any water to Low Reliability and General Security entitlement holders.

When more water becomes available during the year, authorities may announce increases to allocations.

In general terms, on 1 July each year, the opening balance of each water account reflects any volume carried over from the year before (except carryover volumes quarantined in Spillable Water Accounts for Victorian account holders), and any opening allocations made to entitlements held. This volume of water may be abstracted (used), traded or stored—for use later in the year or where allowed under the carryover rules to be carried over to the following year. At the end of the water year, different carryover rules in each state and management plan define the amount of allocation that can be carried over and accessed in the next water year. There are usually limits or rules that apply to the volume that can be carried over in any year. See Box 2.1 for more information on carryover.

Allocations and entitlements in unregulated systems

In an unregulated system, water users cannot order any water against their water access right but may extract water under specified flow conditions or events, typically into private storages. Entitlements in unregulated systems (and regulated systems with continuous accounting rules) can specify maximum volumes that can be abstracted, either in one year or a period of several years.

2.3.3. Irrigation rights

Water users located within irrigation networks in New South Wales and South Australia commonly hold ongoing rights to receive water from their off-river infrastructure provider, or irrigation infrastructure operator (IIOs, noted further in Box 2.3). These rights are known as irrigation rights, and are often called ‘permanent’ rights to indicate their ongoing nature. Trade of these rights is often referred to as ‘permanent trade’. The specific volume of water a

⁴³ Adapted from Bureau of Meteorology 2014, www.bom.gov.au/water/nwa/2013/mdb/contextual/waterrights.shtml, viewed 11 June 2020.

person can access under a permanent right in a given period is sometimes called a 'temporary' irrigation right.

Box 2.3: Irrigation infrastructure operators

Major irrigation infrastructure operators (IIOs) across the Basin States include:

- Coleambally Irrigation Corporation (New South Wales)
- Goulburn-Murray Water (also an infrastructure operator) (Victoria)
- Murrumbidgee Irrigation (Queensland)
- Murray Irrigation (New South Wales)
- Renmark Irrigation Trust (South Australia).

In New South Wales and South Australia, IIOs hold entitlements on behalf of their customers, and administer non-statutory rights—in particular, irrigation rights and delivery rights within their networks. IIOs have an approval role over trade that happens within, into, or out of, the irrigation networks they operate. Some IIOs also operate exchanges or offer brokerage services to help their customers to trade.

Where irrigation rights are specified, the IIO holds entitlements to fulfil obligations to customers who hold irrigation rights. In this way, IIOs remain significant holders of water access rights (entitlements and allocations) in the Basin, particularly in New South Wales and South Australia.⁴⁴

In some valleys, IIOs still hold the majority of water access entitlements. Chapter 3 contains more detail on holdings by IIOs.

In 2009 Basin governments implemented reforms that provided for irrigation rights holders to direct that IIOs 'transform' their (permanent) irrigation rights into statutory entitlements, as discussed above. When transformation occurs, the volume of the entitlements held by the IIO itself is reduced accordingly and, ordinarily, the holder of the newly increased entitlement can trade the entitlement or the water allocated to it outside the area and membership of the irrigation network.

2.3.4. Delivery rights

A delivery right is a right to have water delivered by an Infrastructure Operator. It may take the form of a statutory right or be an express or implied contractual agreement that allocates a share of an infrastructure network's delivery capacity to the holder. Having these rights on issue can help allocate and manage infrastructure capacity.

2.4. Temporary trade: water allocation and temporary irrigation rights

When water allocation was first introduced as a concept, it was, in a sense, a 'temporary' right, in that holders of entitlements had to use (or, when available, trade) the volume of water allocated to their entitlements within the water year; any remainder was forfeited back into the general pool of water for reallocation in the following year. Therefore, markets for allocation are often referred to as 'temporary markets'.

⁴⁴ See section 3.1.2 in chapter 3 of this interim report, citing ACCC provisional estimates based on data sourced from the ACCC's annual Water Monitoring Report 2017–18, Requests for Information to IIOs and the New South Wales Water Register at <https://waterregister.watersw.com.au/water-register-frame>, viewed 11 June 2020.

However, now that ‘carryover’—holding water over to the following year— and ‘continuous-accounting’ rules have been introduced (see section 2.3), allocation can be banked for use or trade in a future period, subject to the rules. Therefore, allocations continue to be ‘temporary’ in the sense that allocations credited to a user’s account are drawn down as a person uses or sells water, but they are no longer necessarily temporary in the sense of expiring at the end of the water year.

The issuing or crediting of new allocations is still linked with entitlements, as entitlements are the mechanism used to determine what proportion or volume of water to credit to water accounts.

Once allocations have been issued, they can usually be traded and held independently of entitlements. That is, generally a person does not need to hold an entitlement in order to purchase and use an allocation, and a person who does hold an entitlement can independently sell any allocation they have been issued.⁴⁵ An entitlement holder can trade away this temporary allocation for a set period, such as a year, while retaining her entitlement long term. Such transactions are therefore often called ‘temporary trades’ and are the most common right traded in the Basin (see chapter 3).

Likewise, trade of specific volumes of water within IIOs is known as ‘temporary trade’. Temporary trade of irrigation rights functions much the same as allocation trade outside of IIOs (see box 2.4).

Box 2.4: What is the difference between an allocation trade and temporary trade of irrigation right?

The key differences are:

- For temporary irrigation right trades wholly within an IIO’s irrigation network, the operator itself is the trade approval authority, and the Basin State authorities are not involved in approving or recording the trade.
- Where a person located within an IIO’s irrigation network wants to undertake a temporary trade with a person located outside the network, two transactions occur in tandem. For the case of an internally located seller:
 - Within the irrigation network, the seller relinquishes some of their temporary irrigation right to the operator.
 - Outside the irrigation network, the IIO’s undertakes an allocation trade from the operator’s allocation account (or licence, if in New South Wales) to the account (or licence) of the externally-located buyer.

This process is reversed for an external seller-internal buyer.

⁴⁵ However, in New South Wales, a person must hold a New South Wales Water Access Licence (WAL) in order to hold a water allocation. In this case, the WAL performs the role of forming the basis of a water account. This WAL does not need to have any entitlement volume associated with it; users are able to hold ‘zero-share WALs’ which do not receive any allocation when available water determinations are made (because the holder is entitled to a ‘zero share’ of available water resources), but which enable the holder to purchase and use water allocations.

There are several different ways allocations (and temporary irrigation rights) can be traded:

- **Ownership transfer:** changing the ownership of the whole or part of an allocation right or temporary irrigation right from one owner to another. In this case the seller's water account will be debited, and the buyer's account credited, to reflect the trade. In some systems (for example, in Queensland), a transmission loss factor may be applied to the trade (such that the buyer's credited volume differs from the seller's debited volume), but in most cases the amount sold equals the amount purchased.
- **Intra-zone/intra-valley trade:** this kind of trade changes the location at which allocation may be taken, *within* a given trading zone.
- **Inter-zone/inter-valley trade/transfer (IVT):** changing the trading zone in which allocation can be used and carried over. This kind of trade occurs via the Basin State debiting the seller's account in the origin trading zone, and crediting the buyer's account in the destination trading zone. It effectively results in allocation issued in one zone being cancelled and re-issued in another zone. This kind of trade is subject to inter-valley trading rules (discussed in section 2.6).
- **Tagged allocation trade:** This kind of trade means that the water that is allocated in one location (that is, catchment or trading zone) can be physically extracted (used) in another, as a result of a 'tag' placed on the water user's account in the state water register. This is different to regular inter-zone allocation trade because the allocation is still linked to the origin zone—for example, it is assessed against origin zone rules for carryover or further trade. This type of trade is currently only available in Victoria.⁴⁶
- **Forward contracts:** for allocations: a contractual agreement to trade allocation in the future.
- **'Carryover parking':** an agreement or contract to conduct paired allocation trades at the end of one water year and the start of the next water year, to take advantage of differential access to carryover (see below for an explanation of carryover)
- **Options contracts for allocations:** a contractual agreement to provide an option to purchase allocation at a future time, when specified conditions are met.

A given trade may combine elements of these different trade types. For example, a trade between one irrigator located in New South Wales with another in Victoria involves both a change of ownership and an inter-zone change of location.

2.5. Permanent trade: entitlements and permanent irrigation rights

Entitlement trades, also known as 'permanent trades' are transactions which:

- change the of ownership of entitlements and permanent irrigation rights, including where right holders trade only a portion of their entitlement, such as in a share component trade in New South Wales, and also leases of entitlements and permanent irrigation rights, and/or
- change the location of entitlements and permanent irrigation rights, for instance via establishment of a tag.

Traditionally, water users traded these rights in a simple sale transaction (that is, change of ownership), for example, as part of the process of changing the ownership of irrigated farms.

However, now that entitlements have been unbundled from land rights, there are a variety of options for trading entitlements and permanent irrigation rights:

⁴⁶ Department of Environment, Land, Water and Planning (Victoria) n.d, <https://waterregister.vic.gov.au/water-trading/trading-rules>, viewed 11 June 2020.

- **Entitlement ownership transfer:** changing the ownership of the whole or part of a permanent right from own owner to another.
- **Tagged entitlement trade:** This kind of trade means that the water that is allocated to an entitlement issued in one location can be physically taken in another, as a result of a tag placed on the entitlement in the state water register. When an allocation announcement is made on the entitlement in the source zone, the tag is automatically activated and the purchaser is credited with the volume allocated and can order water for delivery in the destination zone (unless restrictions apply in the source zone).
- **Multi-year entitlement leases** (that is, a statutory lease or contractual agreement to give the lessee the right to use, trade, or carryover a whole or part of allocations made in respect of a particular entitlement for the term of the lease).

2.6. Overview of location based trading rules

There are physical parameters and legal frameworks that shape the locations and boundaries of trade. When water access rights are traded, it is important to consider two locational aspects of the right:

- First, the ‘source’ of the water. This is generally defined in geographic terms with respect to water catchment areas, although some water sources are artificially divided up along state lines. For example, the Murray catchment is divided up into New South Wales Murray, Victorian Murray and South Australia Murray.
- Second, the ‘destination’ or ‘delivery’ location. This is where water available under the right is able to be extracted for use. When thinking about the delivery location aspect, it is important to keep in mind the physical ability to deliver water, which may need to take into account natural or operational constraints—for example, the physical size of the delivery channel or water course and environmental constraints. Delivery aspects of water access rights are generally refer to a zone, as noted earlier. This zone could match the borders of the source or catchment but could also be a subset of the catchment, if there are delivery constraints that need to be taken into account. One key example is that the Victorian Murray and New South Wales Murray water sources are divided up into zones above and below the significant natural constraint of the Barmah Choke (see below for more detail on the Choke).

There are at least two levels to think about when considering trade. At one level (often called the ‘retail’ level), there are right holders, such as irrigators and other water users; on another level (often called the ‘bulk’ or ‘wholesale’ level), there are the parties that have the role of providing the water to which the right holder is entitled: the infrastructure operators, who administer the water contained in their storages and operate the rivers and man-made infrastructure through which water is delivered.

Trading rules are particularly important whenever the delivery location differs from the *source* location, because this involves an obligation on the operator to ensure that commitments to supply water before a trade can be honoured after a trade. While it might be straightforward to consider changes to arrangements to give effect to a single trade, in aggregate facilitating inter-zone trade can entail complex considerations at the bulk level to make sure all users’ demands can be met (see box 2.5).

Box 2.5: Example of how allocation trade changes infrastructure operator obligations at the wholesale level

John is an irrigator located within Goulburn-Murray Water's (GMW) irrigation network in the Goulburn system in Victoria. John sells some of his allocation to Sarah, who is a 'private diverter' (that is, not within an IIO) located on the New South Wales River Murray. Before the trade, GMW has the obligation to supply John using water resources in the Goulburn System. After the trade, WaterNSW, in conjunction with the Murray–Darling Basin Authority (MDBA) (who operates the River Murray on behalf of New South Wales, South Australia and Victoria), has the obligation to supply Sarah at her property on the River Murray. GMW, MDBA and WaterNSW need to work together to transfer this supply obligation and ensure Sarah can use, or further trade, her new allocation when she wishes, which could be a long time after the actual trade has occurred.

When irrigation rights are traded purely within an IIO's network, the obligations at the wholesale level remain the same as before, because water is still delivered from wholesale storages to the IIO's extraction point. However, for this kind of trade, there is another intermediate level to consider—the obligations against the IIO itself. The extraction point may change from one location inside the network to another, and while this occurs on a much smaller scale than is possible for allocation trade, there may still be important differences in how the IIO needs to manage its network to continue to honour its obligations to its customers after the trade has occurred.

2.6.1. Borders and trading zones

Water in the Basin flows largely from north-east to south-west—and it can be stored or extracted at various times in its flow at various points between the hills and the sea.

As discussed in section 2.1, the Basin can be considered as two quite different and only loosely connected systems:

- the Northern Basin (Queensland and northern New South Wales) has both regulated and unregulated systems, and in general regulated systems are not hydrologically connected to each other
- the Southern Basin (southern New South Wales, Victoria, Australian Capital Territory and South Australia) has largely 'regulated' systems, with a good degree of hydrological connectivity between different regulated systems (although connectivity changes at different times).

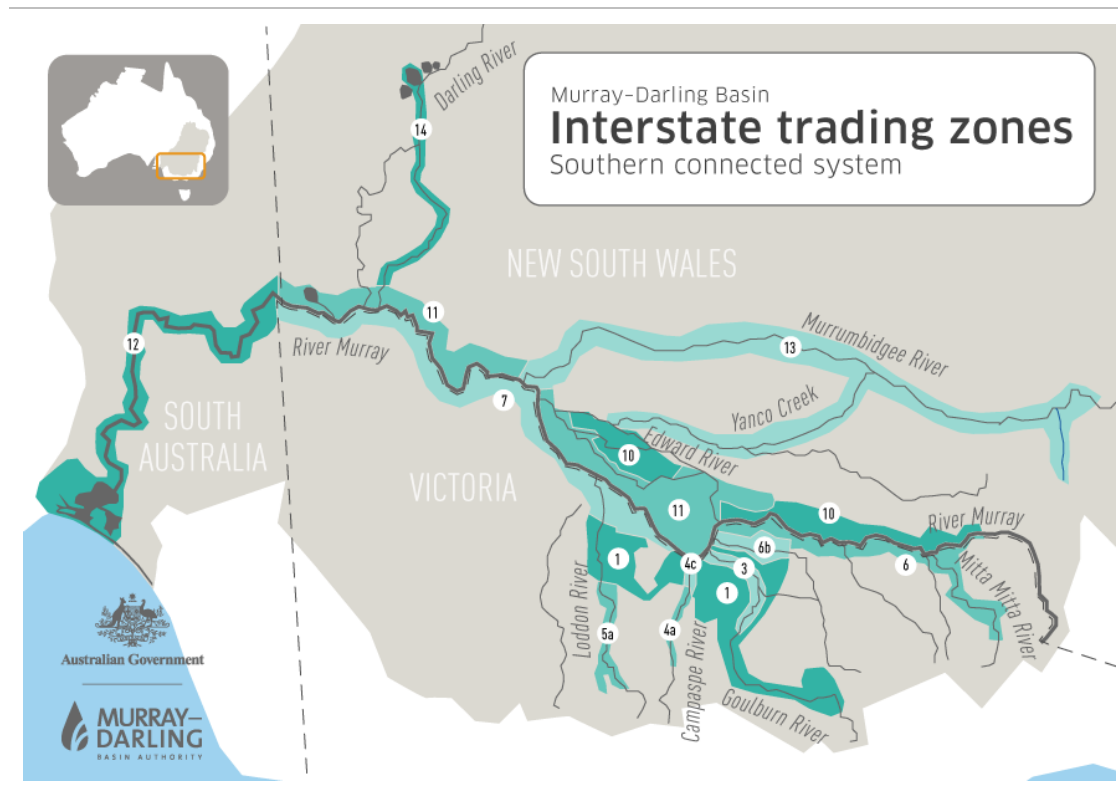
The Darling River connects the Northern and Southern Basin, although it is ephemeral in many parts.

Authorities have defined trading zones throughout the Basin. Their boundaries are shaped by a mix of jurisdictional issues, such as state borders, and physical/hydrological features—largely that users in the zone will be drawing from the same source point, such as a particular reservoir or water course. Authorities place more restrictions on trade between zones than on trade within zones. Trading zones are often defined as areas where trade can freely occur within that zone. Authorities impose such rules to, for instance, ensure that there is enough water to meet the calls made on the water source, which in theory could come at any time in a year, and to take account of the impacts of trade on other water users and the environment.

Trading zones in the Southern Basin

In the Southern Connected Murray–Darling Basin (Southern Connected Basin), trading zones are defined with reference to both the underlying hydrology (that is, water catchments and natural constraints) and state boundaries (Figure 2.3).

Figure 2.3: Inter-state trading zones, Southern Connected Murray–Darling Basin



Source: Murray–Darling Basin Authority.⁴⁷

Although the Murray is one river, it is in a sense split down the middle for trading purposes through much of its length: being subject to northern-facing trading zones, in New South Wales, and southern-facing trading zones, in Victoria. When it reaches the border with South Australia, it enters a new trading zone.

Trade between zones in the Southern Connected Basin is possible, but is subject to inter-zone trading rules (sometimes also referred to as ‘inter-valley trading rules’ or ‘interstate trading rules’).

The four major allocation trade restrictions in the Southern Connected Basin are:

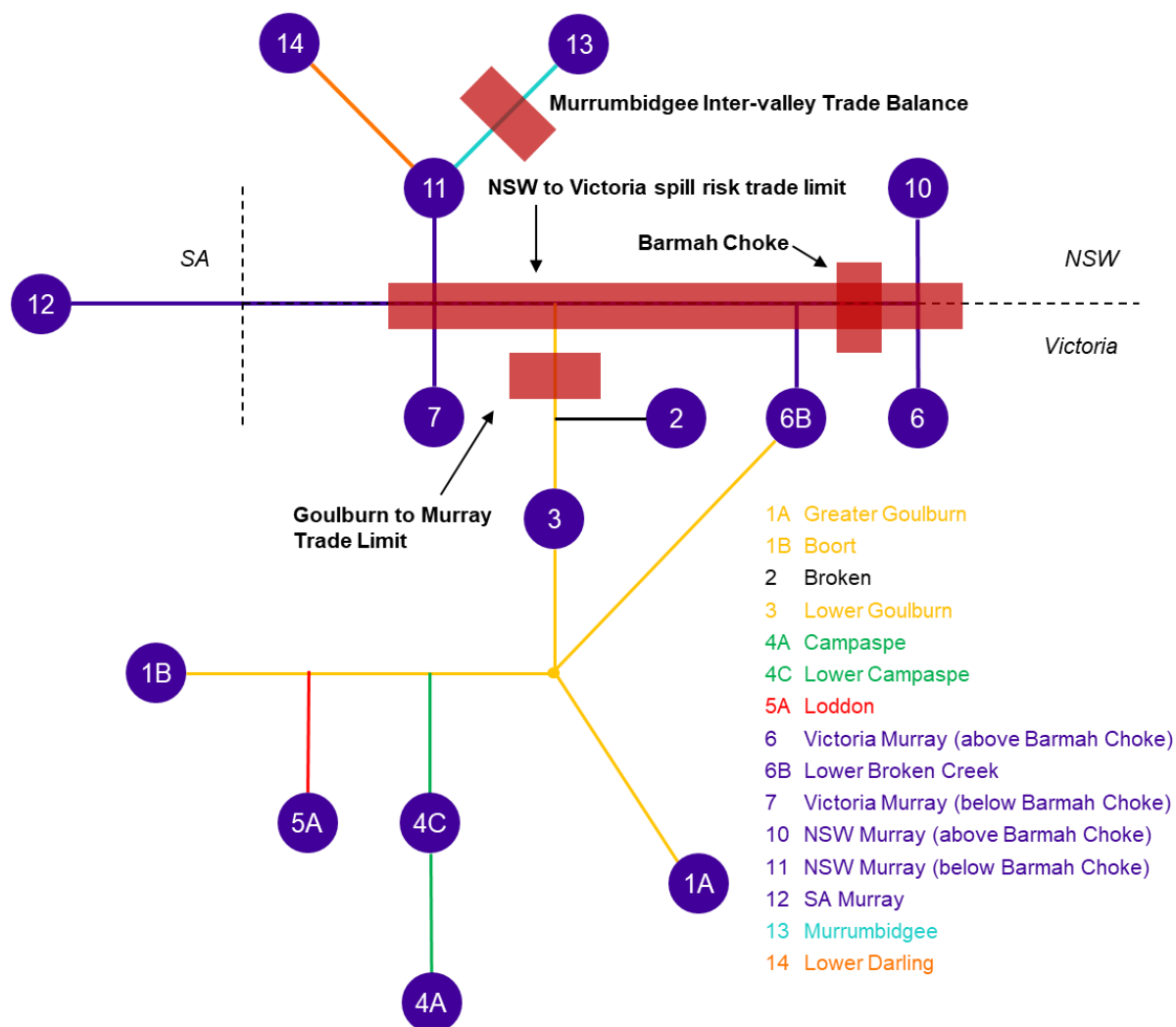
- Murrumbidgee inter-valley trade limit
- Goulburn to Murray trade limit
- New South Wales to Victoria spill risk trade limit
- Barmah Choke trade restriction, which is used to manage the most well-known hydrological constraint in the Southern Basin: the Barmah Choke, where the Murray River runs through the Barmah–Millewa Forest, upstream of Echuca in Victoria.

⁴⁷ Murray–Darling Basin Authority 2017, <https://www.mdba.gov.au/managing-water/water-markets-trade/interstate-water-trade>, viewed 11 June 2020.

Figure 2.4 provides a stylised representation of these trade limits, and also uses different colours to show each regulated system. Note that some systems (for example, the Murrumbidgee) are comprised of just one trading zone, whereas other systems (for example, the Goulburn) are comprised of several.

Chapters 3 and 12 to 14 discuss the operation of inter-zone trading limits in more detail.

Figure 2.4: Schematic of in trading zones in the Southern Connected Murray–Darling Basin and trade restrictions



Source: ACCC analysis based on information from Basin States.

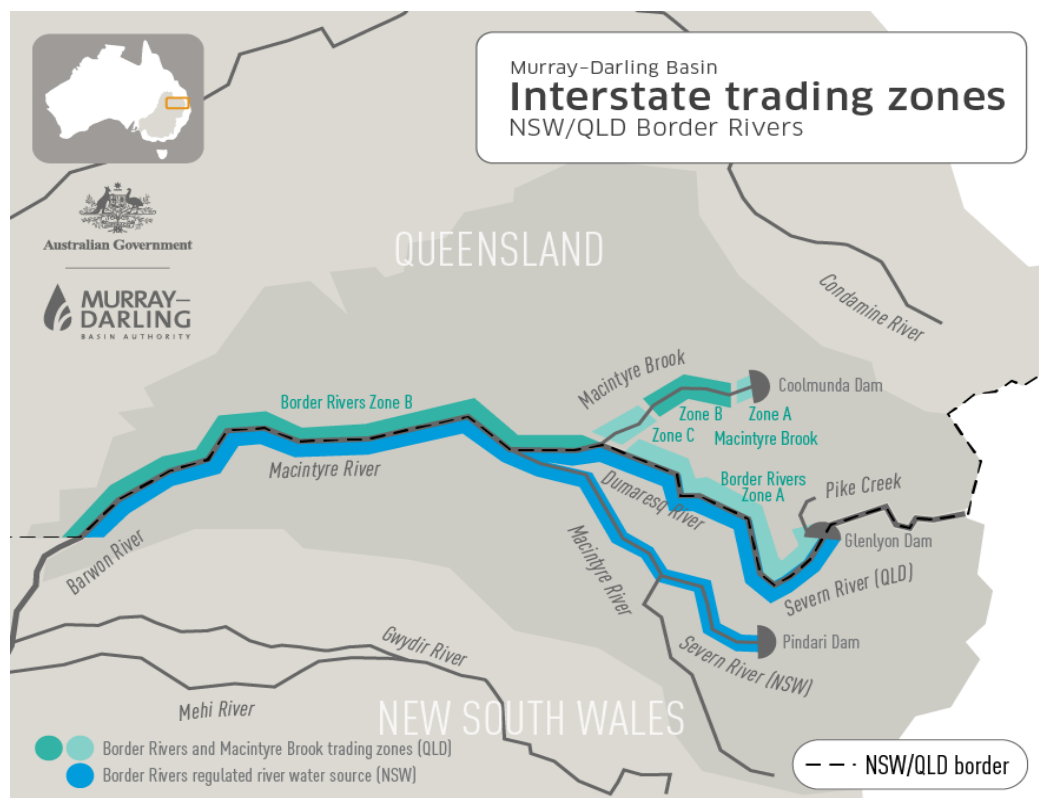
Notes: In legend, yellow indicates trading zones in the Goulburn system; green indicates zones in the Campaspe system; red indicates zones in the Loddon system; purple indicates zones in the Murray system; aqua indicates the Murrumbidgee system and orange indicates the Lower Darling system.

Trading zones in the Northern Basin

In the Northern Basin, there are only a few places where the level of hydrological connectivity is sufficient to allow trades between different zones. The main areas where this is permitted is in the Border Rivers catchment (Figure 2.5). Trade in certain areas in Queensland (termed ‘water supply schemes’) are unique in that they permit trade between different zones within a regulated system, but they apply a conversion factor to take into account estimated differences in transmission losses between zones. In most other regulated systems, transmission or ‘conveyance’ losses are ‘socialised’—that is, the cost of water lost in transit is spread among many parties, not just those notionally taking that water

delivery—and so an individual buyer is credited with the same volume that is debited from the seller.

Figure 2.5: Inter-state trading zones, Northern Murray–Darling Basin



Source: Murray–Darling Basin Authority.⁴⁸

Water trading does not usually result in movement of water at the time of trade

It is important to recognise that entitlements and allocations do not ordinarily specify that the water user must draw down any particular portion of the water on any set days or in any set seasons of the year; and rights are generally not traded with any stipulation about when, by date or season, the buyer must access the water available under that right. For instance, a party that has bought an allocation is free to seek to draw it down over that year as it wishes, or in subsequent years, subject only to carryover rules.

One important implication of this is that when parties trade water access rights, water is not physically moved between the parties. After the trade, the location of the party holding the call on the supplier may have moved. That is, what changes when trade occurs is the parties' *right to access* water available under their rights. This is important because rules governing trade between zones or valleys are generally specified with a view to ensuring the future obligations to supply water users at different locations don't change 'too much'. Part V consider these issues in more detail.

⁴⁸ Murray–Darling Basin Authority 2017, <https://www.mdba.gov.au/managing-water/water-markets-trade/interstate-water-trade>, viewed 11 June 2020.

2.7. Overview of trading rules supporting market integrity and fair trading

Water markets are also subject to certain rules which are designed to promote 'fair trading' or a 'level playing field' for traders, and to help ensure there is sufficient information available for traders to make their decisions.

The Basin Plan Water Trading Rules (BPWTR) provide a basic framework that is consistent across Basin States (see Box 2.6 for an overview). State legislation also contain provisions designed to help ensure water markets operate efficiently and effectively.

Box 2.6: Overview of the Basin Plan Water Trading Rules

The BPWTR, which are set out in chapter 12 of the Basin Plan 2012, are intended to provide greater clarity and consistency for the water market(s) across the whole of the Basin. They set out a consistent framework for water trading across the states, without duplicating existing rules.

The BPWTR apply to the Commonwealth, the Basin States, IIOs and individual market participants. The rules address three broad aspects of market operation:

- reducing restrictions on trade
- improving transparency and access to information
- maintaining market integrity and confidence.

The BPWTR require that all water market participants have the right to trade free of certain restrictions. Addressing these types of restrictions ensures that all people can participate in Basin water markets subject to a common set of rules.

The BPWTR also contain certain non-discrimination rules, to help ensure all traders can access the benefits of trade. For example, the rules provide that a person may trade a water access right (that is, allocation or entitlement) free of any restriction which relates to:

- the person being, or not being, a member of a particular class of persons (section 12.07)
- the purpose for which the water relating to that right has been, or will be, used (with limited exceptions) (section 12.08)

The rules also require that:

- people who sell or dispose of water access rights to declare their sale price
- approval authorities must notify the parties involved in a trade when a trade is restricted or refused, and must provide reasons for their decisions. They must also disclose any legal, commercial, or equitable interest they have in a trade to all parties when processing trades of water access rights
- the Australian and Basin State governments have to make water announcements generally available. Water announcements include announcements on allocations, carryover (including changes to carryover arrangements), trading restrictions and trading strategies
- persons or organisations refrain from trading activities when they are aware of a water announcement that has not been made generally available (often referred to as the 'insider-trading rules')
- Basin States provide the MDBA with information about the characteristics of water access rights on issue in their State, and the trading rules in their State. The MDBA must

then publish this information. The MDBA is discussed more in section 2.11.

The MDBA is responsible for enforcing the BPWTR⁴⁹, while the ACCC has a role to provide advice to the MDBA on the rules.⁵⁰

Different aspects of these kinds of rules are discussed further in this report. For example:

- rules governing the behaviour of water market intermediaries are considered in chapter 6
- rules relating to data and information collection and transmission, including rules designed to support pricing transparency are discussed in part IV.

Stakeholder concerns about the existing rules are considered further in parts III, IV and V of this report.

2.8. Who participates in water markets?

The markets for tradeable water rights involve many people—directly as participants and indirectly as facilitators—who can be private, co-operative and government-controlled structures. Key water market participants are summarised in Table 2.3.

Table 2.3: Water market participants

Party	Role	Examples
irrigators	The group that uses the most water in the Basin. Production ranges from broadacre cropping, such as rice, through dairy, to horticulture, such as nuts, fruits and vegetables. Irrigators are buyers of water but also significant holders and sellers of access rights.	Ranging from family farms to large agribusinesses such as Webster/PSP Investments ⁵¹
irrigation infrastructure operators (IIOs)	Own and operate infrastructure for the main purpose of irrigation. These may also be called off-river infrastructure providers, as they manage assets situated off the rivers such as irrigation networks of channels, pipes and pumps. IIOs are often holders, for their members but in their own right, of significant water access rights, as explained in section 2.3.	Murray Irrigation Limited Renmark Irrigation Trust Goulburn-Murray Water Mallawa Irrigation
infrastructure operator	State-owned entities that own and operate the largest facilities for storing and delivering water. These may also be called on-river infrastructure providers, as they manage assets situated on the rivers such as large dams and weirs.	WaterNSW Goulburn-Murray Water Lower Murray Water Sunwater
environmental water holders	Government-owned. Hold and deliver water to achieve environmental outcomes.	Commonwealth Environmental Water Holder (CEWH) Victorian Environmental Water Holder (VEWH)

⁴⁹ Murray–Darling Basin Authority 2016, <https://www.mdba.gov.au/publications/policies-guidelines/guidelines-water-trading-rules>, viewed 25 June 2020.

⁵⁰ ACCC 2010, <https://www.accc.gov.au/regulated-infrastructure/water/water-trading-rules-advice-development>, viewed 25 June 2020.

⁵¹ Webster n.d., www.websterltd.com.au, viewed 11 June 2020.

Party	Role	Examples
investors	Hold water rights without being, for example, an irrigator.	Duxton Water Ltd ⁵²
urban users	Need water for critical human needs.	Adelaide, Canberra/Queanbeyan, Toowoomba, Bendigo and Albury/Wodonga
Indigenous/ Traditional Owner groups	Need water for cultural and economic needs.	Many nations, including the Barkandji, Gomeroi, Kamilaroi, Wiradjuri and Yorta Yorta

Irrigation infrastructure operators (often called IIOs) are major holders of entitlements on issue. In New South Wales and South Australia, IIOs hold entitlements (sometimes referred to as ‘bulk licences’) on behalf of customers in their networks and issue irrigation rights which entitle customers to receive water from the IIO. In contrast, in Victoria, entitlements are specified at both the ‘wholesale’ or ‘bulk’ and ‘retail’ levels: Victorian IIOs hold ‘bulk entitlements’ and their customers hold retail-level entitlements (generally ‘water shares’, the main type of retail-level entitlement in Victoria).

A further term used in the Basin is ‘private diverter’, which ordinarily means a party that is a water access right holder in its own stead, typically an irrigator that extracts water directly from a natural watercourse. This is opposed to it receiving water due to its membership of an irrigation network.

Overall, when a discussion is held about who should be permitted to hold rights or permissions like tradeable water rights, in effect it involves discussing who should be permitted to trade in these markets: the number and nature of the buyers and sellers, whether the markets are ‘open’ or ‘protected’, and so the nature and intensity of the competition in these markets.

Chapter 3 contains more detail on issues like the amounts of water used in particular agriculture sectors, irrigation networks and environmental flows.

There are also water market intermediaries and other service providers involved in facilitating trade. These include:

- brokers, such as Ruralco Water, Wilks Water and Elders
- exchanges, such as Waterexchange, H2OX and Waterpool Trading
- water information service providers, such as Waterflow, the Australian Government Bureau of Meteorology and the Australian Bureau of Agricultural and Resource Economics and Sciences, and
- state-owned trade-approval authorities, such as WaterNSW, Sunwater (Queensland) and Lower Murray Water (Victoria).

Exchanges and water-information service providers are typically online sites that aggregate water-market information and help match buyers and sellers.

Government entities have roles in setting rules for, approving and registering trades; and managing compliance with Basin-wide requirements under the Murray–Darling Basin Agreement and the Basin Plan. These include adherence to the cap on the amount of water

⁵² Duxton Water 2020, www.Duxtonwater.com.au, viewed 11 June 2020.

extracted from the Murray–Darling Basin: the Sustainable Diversion Limit, noted in section 2.2.

2.9. How does trading occur in practice?

Water-trade processes can be complex and involve many actors.

Sellers and buyers need to find and transact with each other:

- They often conduct their trades through brokers and over exchanges, as discussed in detail further below.
- They can trade directly with each other, without such intermediaries—although authorities retain a role in registering, or approving and registering the trade.
- Sellers of rights relating to IIOs' networks, such as irrigation rights, are likely to trade within the locations, memberships and processes of the network. As noted earlier under the heading 'Irrigation rights' in section 2.3, irrigation right holders can direct that IIOs permit the rights holders to 'transform' their permanent irrigation rights into statutory entitlements.

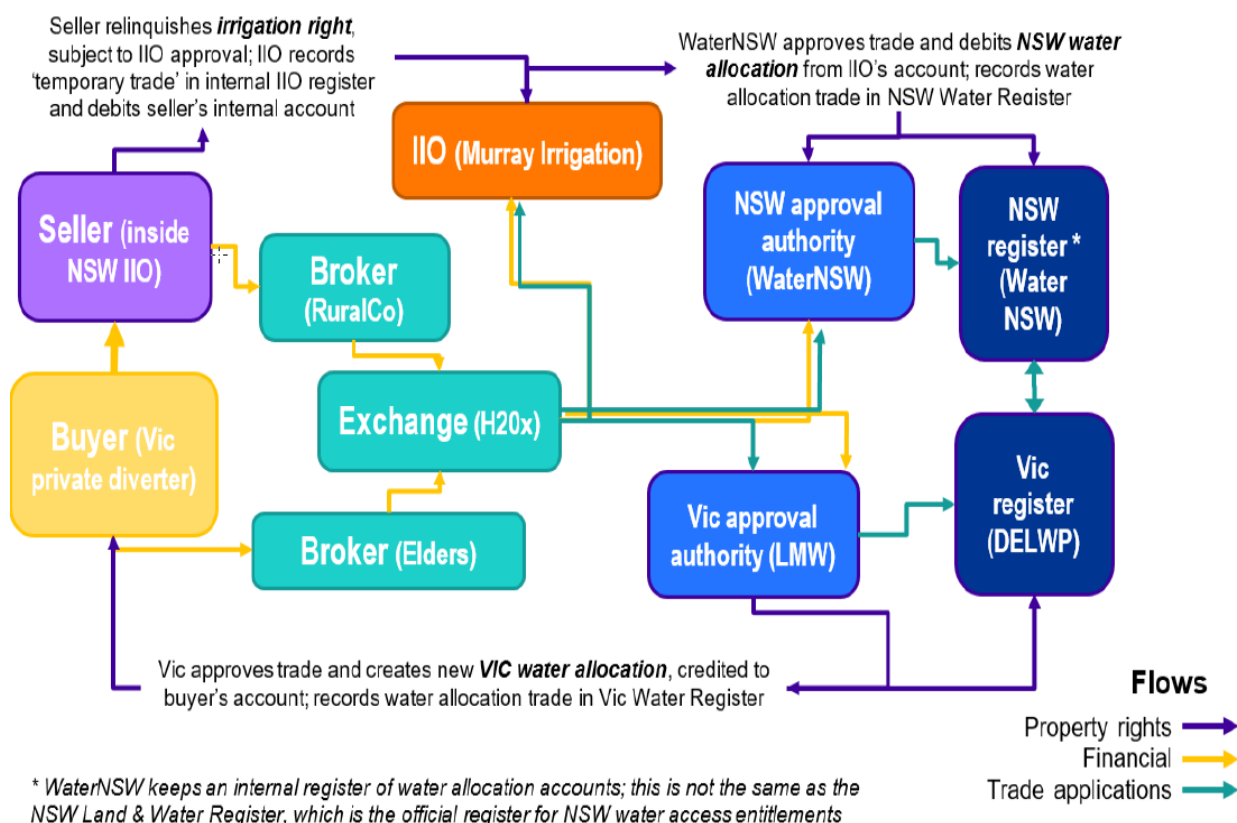
The sellers and buyers also need to settle on a price. To inform their expectations, they may rely on information from such sources as brokers, the Waterflow online information service and their own experience and records.

As in all markets and trade, it is more difficult to settle on an 'efficient' price—properly valuing the product as between the seller and buyer—if there is a lack of good information or one party has better information than the other. Chapter 10 provides more detail on the different information sources traders draw on to make water trading decisions.

Once traders have found a trading partner, transactions are then lodged on trade forms with state-owned approval or registration authorities, such as WaterNSW, Sunwater or Goulburn-Murray Water. There are various separate registers to record trades. For example, Victoria's register is maintained by its Department of Environment, Land, Water and Planning, while the New South Wales Land and Registry Services operates the New South Wales entitlement register. Figure 2.6 provides an example for how a trade is executed.

As a rule of thumb, authorities approve allocation trades more quickly than entitlement trades. Chapter 9 provides more detail on trade approval times.

Figure 2.6: An example of how a trade is executed



Source: ACCC analysis.

2.10. Water for the environment

Allocation arrangements throughout the Basin have long included provision for some basic environmental flows. These provisions are written into water sharing arrangements, and therefore are often referred to as 'rules-based environmental water'.

However, over time, scientific consensus emerged that rules-based environmental water was insufficient to maintain the ecosystems and environmental assets of the Basin, and that consumptive water rights had been over-allocated—that is, consumptive water use in the Basin is not sustainable. Basin State governments have been working together with water users to address this imbalance. Key milestones in this process have been the 1995 Cap on Diversions, the Water Act and the Basin Plan 2012. In particular, the Water Act and the Basin Plan together establish the role and functions of the Commonwealth Environmental Water Holder (CEWH), and set caps on the amount of water that can be allocated within the consumptive pool that are consistent with long-term sustainability assessments.⁵³ The CEWH's role is to manage the portfolio of water rights acquired by governments for environmental purposes, in a way that maximises environmental outcomes. There are also other state-based environmental water holders, such as the Victorian Environmental Water Holder, and also non-government environmental water holders such as the Nature Conservancy.

⁵³ For further detail on the operation of the Basin Plan, see <https://www.mdba.gov.au/basin-plan/plan-murray-darling-basin>, viewed 11 June 2020; and the Productivity Commission's most recent review of Basin Plan implementation: <https://www.pc.gov.au/inquiries/completed/basin-plan>, viewed 11 June 2020.

While this inquiry does not extend to examining the effectiveness of water buy backs for environmental purposes⁵⁴, it does consider the key impacts of environmental water holders on the markets for tradeable water rights. These impacts are complex, and are examined in more detail in chapter 3.

2.11. Basin management responsibilities

The Murray–Darling Basin is a complex and ‘highly engineered’ environment that crosses multiple state and territory boundaries, and requires state and Australian government agencies to cooperate in its management.

The arrangements for the institutions, and the ‘governance’ or oversight, involved in water resources and water trade in the Basin are themselves complex. They differ across different catchments; and they reflect complex governance and funding arrangements set out in such laws and agreements as the Basin Plan and the Murray–Darling Basin Agreement. A brief overview of Basin management responsibilities is provided below. Institutional and governance arrangements are discussed further in chapter 15.⁵⁵

2.11.1. Basin State agencies

Basin States have primary constitutional responsibility for managing the water resources in their States. Intergovernmental agreements aim to enhance consistency between States. Basin State agencies grant water licences/entitlements under their legislation and annually allocate water to entitlement holders. Each Basin State determines annual allocations for each river catchment in its state in line with water resource plans. These plans must be accredited under the Basin Plan. Basin States also administer their own water ownership registers.

Basin States create the majority of rules governing water trade in the Basin, including carryover rules and IVT rules. These rules must be consistent with the Basin Plan. Basin States are responsible for approving trades and for compliance with and enforcement of state-based water management frameworks.

As discussed in section 2.6, some water catchments within the Basin cross state boundaries. In these cases, Basin States’ shares of shared water resources are determined under the Murray–Darling Basin Agreement (for the Southern Basin) and the Border Rivers Agreement (for the Northern Basin). The MDBA has responsibilities in administering these agreements.

Box 2.7 summaries the Commonwealth, state and intergovernmental instruments that have developed more managing the Basin.

2.11.2. Ministerial Council

Under the Commonwealth Water Act and Murray–Darling Basin Agreement, the Ministerial Council consists of one minister from each government (the Australian Government and the Basin States). It approves infrastructure works on the River Murray (shared water resources), makes decisions on allocation of shared resources and on policy issues of common interest to Basin States and the Australian Government.

⁵⁴ Interested readers are directed to section 3.5.3 of S Wheeler and others, Water market literature review and empirical analysis, Consultant report prepared for the ACCC Water Market inquiry, 2020, which provides some relevant references, and to the work of the Socio-Economic Impacts Panel (<https://www.basin-socio-economic.com.au/>, viewed 11 June 2020).

⁵⁵ The Australian Senate has convened a Select Committee on the Multi-jurisdictional management and execution of the Murray Darling Basin Plan. Its issues paper contains more detail on arrangements. See issues paper chapter 1: https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Management_and_Execution_of_the_Murray_Darling_Basin_Plan/MurrayDarlingBasinPlan/Interim_Report/section?id=committees%2freportsen%2f024341%2f27789, viewed 11 June 2020.

2.11.3. Murray–Darling Basin Authority

The Murray–Darling Basin Authority (MDBA) has responsibilities under the Murray–Darling Basin Agreement to manage the shared resources of the River Murray. It manages the storage and delivery of water in the River Murray system on behalf of the Basin governments. The MDBA (in communication with Basin States) adjusts state water shares when water is traded between states. The MDBA also implements and enforces the Basin Plan. This includes helping the Australian Government Minister responsible for water with the accreditation of Basin State water resource plans and assessing the consistency of Basin State trading rules with the Basin Plan.

Box 2.7: Commonwealth, state and intergovernmental instruments

The water rights frameworks and resource management arrangements that underpin Basin water markets have historically been state-based, reflecting the Commonwealth’s limited legislative power on water matters under section 100 in the Australian Constitution. However, the need to coordinate policy and management arrangements for shared Basin resources has seen the Basin States enter into intergovernmental agreements and to refer limited legislative powers to the Commonwealth to enable it to make some parts of the Water Act.

Building on earlier versions of the Agreement to reflect changes arising from the Water Act, Basin governments adopted the Murray–Darling Basin Agreement 2008⁵⁶ to promote and coordinate effective planning and management for the equitable, efficient and sustainable use of the water and other natural resources of the Murray–Darling Basin.

The Agreement establishes the Murray–Darling Basin Ministerial Council to consider and determine outcomes and objectives on major policy issues of common interest to the Basin governments. It also establishes the Basin Officials Committee to oversee high level decision-making in relation to river operations, including setting MDBA objectives and outcomes.

The Basin Officials Committee, in turn, is advised by several technical working groups. These include the River Murray Operations Committee, the Southern Connected Basin Environmental Watering Committee, the Water Liaison Working Group and the Trade Working Group.

See Figure 2.7 for a diagram outlining the river operation decision making bodies in the Murray Darling Basin.

Operation of river

The operation of the Basin is split into two regions: the Northern Basin and the Southern Connected Basin.

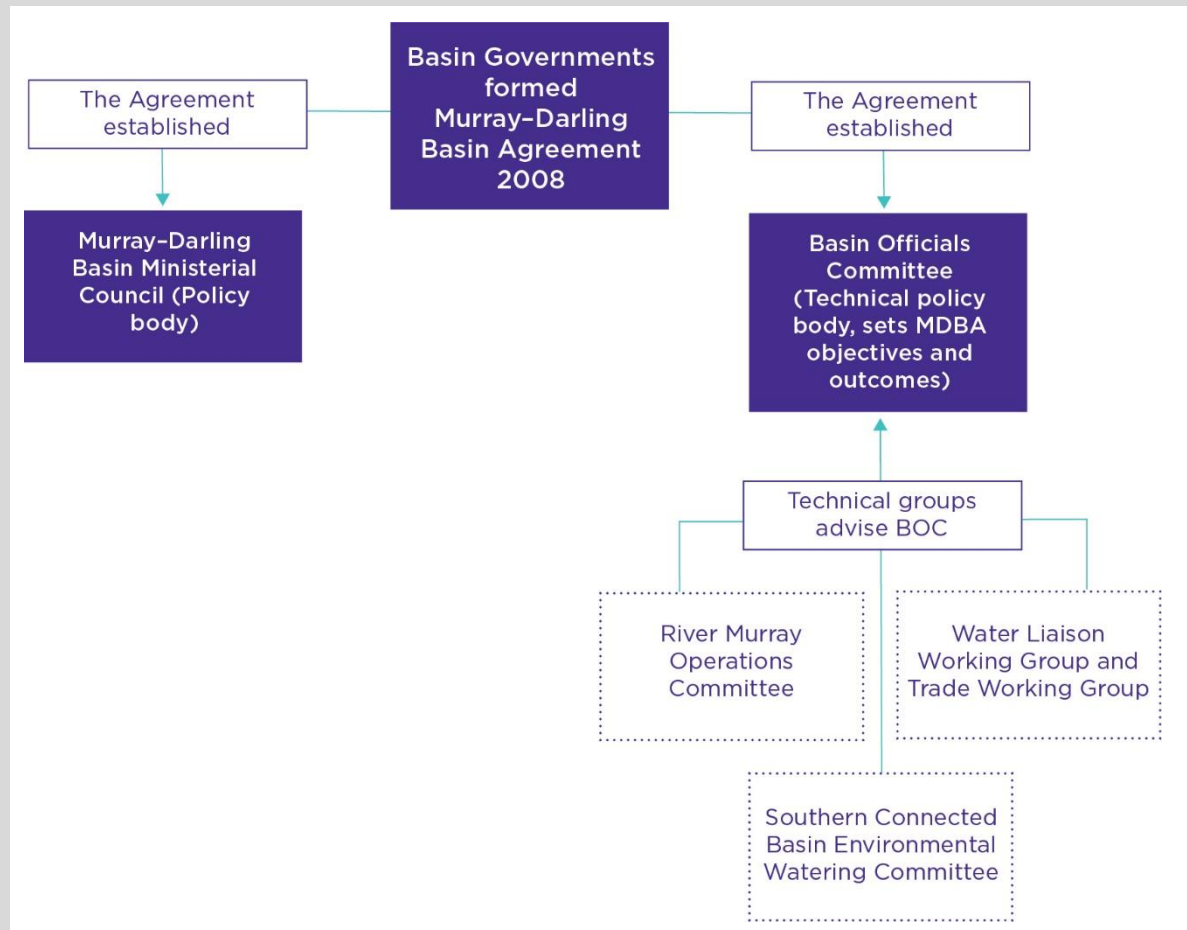
In the southern connected Basin, the MDBA works in cooperation with the Basin governments to run the River Murray. Inter-valley and interstate trade are the subject of joint management and oversight through arrangements set out in Schedule D of the Murray–Darling Basin Agreement.

As the river operator in the Southern Connected Basin, the MDBA maintains the IVT accounts and coordinates trade of water entitlements and allocations between states and valleys.

⁵⁶ Now Schedule 1 in the *Water Act 2007* (Cth).

Interstate trade between Queensland and New South Wales is managed under agreements between the two states.⁵⁷ The bulk water operations are managed via the New South Wales–Queensland Border Rivers Intergovernmental Agreement 2008⁵⁸ and by the Border Rivers Commission.⁵⁹ Trade between New South Wales and Queensland is managed by the states via their water sharing plans.

Figure 2.7: River operation decision making bodies for the Murray–Darling Basin



Source: ACCC analysis based on Murray–Darling Basin Authority.⁶⁰

⁵⁷ New South Wales and Queensland entered into the Border Rivers Agreement in [1946]. The agreement was ratified in New South Wales by the New South Wales–Queensland Border Rivers Act 1947 and in Queensland by the New South Wales–Queensland Border Rivers Act 1946 (MDBA 2017: <https://www.mdba.gov.au/managing-water/water-markets-trade/interstate-water-trade>, viewed 11 June 2020).

⁵⁸ At https://www.dnrme.qld.gov.au/_data/assets/pdf_file/0006/105963/intergovernment-agreement.pdf, viewed 25 June 2020.

⁵⁹ Border Rivers Commission 2020, <http://www.brc.gov.au/>, viewed 11 June 2020.

⁶⁰ Murray–Darling Basin Authority, Murray-Darling Basin Ministerial Council and Murray-Darling Basin Authority Service Level Agreement, 2014 at <https://www.mdba.gov.au/sites/default/files/pubs/Service%20Level%20Agreement.pdf>, viewed 23 June 2020.

2.11.4. Interim Inspector General of Murray–Darling Basin Water Resources

The Australian Government has appointed Mick Keelty AO as Interim Inspector-General of Murray–Darling Basin Water Resources (IIG) from 1 October 2019, for 12 months or until a statutory appointment is made, pending new Commonwealth legislation.

The IIG’s role is to provide independent oversight and assessment of the Australian Government and Basin State agencies responsible for implementing the Basin Plan. The role includes assessing the performance of the MDBA and Basin States in carrying out their compliance functions under the Water Act and Basin Plan. In performing the role, the IIG must undertake investigations and community consultation and to refer instances of alleged non-compliance to appropriate enforcement agencies. The IIG reports directly to the Minister and the Basin Ministerial Council.⁶¹

2.11.5. Commonwealth Environmental Water Holder

As explained in section 2.10, the Commonwealth Environmental Water Holder (CEWH) manages a large portfolio of environmental water—entitlements with annual allocations that have been acquired through the Australian Government’s investment in water-saving infrastructure and strategic water purchasing throughout the irrigation districts of the Basin. There are other environmental water holders in each of the Basin States.

2.11.6. Bureau of Meteorology

Under the Commonwealth Water Act, the Bureau of Meteorology has responsibility for compiling and disseminating comprehensive water information across Australia.

2.11.7. Australian Competition and Consumer Commission

The functions of the ACCC related to water include:

- enforcing rules relating to transformation of irrigation rights, regulated charges levied by infrastructure operators, and termination-fee rules⁶²
- enforcing the Australian Consumer Law (ACL) over water brokers, exchanges and IIOs
- advising the MDBA on the development of water trading rules.

2.11.8. Australian Securities and Investments Commission

The Australian Securities and Investments Commission has some jurisdiction to regulate certain aspects of tradeable water rights. Chapter 7 discusses this in more detail.

2.12. Why is there water trading in the Murray–Darling Basin?⁶³

Why have water markets? Like trade anywhere around the world, the buying and selling of access to water in the Murray–Darling Basin goes on for certain key reasons:

- Water is scarce; and where it is demanded most changes over time. Trading in water markets helps people access water where it is wanted most—to put it to its most productive use. With water trade, irrigators produce more of the things valued most and the Australian economy benefits:

⁶¹ IIG n.d., www.igmdb.gov.au, viewed 11 June 2020.

⁶² ACCC n.d., www.accc.gov.au/regulated-infrastructure/water/accc-role-in-water, viewed 11 June 2020.

⁶³ Content in this section draws on material from National Water Commission, *Water Markets in Australia: A Short History*, 2011, p. 6, at apo.org.au/node/27438, viewed 11 June 2020.

- Irrigators are the single largest group of water users in the Basin. The Basin's water trading system allows many irrigators to, for instance, top up their water needs, expand production, develop new business models and free up capital to invest elsewhere in their businesses (for example, by leasing water temporarily at less cost than owning it permanently).
- To give two concrete examples, markets for water rights can i) help some businesses emerge or expand, such as nut growers buying water entitlements to chase new domestic and export-market openings; and ii) help others stay stable over the longer term, such as grape growers buying water allocations to keep their long-held vines alive in drought.
- Markets and trading give individual people and businesses more choice in, and more responsibility for, what happens to the Basin's scarce water. With trade, individual people and businesses work out what they want and need, and then deal directly with each other in the marketplace. Without water markets, processes for changing ownership of water rights and where water can be used would be more cumbersome. In the alternatives:
 - Private interests might still trade water assets, but if, for example, water is tied back to land, people's choices and actions would be more restricted and costly.
 - If government decisions and processes solely and centrally determined all the detail of water use and movement, people would be confined just to dealing with and lobbying government to fulfil their needs.
- In the context of the droughts that beset the Murray–Darling Basin, trading and markets can be used as tools to make the best use of the scarce natural resource of water. When individuals trade in markets, especially markets characterised by healthy competition, experience indicates that they tend to deal with each other more efficiently and effectively than alternative systems. That is:
 - More needs and parties are satisfied and there is less waste and loss.
 - There is greater pressure to drive down costs of using and transferring water between parties.
 - There is innovation—new ways of doing things.

This is summed up:

- in the first objective listed in the Water Act for water markets, where the objective is:

*to facilitate the operation of efficient water markets and the opportunities for trading, within and between Basin States*⁶⁴

- among the purposes of the Basin Plan, which include to provide for:

*water to reach its most productive use through the development of an efficient water trading regime across the Murray–Darling Basin.*⁶⁵

⁶⁴ *Water Act 2007* (Cth), s. 3, Clause 3 Basin water market and trading objectives.

⁶⁵ *Water Act 2007* (Cth), s. 23.

Box 2.8: The economics, in simple terms, of ‘efficient water markets and opportunities for trading’

The Basin water markets stem from the basic idea of managing a scarce resource through the use of a ‘cap-and-trade’ system in which:

- the cap represents the total pool of the resource available, consistent with sustainable levels of extraction
- individual users are given entitlements to a share of the total pool
- entitlement rights and the quantity of water allocated to an entitlement each season (an allocation) are tradeable, so that ownership, control and use can change over time
- the price is determined in the market by the value placed on water by many buyers and sellers.

The objective of the cap-and-trade water market approach is to facilitate the economically efficient allocation of water while improving environmental sustainability by limiting extraction of the resource. Once the cap on total consumptive water use is established, water trading is a mechanism intended to ensure that limited water resources are put to their most valuable ‘uses’ (including non-consumptive uses such as environmental watering). The idea is that water markets will promote economic efficiency by enabling water resources to be reallocated to those who value them most highly in both the long and the short terms:

- Seasonal water trading (sometimes called ‘temporary trade’) enables the water available in any given season to be reallocated across crops, locations, irrigators and other water users in response to seasonal conditions (the concept of allocative efficiency). This is particularly valuable where different users have different water demands. For example, given enough warning, rice growers can choose to reduce the areas they sow during times of low water availability. However, other farmers, such as those growing perennial horticultural crops (such as fruit trees), need water every year. Trading provides the opportunity to move water between users with different water demands.
- Water trading can facilitate investment and structural adjustment in response to changing conditions. For example, in a capped system in which no new entitlements are available, trade enables new water users, such as a new ‘greenfield’ irrigation developments, to establish and develop. The corollary is that water markets provide a mechanism for existing users to retire or move on. As a result, markets enable dynamic changes in the size and composition of water-using industries over time. This is particularly useful in a market-oriented economy such as Australia’s, in which farmers face fluctuating global market forces for the commodities they produce.
- Water trading can also promote productive efficiency. The price signal for water in the market provides an incentive for users to make efficient use of all inputs and invest in improving the efficiency of their on-farm water use.

In short, markets allow water users, rather than governments, to make these complex short-term and long-term decisions about who should use water for what. Market prices provide a signal for users to consider the opportunity costs of their water-use decisions and make decisions in their own best interests. However, for the decisions of individuals to be consistent with the broader public interest, water markets must operate within the physical and hydrological realities of surface water and groundwater systems. Therefore, to be efficient, water trading needs to be governed by rules that reflect those realities.

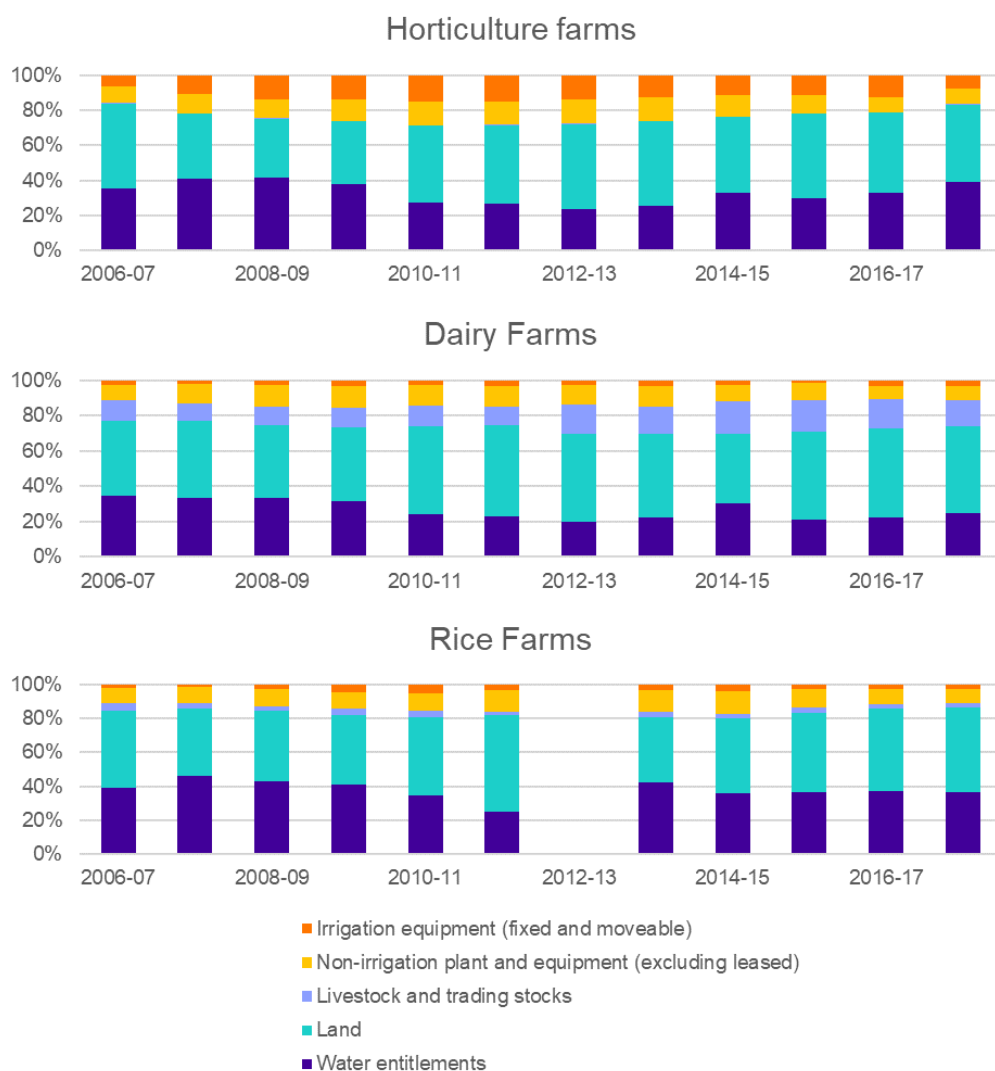
As illustrated above, water trading is an opportunity not just for buyers but also for sellers, who can earn an income from their water rights when they are more valuable to someone else. Markets provide the opportunity for one party that wants and needs water to find another party that is prepared to trade its water, at a price they both accept. Both sides are seeking an outcome that benefits and profits them. To repeat the example used in Box 2.8, growers of annual crops, such as rice and cotton, can earn an income by trading on their water assets in years when prices for those crops are low and water is expensive.

Water rights are now significant assets for many farmers:

- The value of water entitlements on issue across Australia in 2018–19 has been estimated to be \$22.7 billion.⁶⁶ In recent years the average turnover of Basin water rights markets has been about \$1.5 billion.
- On average for the Southern Basin, water entitlements comprise around 40 per cent of capital assets for horticulture farms, 37 per cent for rice farms, and 25 per cent for dairy farms, as at 2017–18 (Figure 2.8). Importantly, for some farms, the value of entitlements held is equal to or even more than the value of land assets.

⁶⁶ Aither, *Water markets report—2018-19 review and 2019–20 outlook*, Aither, Melbourne, cited in S Wheeler and others, *Water market literature review and empirical analysis*, Consultant report prepared for the ACCC Water Market inquiry, 2020.

Figure 2.8: Average proportion of capital assets by asset class, by farm type, 2006–07 to 2017–18



Source: Australian Bureau of Agricultural and Resource Economics and Sciences irrigation survey, 2020, <https://www.agriculture.gov.au/abares/research-topics/surveys/irrigation>.

Notes: Average per farm. For horticulture: average of three regions (Goulburn, Murray and Murrumbidgee); for rice: average of two regions (Murray and Murrumbidgee); for dairy: average of two regions (Murray and Goulburn-Broken).

2.12.1. There are many reasons why different parties decide to trade in water

Water markets allow various parties to pursue a range of activities and execute a range of strategies and plans. Table 2.4 gives some examples. Chapter 4 provides more detail and data on the different types of traders, including discussion of traders' 'Water Ownership and Trading Strategies'.

Table 2.4: Examples of reasons for participating in water markets

Tradeable water right	Reason for trade	Type of trade
Water access entitlement and permanent irrigation right	Adjust permanent water holdings	Buy or sell water access entitlement or permanent irrigation rights
	Source additional water access entitlement or permanent irrigation right for defined period of time	Lease (as lessee) a water access entitlement or permanent irrigation right
	Permanently change the location at which water can be accessed	Tag a water access entitlement
	Provide an income stream for water access entitlements held	Lease (as lessor) a water access entitlement or permanent irrigation right
Water allocation and temporary irrigation right	Adjust current water holdings	Buy or sell water allocation or temporary irrigation rights ('spot market' trades)
	Access carryover capacity	Carryover parking
	Access water at a future point while limiting exposure to future price movements	Forward trade water allocation or temporary irrigation right
	Change location at which currently available water may be accessed	Change of location trade (for example, inter-valley or inter-zone trade)
Water delivery right	Permanently adjust share of network capacity (and liability to pay fixed network charges)	Buy or sell water delivery rights

Source: ACCC analysis.

2.13. Elements of effective water markets

As discussed in section 2.12, the overall objective in creating water markets is to set up a mechanism to allocate a scarce and limited resource (water) to generate maximum public benefit.

Policymakers and economists have long recognised that markets are much better mechanisms to allocate resources in ways that maximise benefits and are responsive to changing circumstances than are governments. The extended negative legacy of government water allocation decisions in Australia and internationally over many decades provides a sharp reminder of the limitations of government allocation decisions, especially for a resource such as water.

Water markets involve a product which has unique characteristics, specifically its supply is dependent on seasonal conditions and is unresponsive to demand, and there are major constraints which limit its transportability. It also has value for non-economic purposes such as maintenance of the environment, and is essential for human and animal needs. Consequently, developing an efficient and well-functioning water market needs careful market design. This is particularly so in the Southern Basin, as it involves thousands of irrigators sourcing water from multiple waterways and storages spanning three states.

An efficient and well-functioning market is one:

- which results in prices that most closely reflect all available information (that is, there are no ‘externalities’—which is where prices do not incorporate or reflect all the costs and benefits of the activity)
- which results in products being allocated to their most economically-valuable use (that is, allocation is efficient, including taking into account dynamic considerations⁶⁷)
- in which transaction costs are efficient⁶⁸
- which enables participants to readily access relevant and comprehensive market information.

Markets can take many different forms, ranging from the simple open-cry auction markets typically used to buy and sell real estate, to highly complex electronic exchanges used to buy and sell financial derivatives or equities. However, there are several common elements that are fundamental to most markets, and which in combination contribute to their efficient and effective operation.⁶⁹ Table 2.5 provides a description of these common elements of efficient markets and how they apply in water markets, and shows which chapters of this report address which element(s).

Table 2.5: Common elements of effective water markets, and where they are addressed in this report

Category	Market element	How does this element apply in water markets?	Relevant chapters
Enabling Institutions	Supply	Volume of water available to be traded. In a cap-and-trade market, this also encompasses the robust definition of the cap and specifying resource shares in perpetuity.	3
	Product description	Details of water ‘product’ characteristics, including security level, risk level, legal protection.	2
	Ownership registry	Record of legal ownership of water entitlements and allocations, including records of changes in ownership, on state-based registers established under water management legislation. Settlement (see below) for some	8 to 11

⁶⁷ The concept of efficient allocation of resources among competing uses entails several concepts of efficiency. In relation to water resources, these concepts can be considered as follows:

- Allocative efficiency: water resource short-term decision making reflecting seasonal conditions is most often achieved through water allocation trade.
- Productive efficiency: water price changes offer incentives for the efficient use of water resources as either an investment or input for productive outcomes.
- Dynamic efficiency: water resource structural or long-term decision making reflecting new investment opportunities, regulatory shifts in access arrangements or personal strategic choices is achieved through water entitlement trade.

Source: S Wheeler and others, *Water market literature review and empirical analysis*, Consultant report prepared for the ACCC Water Market inquiry, 2020, p. 18.

⁶⁸ This principle is sometimes phrased as ‘transactions costs are minimised’. However, transactions costs are not necessarily a ‘dead-weight loss’ which reduce gains from trade; transactions costs may constitute necessary investment in services and systems for facilitating trades. Therefore, maximising gains from trade does not necessarily equate to minimising transactions costs. Therefore, we use the concept of ‘efficient transactions costs’, which refers to the level of transactions costs which maximise gains from trade.

⁶⁹ The ACCC has commissioned a literature view which summarises existing assessments of water markets and describes the objectives and principles of effective water markets in more detail. See in particular chapter 4 of this report and S Wheeler and others, *Water market literature review and empirical analysis*, Consultant report prepared for the ACCC Water Market inquiry, 2020.

		trades does not take place until registration.	
	Trading rules	Rules that determine when and how trade can occur, in what water products, and special constraints applicable to certain products or transactions.	8 to 11
Facilitating gains from trade	Exchange	Forum(s) in which buyers and sellers are able to make and accept price offers to exchange ownership of water entitlements and allocations.	8 to 11
	Clearance	Ensuring buyer and seller honour contract obligations; and assessing and approving trade applications.	8 to 11
	Settlement	Facilitating the actual transfer of payment from buyers to sellers, and transfer of title from sellers to buyers and updating water accounts to reflect approved transactions.	8 to 11
	Delivery	Process of physically supplying a volume of water which an owner of a water entitlement/allocation/right is legally entitled to receive.	8 to 11
	Market information	Collation and dissemination of information detailing key market data such as the price of water trades that have occurred, and the description of the water product that has been transacted. Ensure the quality of data and information is appropriate for users' needs.	8 to 11
Effective monitoring, enforcement and evaluation	Market monitoring	Market monitoring involves both actively examining the behaviour of market participants (including service providers such as intermediaries and trade approval authorities)	5 to 7
	Compliance and enforcement	Compliance and enforcement are critical in terms of market integrity and confidence. Compliance and enforcement actions apply for many of the elements listed above (for example enforcement of total supply cap; enforcement of rules governing permissible trade restrictions; enforcement of rules governing trader behaviour; compliance with rules or standards for trade processing and information flows).	5 to 7
	Market evaluation	Evaluating the outcomes arising from markets in order to assess whether markets are performing well or could be improved. This includes reviewing existing transactions costs to see whether they can be reduced, scanning for unanticipated externalities, and developing new market products in response to traders' demands.	12 to 14

Source: ACCC analysis, adapted from S Wheeler and others.⁷⁰

⁷⁰ S Wheeler and others, *Water market literature review and empirical analysis*, Consultant report prepared for the ACCC Water Market inquiry, 2020, p. 7.

2.14. Summary

The key reasons for having water markets are:

- Water is scarce; where it is most strongly demanded will often change over time. Trading in water markets helps people access water where it is wanted most—to put it to its most productive use. With water trade, we produce more of the things people value the most; and the Australian economy benefits as a result.
- Markets and trading give individual people and businesses more choice in, and more responsibility for, what happens to the Murray–Darling Basin’s water.
- Water trading is an opportunity not just for buyers but also for sellers, who can earn an income from their water rights when they are more valuable to someone else.
- Trading and markets can be used as tools to make the best—the most cost-effective and least wasteful—use of the scarce natural resource of water.

The Basin is not characterised by just one market for just one product called ‘water’. There is a set of interrelated markets, split across product types and geographic areas, that support the trade of rights to access or receive water (water access rights and irrigation rights), and rights to delivery capacity or to have water delivered through certain specified infrastructure (water delivery rights).

The dominant determinant of total supply across the Basin is rainfall, followed by the Murray–Darling Basin Plan. Rules and policies, such as trading zones, also strongly shape how much water is available, where and when. River-flow and state-border issues have led to the development of a complex set of trading rules.

3. Trends and drivers in water markets

Key Points

Trends in water markets since 2012–13: volumes and values

- The total value of water allocation trade across Murray–Darling Basin water markets since 2012–13 is estimated at \$2.18bn in 2018–19 constant terms (accounting for inflation), and the value of entitlement trade over the same period is estimated at \$10.1 billion.
- While the volume of water allocation trade strongly depends on total water availability, the data indicates that volumes traded relative to the total water allocated to entitlement holders is growing. This indicates water markets are developing, and more water users are making use of them, over time.
- Water allocation prices have been much more volatile, and generally higher, in 2018–19 and 2019–20, than in previous years.
- Inter-valley trade restrictions are becoming more binding over time, and so their impact on market outcomes is increasing.
- Significant proportions of trading activity takes place within off-river irrigation networks, such as the non-government irrigation infrastructure operators (IIOs) in New South Wales and South Australia.

Drivers of water market trends since 2012–13

- Key trends likely to have significantly driven demand for water for irrigation and irrigator participation in water markets have been:
 - substantial expansion of the almond industry in the Southern Basin: increased irrigated areas, volume applied and production of almonds, which have been concentrated on the Murray River below the Barmah Choke
 - continued significant role of irrigated cotton, rice and other broadacre annual cropping in New South Wales, and increased irrigated pasture production in Victoria
 - increased irrigated area and volume applied for cotton in the Murrumbidgee, although a decrease irrigated area and volume applied in the Lower Darling.
- Government environmental water holders (EWHs) have become significant owners of water access entitlements in the Southern Basin. Acquisition of water access entitlement by EWHs have decreased the consumptive pool, reducing the upper limit of supply of water access entitlements and water allocations available in water markets. The impact this has on trade is complex: while demand for water may have increased from some irrigators who sold their entitlements to the Commonwealth but continued irrigating, some may have exited irrigated farming. EWHs are also significant traders of water allocations, although the majority of trades are transfers between different EWHs at zero price to facilitate environmental watering.
- New entrants into water markets such as institutional investors now account for significant proportions of water allocation trade in the Southern Basin.
- Recent substantial increased in water allocation prices, combined with the entry of new market participants such as institutional investors, give rise to stakeholder concerns about market integrity and the conduct of ‘non-user’ market participants.
- From 2012–13 to 2018–19, preliminary estimates indicate trade between own accounts (where buyer and seller are the same entity) represented at least 10 per cent of total

allocation trades in the Southern Connected Basin (by number), and 12 per cent by volume. This indicates significant volumes of recorded trades are a consequence of the Southern Connected Basin consisting of a series of interconnected but distinct systems, rather than a single system. ‘Carryover parking’ trades, which allow users to manage their water portfolios through time and across zones, likely add to this volume of trade that is not genuine ‘arms-length trade’.

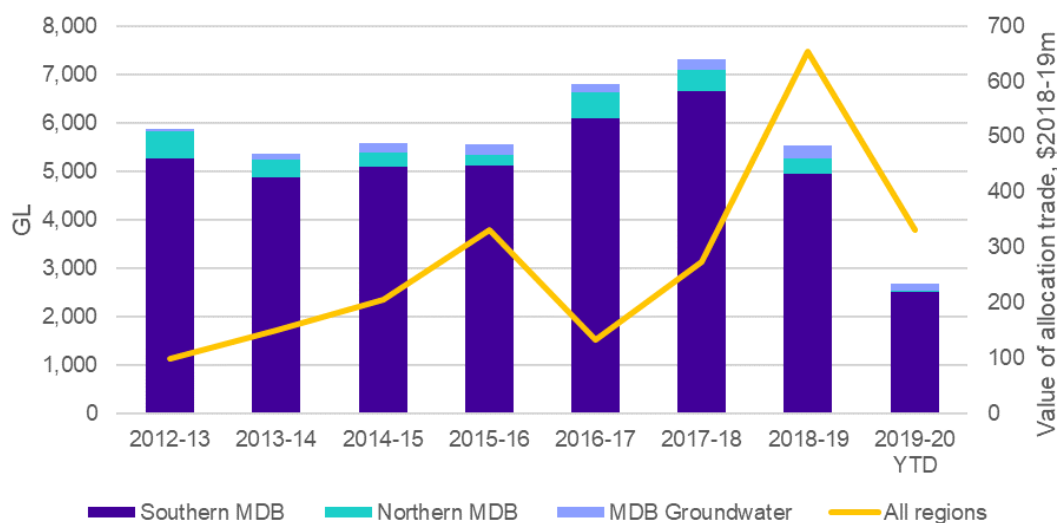
This chapter summarises key trends in Murray–Darling Basin water markets since 2012 and considers the drivers which interact to produce these trends. It then draws out some key implications of current trends and changes in underlying drivers over time, with an emphasis on considering whether these underlying drivers are putting pressure on current market structures which may negatively impact on efficient market functioning.

3.1. Trends in water markets since 2012

3.1.1. Water allocation markets and temporary trade of irrigation rights

Since 1 July 2012, 40 528 GL of water allocation has been traded in Southern Basin surface water systems, with an additional 2734 GL traded in Northern Basin surface water systems, and 1442 GL traded in Basin groundwater systems (figure 3.1).⁷¹ The total value of this trade is estimated at \$2.2 billion in 2018–19 constant terms (accounting for inflation).⁷² As this figure shows, over this period, the most significant year in terms of value of trade was 2018-19, in which high prices and relatively high trade volumes (compared to historical volumes traded) combined to produce a total value of \$653 million (in \$2018–19).

Figure 3.1: Allocation trade volumes and total value (\$2018–19), 2012–13 to 2019–20YTD



Source: ACCC analysis based on BOM and ABS data.
 Note: YTD = year to date (2019-20 year to 30 November 2019).

Over this period, the volume of allocation traded in the Southern Basin has been increasing relative to the volume allocated annually to entitlement holders. This reflects several factors:

- More irrigators are using temporary trading as part of their farm business strategy: in 2000, only around 10 per cent of irrigators in the Southern Basin had ever participated in

⁷¹ ACCC analysis based on Bureau of Meteorology data.

⁷² ACCC analysis based on Bureau of Meteorology and Australian Bureau of Statistics, Cat. No. 6401.

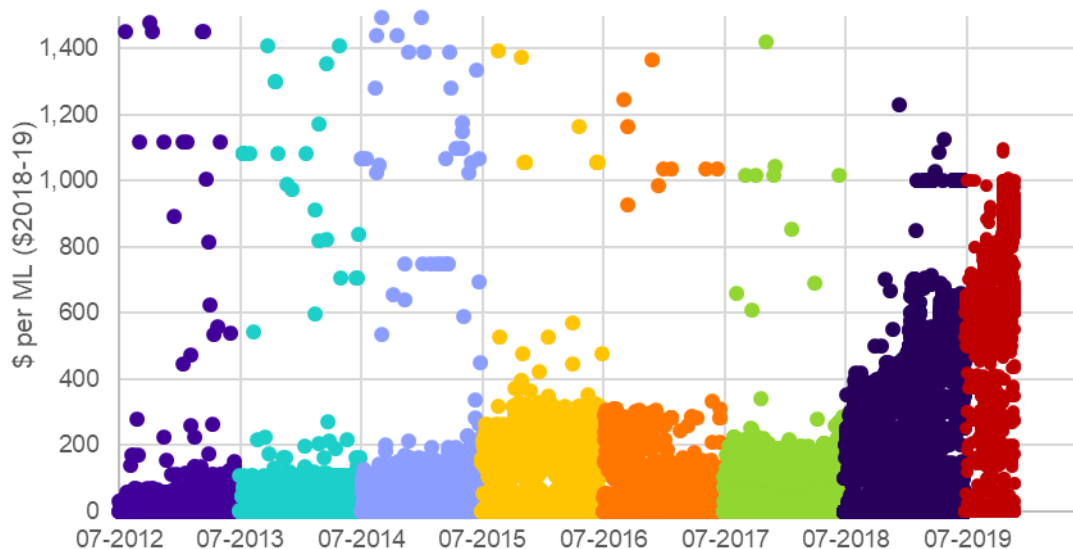
temporary trade, but participation has risen sharply and by 2015, around 78 per cent of irrigators had conducted at least one water allocation trade.⁷³

- The introduction of carryover has resulted in significant volumes being held over from one year to the next, some of which is then traded.
- There has been an increase in consumptive water users moving water allocated in one trading zone to another zone for further trade or use (extraction).⁷⁴
- Environmental water holders (EWH) have acquired a substantial portfolio of water access entitlements, and regularly move water allocation accruing to these entitlements between valleys and between EWH as part of environmental watering strategies.

Water allocation price movements

Over the period 2012–13 to 2019–20, water allocation prices have fluctuated significantly. 2018–19 and prices increased dramatically during the first half of 2019–20 as drought conditions returned to the Basin (figure 3.2). Water allocation prices on any given day show a wide range of variation; there is no single price for water allocation.

Figure 3.2: Allocation prices for Southern Connected Basin, 2012–13 to 2019–20 (\$2018-19)



Source: ACCC analysis based on New South Wales, South Australia and Victoria response to voluntary information request and Australian Bureau of Statistics, Cat. No. 6401. 2019–20 year to 30 November 2019.

Notes: Zero dollar trades included.

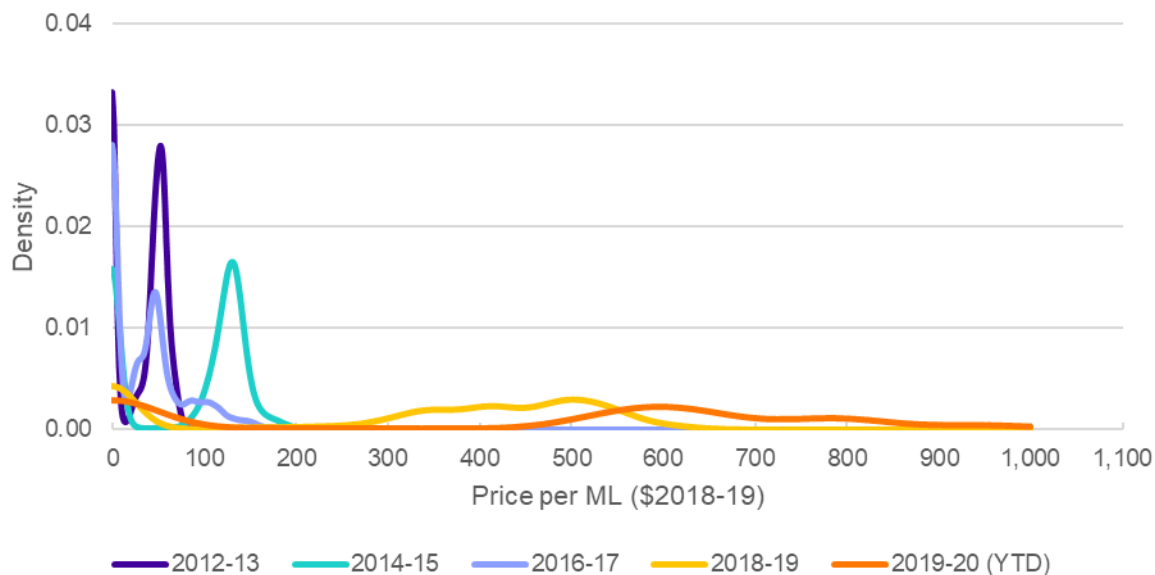
Water allocation prices have been particularly volatile in 2018–19 and 2019–20. Figure 3.3 below shows the relative spread of prices for each water year, in constant \$2018–19 per ML. In a wet year such as 2016–17, prices are dominated by zero dollar trades conducted by environmental water holders and other parties seeking to transfer water between their own accounts, or to related parties—for example, the Commonwealth Environmental Water Holder (CEWH) transfers a significant proportion of its water allocation to the Victorian Environmental Water Holder (VEWH) for delivery, in part because the VEWH holds bulk

⁷³ University of Adelaide consultancy, p. 35. See also chapter 4 and appendix A for a detailed analysis of irrigator participation in water markets.

⁷⁴ ACCC analysis based on New South Wales, South Australia and Victoria response to voluntary information request.

entitlements with different and more flexible delivery arrangements.⁷⁵ In contrast, in a dry year such as 2018–19, the majority of trade is undertaken by non-EWH traders, and prices fluctuate significantly and reflect the tightened supply due to low water availability, versus the increased demand from irrigators.⁷⁶

Figure 3.3: Density of price per ML, by water year, Southern Connected Basin



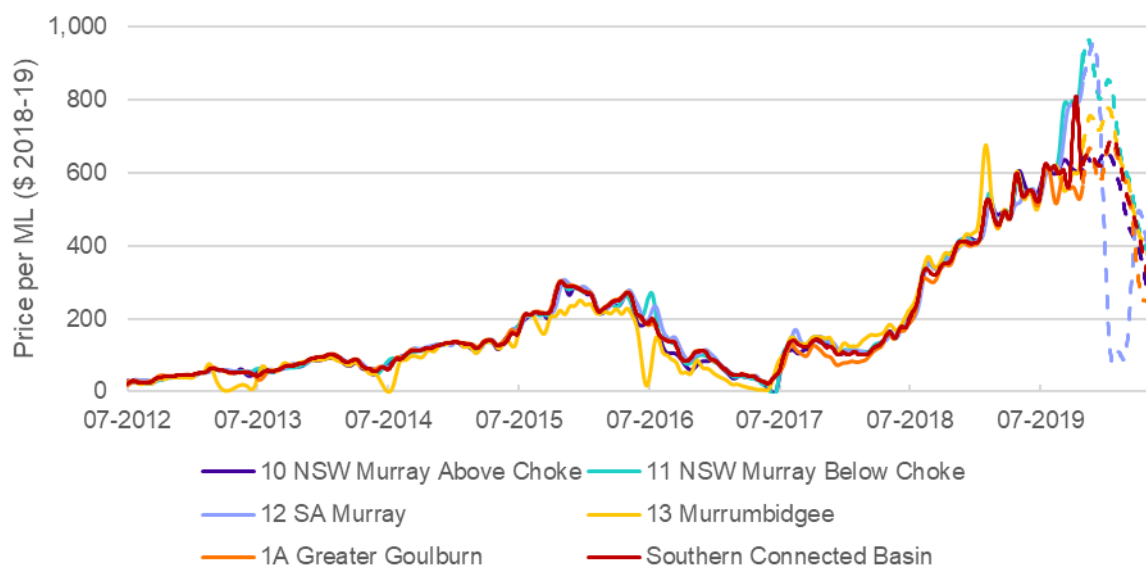
Source: ACCC analysis based on New South Wales, South Australia and Victoria response to voluntary information request.
 Notes: A density plot shows the distribution of trade prices. Higher densities mean more trades at that price.

Inter-valley trade restrictions within the Southern Connected Basin cause water allocation prices to differ between zones. Figure 3.4 shows how average prices for the main trading zones in the Southern Connected Basin converge and diverge over time. Section 3.3 considers how restrictions on inter-valley trade contribute to price divergence between zones when trade limits are closed (that is, when inter-zone trade is not permitted), and the ACCC intends to undertake further analysis on price divergences between zones in its final report.

⁷⁵ For example, the VEWH's 'access to return flows is enabled through rules in its environmental entitlements. Reuse of return flows is also available to the CEWH and MDBA when the VEWH delivers water on their behalf.' See VEWH Annual Report 2017–18, https://www.vewh.vic.gov.au/_data/assets/pdf_file/0006/506373/VEWH-Annual-Report-2017-18_web.pdf, viewed 22 June 2020, p. 20.

⁷⁶ ABARES, Snapshot of Australian water markets, <https://www.agriculture.gov.au/abares/publications/insights/snapshot-of-australian-water-markets#water-market-prices-are-driven-by-supply-and-demand>, viewed 22 June 2020.

Figure 3.4: Average prices, by selected trading zones, and average for Southern Connected Basin \$2018–19



Source: ACCC analysis based on New South Wales, South Australia and Victoria response to voluntary information request, Waterflow data and Australian Bureau of Statistics, Cat. No. 6401.

Notes: Basin State voluntary information request data used up until 31 October 2019 (solid lines); Waterflow data thereafter dashed lines). Daily zone and Southern Connected Basin (all zones) price series derived using ABARES GAM methodology. Excludes zero dollar trades

Temporary trade involving IIOs

IIOs in New South Wales and South Australia are significant holders of water access entitlement, particularly in the Southern Basin (see further discussion under section 3.1.2 below). In these states, IIOs typically hold water access entitlements on behalf of their customers, and the customers hold irrigation rights and are allocated water ('temporary irrigation right') by their IIO. When an IIO customer who holds irrigation rights wishes to trade with a person situated outside the IIO's network, the IIO undertakes a water allocation trade on their customer's behalf, and reduces or increases the customer's internal temporary irrigation right to reflect the trade. Because of these arrangements, IIOs often appear as trading parties in Basin State registry data. In 2018–19, IIOs accounted for 8 per cent of water allocation volumes purchased, and also 8 per cent of water allocation sold in the Southern Connected Basin; this is lower than in earlier years, when IIOs typically accounted for around 12–17 per cent of the volume of trade (as sellers), and 8–10 per cent (as buyers).

Trade of temporary irrigation right *within* these IIO networks can also be significant. In 2018–19, 1028 GL of temporary irrigation right was traded within New South Wales and South Australia IIOs in the Southern Connected Basin.⁷⁷ This trade is not captured in Basin State water registers, as IIOs are the approval authorities for these trades.

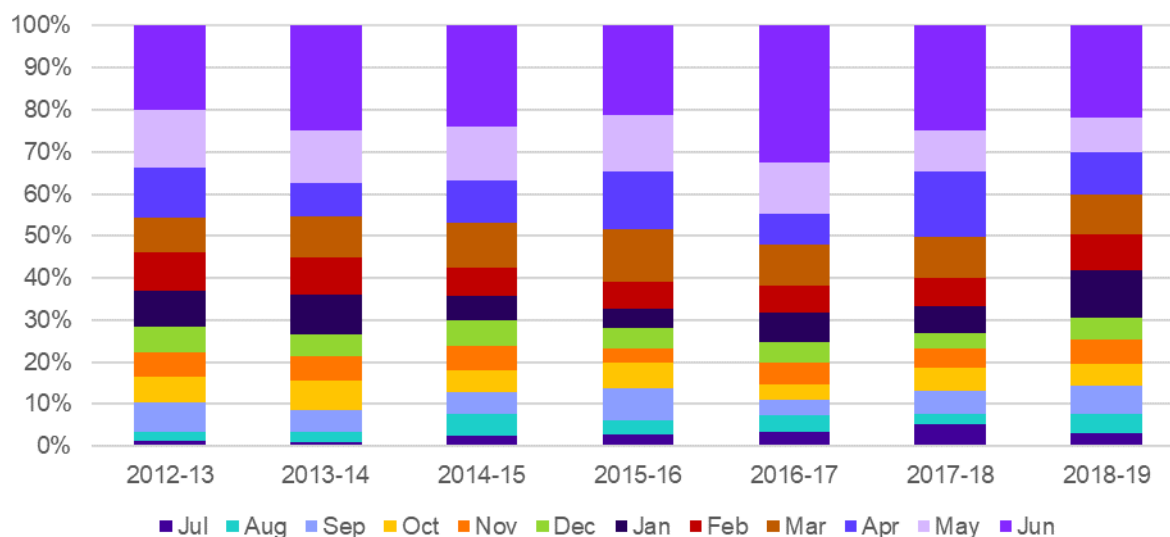
Allocation trade activity varies throughout the water year

Trading activity varies throughout the water year (figure 3.5). Over the period 2012–13 to 2018–19, on average, around 2 per cent of trades (by number) occur in July—typically this is because the irrigation season has not started, and allocations may not yet have been

⁷⁷ Temporary trade within IIOs covers the following IIOs: Barossa Infrastructure, Buddah Lake, Coleambally, Central Irrigation Trust, Eagle Creek Pumping Syndicate, Hay Private Irrigation District, Jemalong, Marthaguy, Murrumbidgee Irrigation, Murray Irrigation, Moira, Narromine Irrigation Board of Management, Renmark Irrigation Trust, Tenandra, Trangle-Nevertire Irrigation Scheme, West Corurgan, Western Murray Irrigation. Source: ACCC annual Water Monitoring Report IIO Requests for Information.

announced, even for higher security rights.⁷⁸ As the year progresses, trading activity increases, particularly over the summer months and into autumn, as the irrigation season progresses.

Figure 3.5: Proportion of allocation trades by month and year, Southern Connected Basin, 2012–13 to 2018–19



Source: ACCC analysis based on New South Wales, South Australia and Victoria responses to voluntary information request. Provisional estimates.

Notes: Month determined by date trade application was submitted. Includes all approved trades, including zero dollar trades.

Trading to access carryover

Carryover changes the dynamic of when water is available in accounts for use or trade. Users who have carried over water from the previous year will have allocation available in their accounts even before new allocations are announced for entitlement holders. Carryover and trade also interact, as many users trade water after the irrigation season has finished (in June).

While figure 3.5 shows that June has accounted for a significant proportion of trading activity throughout the period 2012–13 to 2018–19, trades in June 2017 increased to being more than 20 per cent of the total number of trades for the 2016–17 water year. One reason for this is that users move water between their own accounts to take full advantage of their own access to carryover, and also undertake ‘carryover parking trades’ with other users, to take temporary advantage of others’ unused carryover eligibility. Figure 3.6 considers the set of allocation trades where the buyer is the same as the seller—that is, trades between a user’s own accounts. Comparing this to figure 3.5 shows that trading between one’s own accounts is much more focussed on end-of-year trade (particularly in June) than trade in general.

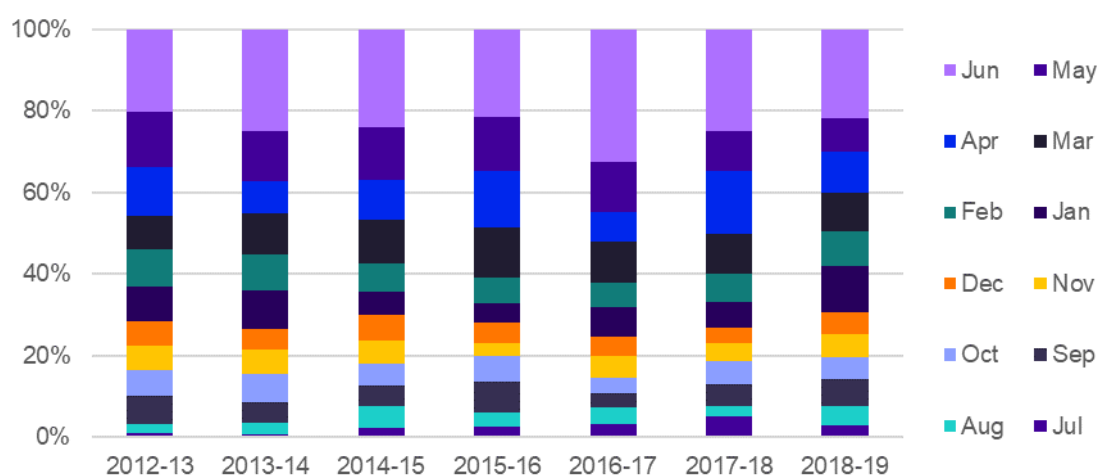
Over the whole period, preliminary estimates indicate that trade between own accounts represented about 10 per cent of total allocation trades (by number), and 12 per cent by

⁷⁸ For example, Murray Irrigation Limited’s (MIL) 2019-20 Seasonal operating plan states that (subject to certain conditions, MIL will commence refilling of its supply channels through its bulk supply offtakes on 24 July 2019, with the intention to commence delivering water on 15 August 2019. See Murray Irrigation, Season Operating Plan 2019/2020, <https://www.murrayirrigation.com.au/wp-content/uploads/resource/2019/12/SOP-2019-20-final.pdf>, viewed 22 June 2020. Likewise, GMW’s gravity-fed irrigation season typically commences on 15 August. See GMW, Customer Service Charter, November 2007, https://www.g-mwater.com.au/downloads/gmw/Customer_Service_Charter_2007.pdf, viewed 22 June 2020.

volume.⁷⁹ This is important because it highlights that significant volumes of trade are due to the fact that the Southern Connected Basin is made up of a series of interconnected but distinct systems—that is, a user does not hold a single account which all their entitlements and trading activities feed into, but rather needs to hold different accounts in different states and zones, and may in some cases even hold multiple accounts in the same zone.

Further, carryover parking trades between users add to the volume of trade that is undertaken not as genuine ‘arms-length’ water allocation trades, but rather to manage users’ own water portfolios through time. Estimates of the volume and number of carryover parking trades are not yet available, but some limited evidence is presented in chapters 4 and 5.

Figure 3.6: Proportion of allocation trades between own accounts, by month and year, Southern Connected Basin, 2012–13 to 2018–19



Source: ACCC analysis based on New South Wales, South Australia and Victoria responses to voluntary information request. Provisional estimates.

Notes: Month determined by date trade application was submitted. Includes all approved trades, including zero dollar trades. To date, assessment of trade between own accounts has been completed at the State level only—that is, where a party trades interstate between their own accounts, such trades are excluded from this analysis. The ACCC intends to update this analysis for the final report to take account of interstate trades between own accounts where possible.

3.1.2. Water entitlement markets

Permanent trade: water access entitlements

The total value of entitlement trade across the Basin since 2012–13 is estimated at \$10.1 billion in 2018–19 constant terms (accounting for inflation). The total value traded each year fluctuates with changing prices and volumes traded, but averages around \$1.25 billion per year.⁸⁰

Over the period 2011–12 to 2015–16, the single largest reason for permanent trade was the acquisition of permanent rights by the federal government for environmental use.⁸¹ After 2015–16, acquisition by government for environmental water holders has declined, and

⁷⁹ ACCC analysis based on New South Wales, South Australia and Victoria responses to voluntary information request.

Notes: Month determined by date trade application was submitted. Includes all approved trades, including zero dollar trades. To date, assessment of trade between own accounts has been completed at the State level only—that is, where a party trades interstate between their own accounts, such trades are excluded from this analysis. The ACCC intends to update this analysis for the final report to take account of interstate trades between own accounts where possible. This analysis also does not take into account trade between related parties (e.g. family members).

⁸⁰ ACCC analysis based on Bureau of Meteorology and Australian Bureau of Statistics, Cat. No. 6401.

⁸¹ See chapter 4 for detailed analysis of trader categories.

trades between different classes of consumptive users—particularly different irrigated sectors—has become more prominent. Changes in the relative economic returns from different agricultural commodities also drives entitlement trade. For example, high returns to almonds and cotton, combined with low interest rates, has driven expansion and entitlement acquisition in these industries.⁸² In addition, in some valleys, there has been significant acquisition of permanent water rights by non-users, who seek to hold permanent water rights as long-term assets, and who provide a range of services to water users, such as entitlement sale-and-lease-back arrangements and forward allocation contracts. On the seller side, entitlement markets have allowed sellers to free up capital and rationalise or restructure businesses. Chapter 4 provides greater detail on water market participation for different categories of traders, and appendix A provides detail on entitlement holdings and trades for irrigators, including data showing the importance of entitlements in farm asset portfolios.

As with any asset, entitlement prices change over time, driven by a range of factors, including: changing profitability of productive activities using water (for example, irrigated agriculture), actual and perceived long term changes in water availability, changes in the volume of entitlements on issue, changing interest rates, changes in agricultural land values and policy impacts such as the entry of the government environmental water holders into water market and the introduction of carryover, costs of holding entitlements (for example, fees and charges) and changes in the operation of water markets themselves.⁸³ There are also indirect links to year-to-year variability in rainfall, as market participants factor in this variability into their assessments of likely changes in long-term entitlement yields. Entitlement prices are also linked to allocation market prices, as the sale of water allocations provides a return to entitlement holders.⁸⁴

Industry has developed an index of entitlement values in the Southern Basin, which is used to track changes in the estimated value of entitlements over time. Over the past five years to 2018–19, this index has observed an 11 per cent compound annual growth rate, indicating strong growth in entitlement values.⁸⁵ In the 2018–19 water year, the index rose sharply (24 per cent increase compared to the previous year), and gained in all months except March 2019.⁸⁶ The current value for major entitlement types on issue in the Southern Basin is estimated at \$22.7 billion, with approximately \$5 billion held by the Australian Government for environmental purposes.⁸⁷

Entitlement trade in the Southern Connected Basin

As for allocation trade, trade is concentrated in the Southern Connected Basin. 1101 GL of high security/high reliability water access entitlement has been traded⁸⁸ and 1129 GL of general security and supplementary (New South Wales) and low and spill reliability (Victoria) water access entitlement over the period 2011–12 to 2018–19 (figure 3.7 and figure 3.8).

⁸² Aither, Review of water trading: the impact of IPART's regulatory framework on water trading markets, final report prepared for IPART, August 2018, see <https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/investigation-administrative-review-of-water-trading-2018/legislative-requirements-review-of-water-trading-2018/consultant-report-aither-review-of-water-trading-2018-final-report.pdf>, viewed 22 June 2020, p. 16.

⁸³ Australian Bureau of Statistics, see <https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4655.0Feature%20Article12016>, viewed 22 June 2020.

⁸⁴ Aither, Water markets report, 2017–18 review and 2018–19 outlook, see <https://www.aither.com.au/wp-content/uploads/2019/03/Aither-Water-markets-report-2017-18-3.pdf>, viewed 22 June 2020.

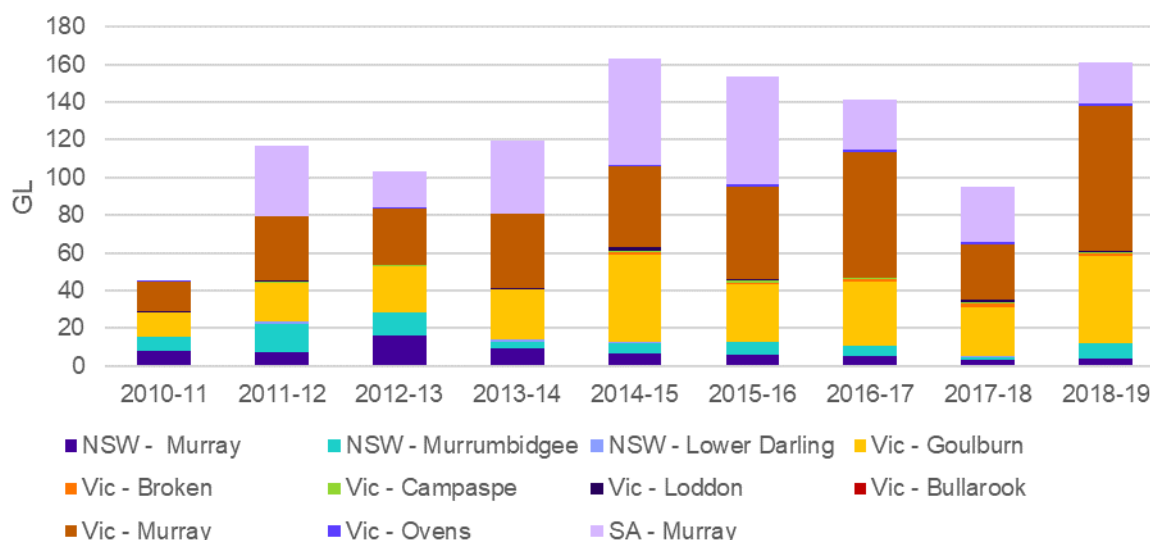
⁸⁵ Aither, Water markets report, 2018–19 and 201–20 outlook, see https://www.aither.com.au/water-markets-report-2018-19/#report_section_5, viewed 22 June 2020.

⁸⁶ *ibid.*

⁸⁷ *ibid.*

⁸⁸ Sum of nominal volume traded for the following categories of rights: South Australian River Murray: Class 3 entitlements; New South Wales Regulated River (High Security); Victoria High reliability water share. New South Wales trade only includes share component trade (71Q).

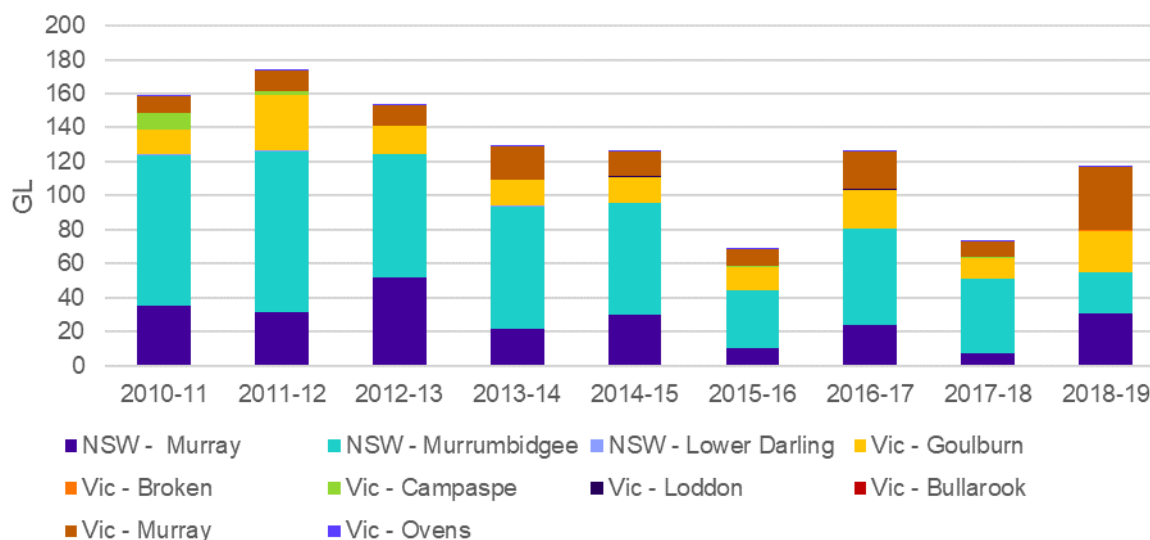
Figure 3.7: Water access entitlement trade by water resource, regulated systems, Southern Basin, high reliability/high security



Source: ACCC analysis based on Victorian and South Australia responses to voluntary information request; New South Wales Water Register (public website). Provisional estimates.

Notes: Includes the following categories of rights: South Australia River Murray: Class 3 entitlements; New South Wales Regulated River (High Security) for New South Wales Murray and Murrumbidgee; Victoria High reliability water share for Broken, Bullarook, Campaspe, Ovens, Goulburn and Loddon. New South Wales trade only includes share component trade (71Q).

Figure 3.8: Water access entitlement trade by water resource, regulated systems, Southern Basin, low and spill reliability, general security



Source: ACCC analysis based on Victorian and South Australia responses to voluntary information request; New South Wales Water Register (public website). Provisional estimates.

Notes: Includes the following categories of rights: New South Wales Regulated River (General Security) and New South Wales Regulated River (Supplementary) for New South Wales Murray and Murrumbidgee; New South Wales Regulated River (Supplementary Lowbidgee); Victoria Low reliability water share for Broken, Bullarook, Campaspe, Goulburn and Loddon and Spill reliability for Ovens. New South Wales trade only includes share component trade (71Q).

Permanent trade: irrigation rights within New South Wales and South Australian IIOs

IIOs in New South Wales and South Australia continue to be among the largest holders of water access entitlement within the consumptive pool for the Southern Connected Basin. In 2018–19, IIOs held 72 per cent, 22 per cent and 25 per cent of high security water access entitlement (WAE) on issue in Murrumbidgee, New South Wales Murray and South Australian Murray, respectively, and 50 per cent and 67 per cent of general security WAE on issue in Murrumbidgee and New South Wales Murray.⁸⁹ However, over time, the volume of water access entitlement held by IIOs is still changing, for several reasons. First, there has been an ongoing movement of irrigated agriculture to areas outside established IIO networks—that is, irrigators are increasingly **private diverters** rather than **irrigation network customers**. Second, some irrigators located within IIO networks have **transformed** their permanent irrigation rights into separately-held water access entitlements. These customers may still have their water delivered within an IIO network, but prefer to hold the water access entitlement themselves rather than hold a permanent irrigation right against an IIO.

Given that IIOs hold such a significant portion of water access entitlement, trade of permanent irrigation right *within* these IIO networks can be significant. In 2018–19, 100 GL of permanent irrigation right (nominal volume) was traded within New South Wales and South Australian IIOs in the Southern Connected Basin.⁹⁰ This trade is not captured in Basin State water registers, as IIOs are the approval authorities for these trades. While current data sources do not distinguish between the reliability types of permanent irrigation right trade, what is known is that in New South Wales, the majority of IIOs' entitlements are General Security, while in South Australia the majority of IIO entitlements are Class 3. Using the total trade volumes for these entitlement classes as a guide, internal permanent irrigation right trade within South Australian IIOs is about 15 per cent of the volume of entitlement trade in South Australian River Murray Class 3 entitlements (3.3 GL traded). For New South Wales, internal irrigation right trade within IIOs is far greater than permanent trade of water access entitlements; for Murrumbidgee IIOs, internal permanent trade volumes totalled 41 GL, 1.7 times higher than trade volumes for Murrumbidgee General Security water access entitlements. In New South Wales Murray, internal permanent trade volumes totalled 56 GL, 1.8 times higher than trade volumes for New South Wales Murray General Security water access entitlements.⁹¹

Another notable trend is the increasing market participation of investors such as superannuation funds. Preliminary analysis undertaken by the ACCC (presented in chapter 4) shows that institutional investors in particular now account for a significant proportion of allocation trade in the Southern Connected Basin, in terms of both the number and volume of trades.

The ACCC has heard a range of significant concerns expressed by some stakeholders about market participation of investors and non-landholders or non-water users more generally, particularly in relation to purchase of water allocations by institutional investors.⁹²

⁸⁹ Provisional estimates. Source: ACCC analysis based on data sourced from the ACCC's annual Water Monitoring Report IIO Requests for Information (RFI) and the New South Wales Water Register <https://waterregister.waternsw.com.au/water-register-frame>, viewed 30 November 2019.

⁹⁰ Provisional estimates. Internal trade volumes are currently sourced from ACCC annual Water Monitoring Report IIO Requests for Information (RFI). This data source does not distinguish internal permanent trades by security type. When more details data becomes available, this data may be revised. Permanent trade within IIOs covers the following IIOs: Barossa Infrastructure, Buddah Lake, Coleambally, Central Irrigation Trust, Eagle Creek Pumping Syndicate, Hay Private Irrigation District, Jemalong, Marthaguy, Murrumbidgee Irrigation, Murray Irrigation, Moira, Narromine Irrigation Board of Management, Renmark Irrigation Trust, Tenandra, Trangie-Nevertire Irrigation Scheme

⁹¹ Sources: IIO internal irrigation right trade volumes: ACCC annual Water Monitoring Report IIO Requests for Information. New South Wales General Security entitlement trade volumes: New South Wales Water Register.

⁹² Chapter 5 summarises stakeholder concerns about large investors.

For this reason, chapter 4 considers trading activity and entitlement ownership by this participant group in significant detail. However, the ACCC's preliminary analysis (see below) indicates that water allocation price movements are strongly driven by relative scarcity of water allocation.

3.2. Drivers of water markets trends since 2012

3.2.1. Water supply

Key factors affecting water supply in the Basin are:

- seasonal conditions
- water storage inflows and water storage volumes
- allocations
- carryover
- trade restrictions.

These drivers are discussed in turn below.

Seasonal conditions

Seasonal conditions influence the availability of water supply available to irrigators and environmental water holders. Multiple factors combine to determine seasonal conditions, but a major factor is the volume of rainfall. This is because rainfall is a major component for the inflows into water storages, which is particularly essential for the regulated surface water in the Southern Basin.

While increased rainfall affects water supply to entitlement holders, it also affects the water market demand from irrigators, environmental water holders and other users. In the case of increased on-farm rainfall, irrigators may have sufficient water for crop growth and not need to enter the water market to purchase allocation water. In some cases, this may result in irrigators seeking to *sell* water allocations.

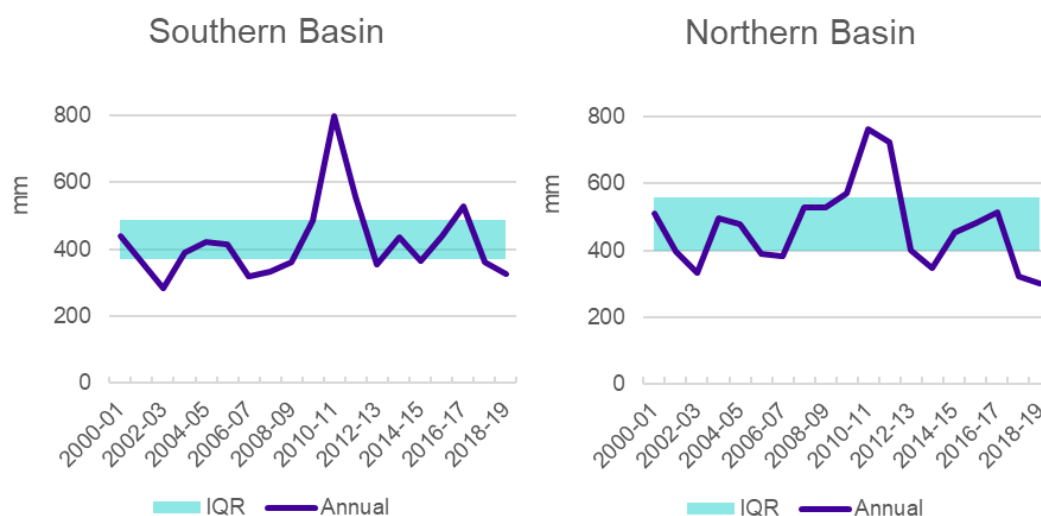
Rainfall in the Basin has varied each year, which has had a significant impact on water supply and water markets. It is important to remember that between 1997 and 2009, Australia and the Basin experienced a significant and prolonged drought. This came to be known as the Millennium Drought and had a detrimental impact on irrigators, communities and the environment across the Basin. The Millennium Drought ended with high and widespread rainfall during 2010–11.

In 2010–11, the Southern Basin received on average almost 800 mm (figure 3.9). To put this in context, between 1900–01 and 2018–19, the interquartile range of average annual rainfall for the Southern Basin was between 376 mm and 496 mm.⁹³ As shown in the figure below, rainfall has fluctuated since 2011–12 but has been closer to or within the interquartile range (that is, more in keeping with historical records), until 2017–18 and 2018–19, where there were two years in succession of low rainfall, with 2018–19 receiving the lowest average rainfall since the Millennium drought in both north and south.

Rainfall in the Northern Basin is more variable than in the south, as indicated by the wider interquartile range for the Northern Basin shown in figure 3.9. Similar to the Southern Basin, drought-breaking rainfall in the north reached 763 mm (area-weighted average terms), significantly higher than any other year during this period.

⁹³ The interquartile range is a measure of spread and indicates that 50 per cent of the observed values are within the specified range. In this context, 50 per cent of average annual rainfall observed in the Southern Basin was between 376 mm and 496 mm.

Figure 3.9: Area averaged rainfall in the Southern and Northern Basin, 2000–01 to 2018–19



Source: Bureau of Meteorology.

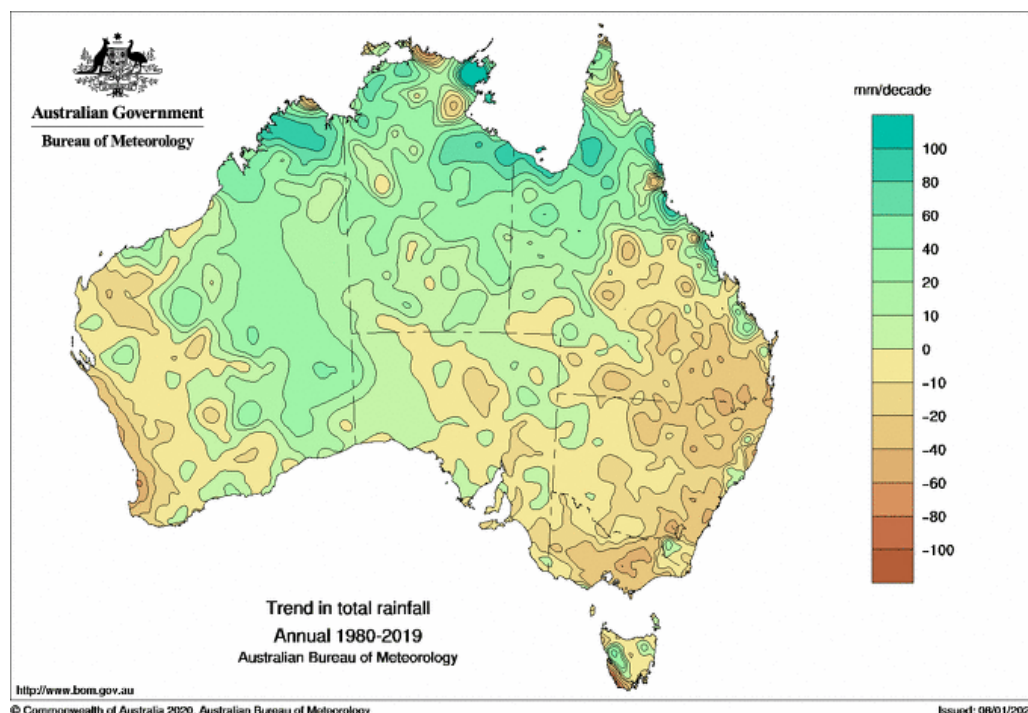
While average annual rainfall is useful in understanding broad seasonal conditions, more important is when that rainfall occurs during a year. Broadly speaking, rainfall in the Southern Basin during the winter months is higher than during the summer months, while the opposite is true in the Northern Basin.⁹⁴ It is important to note that the growing periods and the needs for water vary by crop. For example, depending on location, summer annual crops like cotton are planted between October and November, and are harvested between April and June. As such, water from rainfall or water allocations needs to be applied at different points throughout this period, depending on crop type and other factors.

With the ending of the Millennium Drought in 2010–11, average monthly rainfall was in excess of respective interquartile ranges between August 2010 and March 2011 for the Southern Basin, and between July 2010 and December 2010 for the Northern Basin. This compares to the first half of 2019–20, widely recognised as a dry period and was where average monthly rainfall was lower than the respective interquartile for all months apart from November 2019, for both the northern and Southern Basin. In particular, average monthly rainfall in December 2019 was just 6 mm (for both the north and the south), as compared to the December interquartile range of 17–49 mm for the south, and 34–76mm for the north.

Over the longer-term, climate data from the Bureau of Meteorology indicates that annual rainfall has been declining over the period 1980 to 2019 for the majority of the Basin, with 20 to 40 per cent decreases for much of the Basin (figure 3.10). These drier conditions significantly reduce water supply for irrigators, environmental water holders and other users. If this continues, this is likely to have major flow-on effects to water markets across the Basin.

⁹⁴ MDBA, <https://www.mdba.gov.au/discover-basin/landscape/climate>, viewed 22 June 2020.

Figure 3.10: Long-term changes in rainfall across Australia



Source: Bureau of Meteorology.

Inflows and storage volumes

The volume of inflows into key storages is an important determinant of allocations to water access entitlement holders in regulated systems, and subsequently water allocation prices. This is particularly true in the Southern Basin, which relies on large upstream storages (particularly Dartmouth, Hume, Eildon and Burrinjuck dams) to capture and retain inflows for use throughout the year. Water storages in the Southern Basin typically have a pattern of increasing over winter months and then decreasing over the spring to autumn months. Total capacity of public storages has increased only slightly in recent years (see box 3.1), and while other supply augmentation initiatives have been introduced, they have not yet become an ongoing feature of the water resource landscape, and so inflows into existing public storages remains the key driver of total resource availability.

Southern Basin

In 2010–11 there was substantial rain across the Southern Basin resulting in the end of the Millennium Drought. Water storage volumes in the Southern Basin over this year increased substantially from 33 per cent to 84 per cent.⁹⁵ Between 2010–11 and 2015–16, water storages in the Southern Basin broadly decreased and reached a low of 29 per cent in May 2016. During 2016–17, water storages increased following increased rainfall to a high of 86 per cent in November 2016 following substantial rainfall between July and September. Between 2016–17 and 2019–20, water storages in the Southern Basin again declined. Importantly, water storages reached a low of 33 per cent in May 2019, which was a similar level to that experienced before the ending of the Millennium Drought in 2010–11.

These fluctuations in storage levels have been a key driver of temporary water market prices. Figure 3.11 shows the relationship between total storage percentages and average prices (in real terms) in the Southern Connected Basin, for the period 1 July 2012 to 22 May 2020. In general, higher storage levels correspond to lower prices. However, in

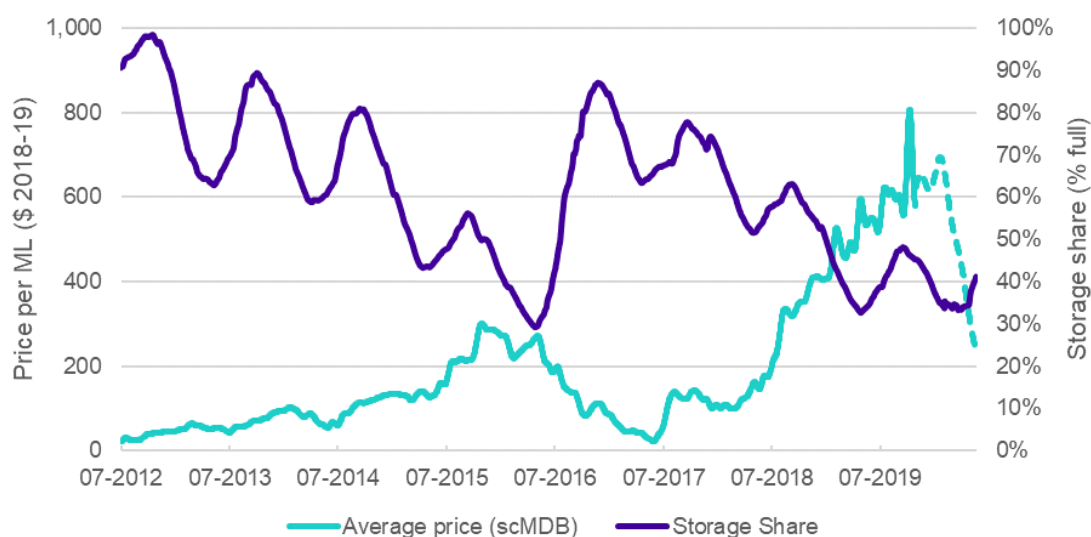
⁹⁵ Bureau of Meteorology.

2018–19, prices remained high even during periods when storage levels were recovering relative to their lowest point, reflecting that:

- absolute storage levels still remained low relative to past years
- poor seasonal outlooks throughout autumn 2019⁹⁶ for the 2019 winter/spring rainfall drove concerns about insufficient opening allocations for the 2019-20 water year (these outlooks were realised in storage levels peaking at only 48 per cent full in September 2019, substantially lower than in any other year since the Millennium drought)
- increased demand for water for permanent plantings (discussed further in section 3.2.2 below).

Prices in 2019–20 remained high relative to historical levels, until late summer 2020, when widespread rain and favourable seasonal outlooks⁹⁷ resulted in significant price declines. As at 22 May 2019, the volume-weighted average price for water allocation in the Southern Connected Basin had declined in real terms to \$228 per ML; at this date, water storages were 41 per cent full.

Figure 3.11: Storage levels and average water allocation prices, Southern Connected Basin, 2012–13 to 2019–10



Source: ACCC analysis based on New South Wales, South Australia and Victoria response to voluntary information request, Waterflow data, Bureau of Meteorology (for storage data) and Australian Bureau of Statistics, Cat. No. 6401. Provisional estimates.

Notes: For price series: Basin State voluntary information request data used up until 31 October 2019 (solid line); Waterflow data thereafter (dashed line). VWAP = Volume-weighted Average Price.

⁹⁶ See, for example, Bureau of Meteorology (BOM), Climate outlook for May to July, April 2019, <http://www.bom.gov.au/climate/ahead/outlooks/archive/20190411-outlook.shtml>; viewed 22 June 2020; BOM, Climate outlook for June to August, May 2019, <http://www.bom.gov.au/climate/ahead/outlooks/archive/20190516-outlook.shtml>, viewed 22 June 2020.

⁹⁷ See for example, BOM, Climate outlook for April to July, March 2020 <http://www.bom.gov.au/climate/ahead/outlooks/archive/20200305-outlook.shtml>, viewed 22 June 2020; BOM, Climate outlook for May to August, April 2020, <http://www.bom.gov.au/climate/ahead/outlooks/archive/20200409-outlook.shtml>, viewed 22 June 2020.

Northern Basin

The Northern Basin also received drought-breaking rains in 2010–11, with storage inflows increasing to 100 per cent in the Border Rivers, Macquarie and Condamine–Balonne catchments. Refilling of storages in the Gwydir and Namoi occurred somewhat later, with storage levels reaching approximately 99 per cent of capacity in February 2012 for Gwydir, and 94 per cent in September 2012 for Namoi.⁹⁸ However, storage levels declined again in northern systems over the period 2012–13 to 2015–16, and again in 2017–18 through to first half of 2019–20. Storage levels were below 20 per cent of capacity in Namoi and Gwydir for much of 2014–15, 2015–16 and 2018–19. In November 2019, the Bureau of Meteorology released a Special Climate Update detailing the drought conditions across the Basin, observing that:

‘Records [i.e. record lows] have been set for the 34 and 22 months ending in October 2019 for the Border Rivers, Moonie, Gwydir, Namoi-Peel, Castlereagh, Macquarie-Bogan, Paroo and Lower Darling catchments, with records also set at the 22-month timescale in the Condamine-Culgoa and Lower Murray catchments’

...’Runoff in the major storage catchments in the Gwydir (Lake Copeton), Namoi (Split Rock and Keepit Reservoir) and Macquarie (Lake Burrendong) valleys in particular have been well below average for the last two years.’⁹⁹

While drought conditions have eased somewhat for some parts of the Basin with good autumn rainfall in 2020, as at 18 May 2020 storages in the Macquarie system remain only 22.5 per cent full, 14.7 per cent in Lachlan, 12.7 per cent in Gwydir and only 10 per cent full in the Namoi.¹⁰⁰

Box 3.1: Water supply augmentation initiatives

Many of the Basin’s key water storages were built decades ago, and total storage capacity in public storages such as large dams and weirs has remained relatively static for some time.¹⁰¹ As climatic shifts are reducing inflows into existing storages¹⁰² and demand for water continues to grow, governments and other stakeholders are examining a range of options for augmenting water supplies. Investing in storage upgrades (‘dam building’) is one well-understood method of augmenting supply and one that is regularly raised by stakeholders, but which no longer presents an easy solution because of the absence of suitable sites for new dams, changing rainfall patterns and the need to comply with the Sustainable Diversion Limits within Basin catchments. There is an array of other supply augmentation methods, although most are quite limited. These include use of desalinated sea water or saline groundwater to augment freshwater supplies, managed aquifer recharge¹⁰³, ‘produced’ water from mining and fracking operations, investing in reducing evaporation.

Key recent government initiatives to augment Basin water supplies include use of the

⁹⁸ Bureau of Meteorology storage data.

⁹⁹ Bureau of Meteorology, Special Climate Statement 70—drought conditions in Australia and impact on water resources in the Murray-Darling Basin, 2 November 2019, pp. 6, 17, <http://www.bom.gov.au/climate/current/statements/scs70.pdf>.

¹⁰⁰ <http://www.bom.gov.au/water/dashboards/#/water-storages/summary/>, viewed 19 May 2020.

¹⁰¹ Bureau of Meteorology storage data.

¹⁰² Interim Inspector-General of Murray-Darling Basin Water Resources 2020, Impact of lower inflows on state shares under the Murray-Darling Basin Agreement, Canberra. CC BY 4.0, p. 7.

¹⁰³ Managed aquifer recharge (MAR) is the intentional draining or discharging of water directly or indirectly into a well (aquifer) for subsequent recovery or environmental benefit. See Government of South Australia, Managed Aquifer Recharge, <https://www.environment.sa.gov.au/topics/water/resources/stormwater/managed-aquifer-recharge>, viewed 11 June 2020.

Adelaide desalination plant under the Commonwealth ‘Water for Fodder’ program¹⁰⁴, storage upgrades such as increasing the height of Chaffey Dam¹⁰⁵ and upgrading the Walgett and Wilcannia town water supply weirs¹⁰⁶, and the establishment of the National Grid Authority whose mandate is to ‘work in partnership with state and territory governments to identify, plan and invest in water infrastructure projects across the country’.¹⁰⁷

Private actors have also invested in storage capacity—for example, irrigators are investing in on-farm storage capacity, sometimes on their own, and sometimes as part of government-funded infrastructure upgrade programs. On-farm storage does not necessarily result in increased water take, as all users still need to comply with their water licence and dam licence conditions. On-farm storage helps irrigators manage water risk, particularly for farms downstream of significant capacity constraints, and may also be used for specific activities such as harvesting overland flows or short-term storage of water available under supplementary flow conditions.

It is important to recognise that different infrastructure investments affect the total available resource and resource availability at the local level differently. For example, supply of water into the system from desalination plants constitutes an increase in total available resource, whereas building a new dam or augmenting an existing storage within the Basin may increase the volumes able to be captured and stored at a particular point or improve the ability to better harvest overland flows, but may also reduce the amount of water available elsewhere in the system.¹⁰⁸ Thus, supply augmentation does not necessarily directly result in new ongoing allocations to entitlement holders, and compliance with total resource caps—Sustainable Diversion Limits—still needs to occur.

Supply augmentation initiatives impact water markets in a variety of ways. Most directly, where they translate into new water allocations, the relative increase in supply can be expected to decrease prices, other things equal. Augmentation may also make water resources less variable from year to year, and therefore enable a different mix of water use than before. The net impacts of these dynamic changes depend on how this changes the location and timing of demand for water.

Indirectly, supply augmentation also affects water market outcomes by impacting on the costs faced by water users. For example, if a dam upgrade results in higher infrastructure charges being paid by water users in the relevant catchment, this may decrease the price they are willing to pay for water purchased in water markets.

Finally, some augmentation initiatives have come with specific, intentional price impacts. The key example is the ‘Water for Fodder’ initiative, which sold water in 50ML parcels to eligible participants at the set price of \$100 per ML, at a time when temporary water market prices were between \$600-\$800 per ML. The program entails substituting water produced by the Adelaide desalination plant for River Murray water, and allocation trade is

¹⁰⁴ Department of Agriculture, Water and the Environment, Water for Fodder, <https://www.agriculture.gov.au/water/mdb/programs/basin-wide/water-for-fodder>, viewed 11 June 2020.

¹⁰⁵ WaterNSW, Chaffey Dam, <https://www.watarnsw.com.au/supply/visit/chaffey-dam#:~:text=Later%20improvements,from%2062%2C000%20to%20100%2C500%20megalitres>, viewed 10 June 2020.

¹⁰⁶ New South Wales Government, Community drought consultation fact sheet, INT19/26982, https://www.industry.nsw.gov.au/_data/assets/pdf_file/0005/217544/Community-drought-meetings-What-we-heard-Feb-2019.pdf, viewed 10 June 2020.

¹⁰⁷ National Water Grid Authority, <https://www.nationalwatergrid.gov.au/>, viewed 10 June 2020.

¹⁰⁸ For example, ‘In areas where many farm dams have been constructed, impacts on downstream flows can be significant. Annually, farm dams can reduce the flow from Victorian catchments by typically up to 5 per cent, although in some cases, annual flow reductions of over 30 per cent have been estimated.’ Victorian Guidelines for meeting flow requirements for licensable farm dams, p. 6.

the mechanism used to deliver water into the accounts of eligible participants.¹⁰⁹

To date, 40GL of water allocation has been traded to 800 eligible participants; a further 60GL may be made available in Round 2 of the program, pending assessment of Round 1.¹¹⁰ As shown in figure 3.4 above, volume-weighted average prices in South Australia Murray zone 12 dropped considerably in January 2020, down to a low of \$82 per ML as these trades were approved. Prices in zone 12 have since recovered to being in line with other zones, although remain considerably below peaks observed in 2019 due to good autumn rains. Some 'Water for Fodder' trades were also 'back traded' from South Australian Murray to upstream zones, which created an estimated 13.2 GL of downstream opportunity through the Barmah Choke and 14 GL of downstream opportunity from Goulburn to Murray from January 2019.¹¹¹ These opportunities have since been captured by a variety of water market participants who may have no direct involvement in the program. This example shows how supply augmentation initiatives can produce direct and indirect price and quantity effects in water markets.

Allocations to entitlement holders

As discussed in chapter 2, most regulated systems in the Basin operate on an announced allocation system, where water allocations are made against water access entitlements on a periodic basis and up to a nominal volume. For example, for a water access entitlement of 100 ML, an announced allocation of 30 per cent would mean that 30 ML of water allocation would be available for use.

A variety of information is used by resource managers when making allocation decisions. As noted in chapter 2, many jurisdictions have more than one class of water access entitlement. For example, water access entitlement classes in New South Wales include General Security, High Security, and Supplementary. Generally, available water is allocated first to higher reliability entitlements and then to lower reliability entitlements. As a result, higher reliability entitlements tend to receive higher allocation volumes (as a percentage of the volume of the right) on average.

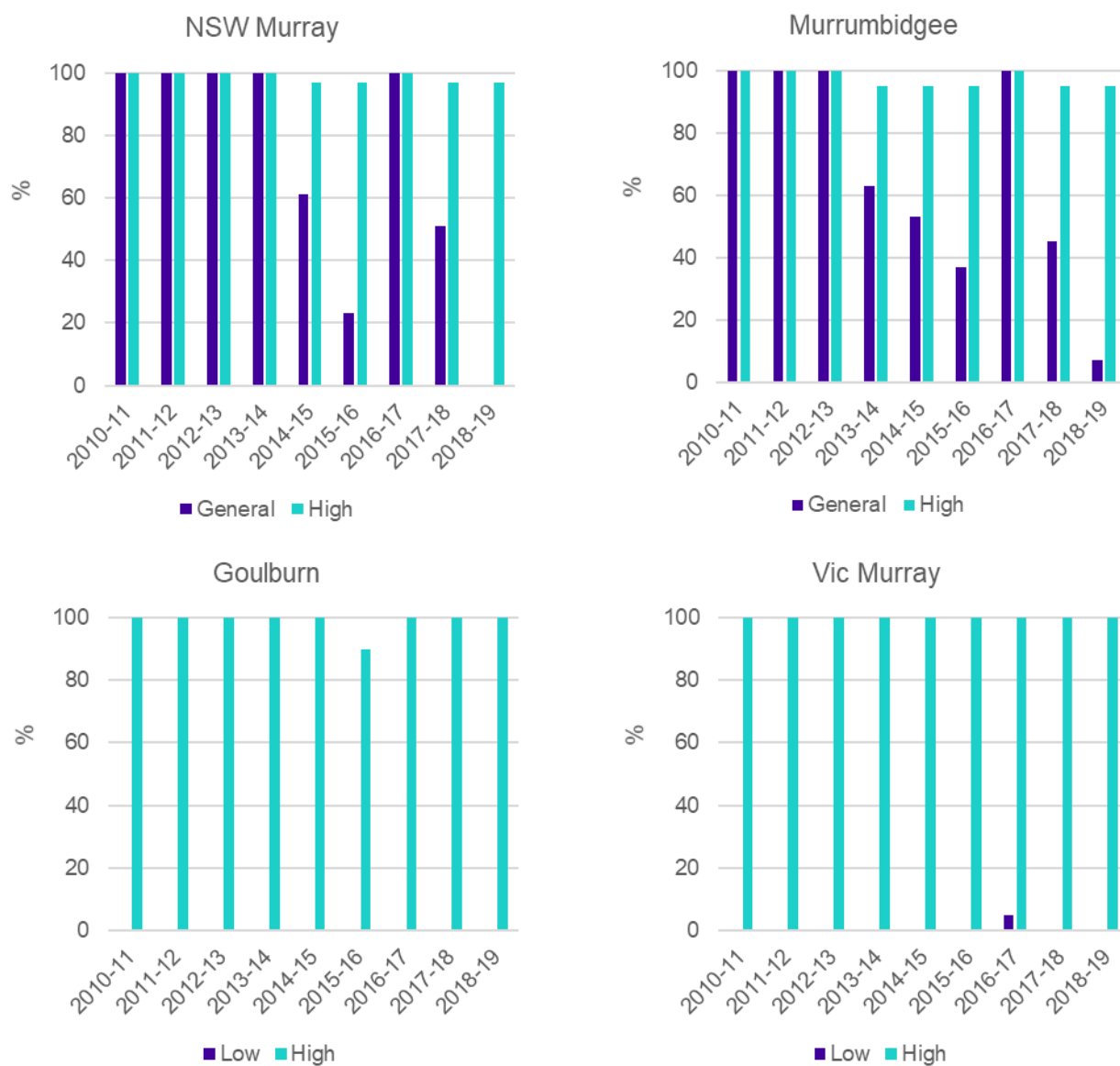
Between 2010–11 and 2018–19, higher reliability entitlements in the Southern Basin generally received 100 per cent allocations by the end of the year (figure 3.12). In comparison, allocations to lower reliability entitlements differed between New South Wales and Victoria. For Victoria, allocations to Low Reliability water access entitlements have typically been 0 per cent for this whole period. For New South Wales, allocations to General Security entitlements have fluctuated considerably. For example, in 2015–16, allocations to New South Wales Murray General Security water access entitlement received 23 per cent allocations, and as at May 2020, have received 0 per cent for both the 2018–19 and 2019–20 water years. In contrast, in 2016–17 New South Wales Murray General Security entitlements received 100 per cent allocation, as water availability increased dramatically in that year.

¹⁰⁹ Project Agreement to produce water from the Adelaide Desalination Plant to support the Water for Fodder Program, <https://www.agriculture.gov.au/sites/default/files/documents/water-for-fodder-sa-project-agreement.pdf>, viewed 11 June 2020.

¹¹⁰ Department of Agriculture, Water and the Environment, Water for Fodder, <https://www.agriculture.gov.au/water/mdb/programs/basin-wide/water-for-fodder>, viewed 11 June 2020.

¹¹¹ ACCC analysis based on Water for Fodder program data, available from Department of Agriculture, Water and the Environment, Water for Fodder, <https://www.agriculture.gov.au/water/mdb/programs/basin-wide/water-for-fodder>, viewed 11 June 2020.

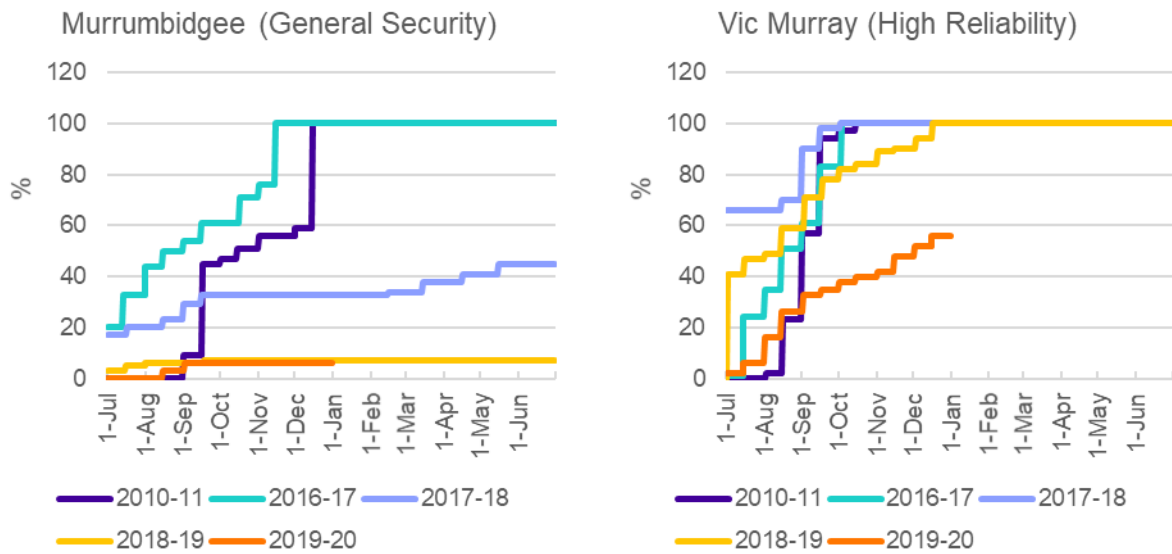
Figure 3.12: End of year announced allocations for selected water systems and reliabilities in the Southern Basin, 2010–11 to 2018–19



Source: WaterFlow.

Announced allocations are made throughout the year (figure 3.13) in response to changing circumstances as the year progresses. For example, Murrumbidgee General Security allocations during 2016–17 were low initially but increased following rainfalls in September 2016 and higher water storages. For 2019–20, Murrumbidgee General Security allocations at 30 December have been at the lowest levels for the past several years.

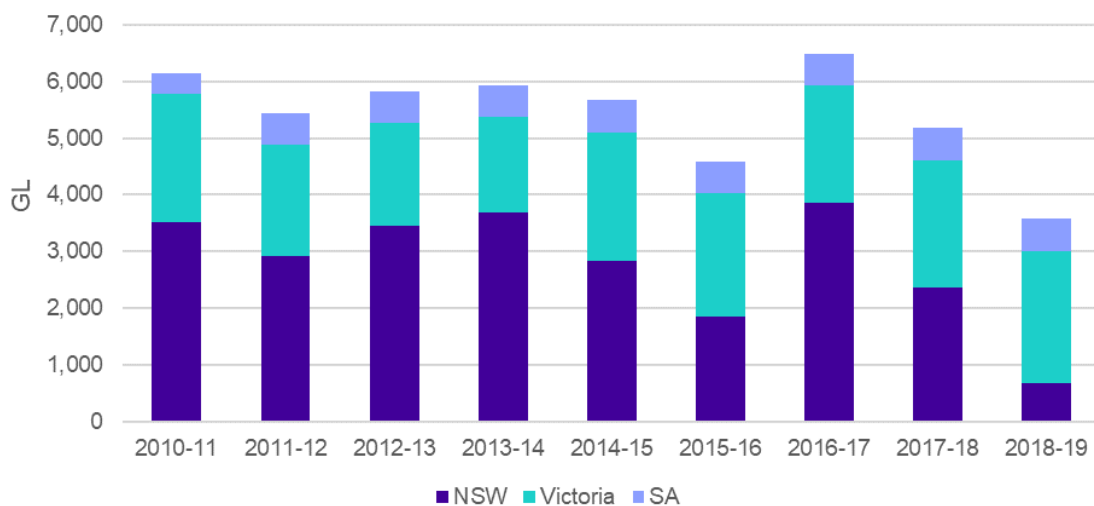
Figure 3.13: Progressive allocation announcements for Murrumbidgee General Security and Victoria Murray High Reliability for selected years



Source: WaterFlow.

As expected, the volume of water from announced allocation in the Southern Basin since 2010–11 has fluctuated in line with water availability (figure 3.14). It is worth noting that the total volume of water allocations are highly associated with the volume of allocations from New South Wales. For example, between 2016–17 and 2018–19, the total volume of allocations almost halved from 6491 GL to 3291 GL. Over this period, the volume of allocated to New South Wales entitlement holders decreased 3194 GL, while Victoria increased 278 GL and South Australia remained unchanged.

Figure 3.14: Allocation volumes in Southern Basin, by state, 2010–11 to 2018–19



Source: ABARES, MDB water market dataset—water supply.

This is interesting from the perspective that New South Wales and Victoria equally share inflows into two of the largest water storages in Southern Basin, Hume Dam and Dartmouth

Dam. Volumes in these water storages are therefore critical for the resource managers in determining available allocation.

In addition, it is worth noting the role the General Security allocations have in affecting the total volume of allocation water available in the Southern Basin. As an example, if New South Wales Murrumbidgee General Security allocations were 10 per cent higher in 2018–19, then the total volume of allocations in the Southern Basin would have increased 190 GL or over 5 per cent. This would have had a significant impact on water allocation prices but also would have affected other objectives of the resource manager.

Carryover

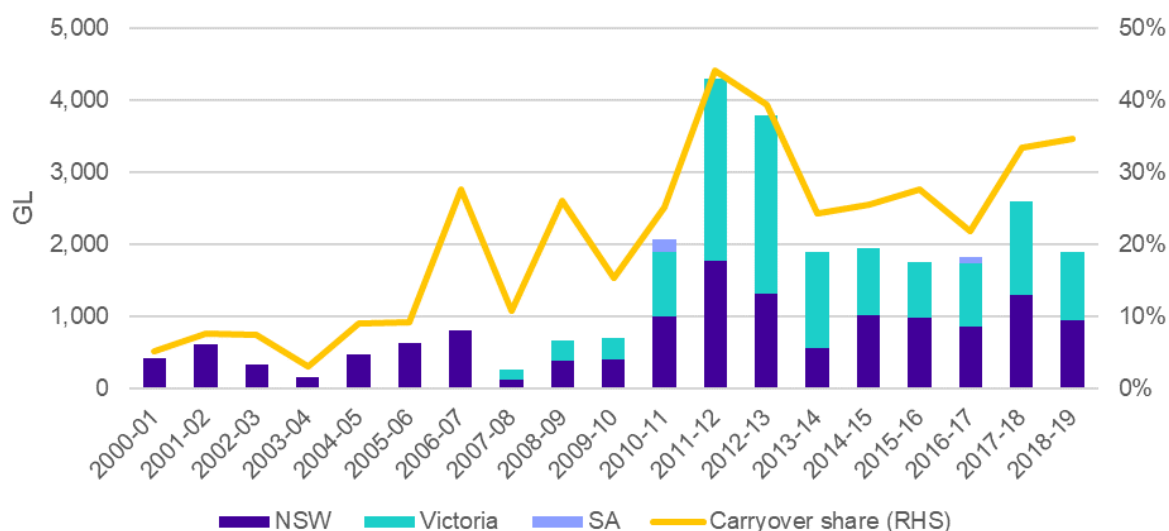
Carryover is a mechanism used in water systems which operate on an annual accounting basis. It allows unused water allocations to be transferred from one water year to the next. The specifics of the carryover policies vary by water system and are set out in individual plan water resources plans (see chapter 12, which discusses carryover policies in detail). Since its introduction, and particularly since 2007–08, there have been significant change in carryover policies. In particular:

- 2007–08: South Australia and Victoria introduce temporary carryover arrangements
- 2008–09: Victorian annual carryover limit increased from 30 per cent to 50 per cent
- 2009–10: Murrumbidgee annual carryover limit increased from 15 per cent to 30 per cent
- 2010–11: Victoria introduces permanent carryover arrangement in the form of spillable water accounts, with no limit on annual carryover volumes
- 2012–13: South Australia adopts a permanent carryover arrangement
- 2013–14: Victoria applies a 100 per cent limit on annual carryover volumes.¹¹²

Since 2000–01, the volume of carryover in the Southern Basin increased from 433 GL to a high of 4293 GL in 2011–12 and then decreased to 1903 GL in 2018-19 (figure 3.15). Following Victoria allowing carryover, its usage by Victoria water access entitlements increased substantial. Accounting for 2524 GL of carryover or 59 per cent of the volume carried over in the Southern Basin. Following changes to Victoria’s carryover policies, New South Wales and Victoria carried over roughly the same volumes between 2016–17 and 2018–19.

¹¹² ABARES, *Murray-Darling Basin water markets: Trends and drivers 2002-03 to 2018-19*, Canberra, February 2020, p. 11.

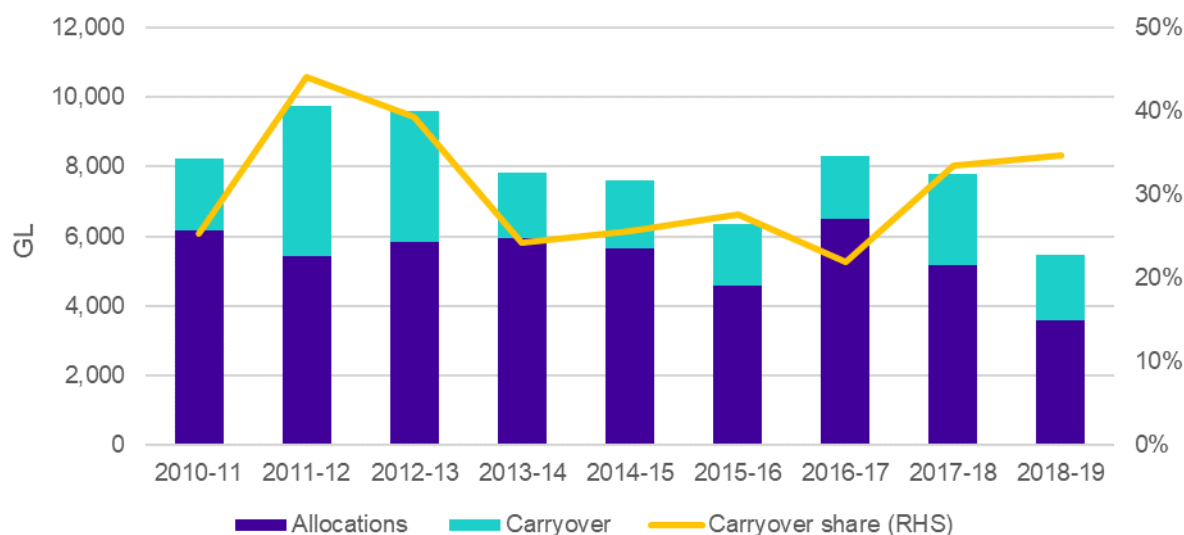
Figure 3.15: Carryover volumes and share of water available in the Southern Basin by state, 2000–01 to 2018–19



Source: ABARES, MDB water market dataset—water supply.

Together, allocations to water access entitlements and carryover combine to determine the total volume of water available within a year in the Southern Basin (figure 3.16). The relative share of allocations and carryover varies from year to year. However over the long term the share of carryover has increased from over 5 per cent in 2000–01 to 35 per cent in 2018–19. In addition, between 2016–17 and 2018–19 the total volume of water available decreased 2834 GL, comprising allocations decreasing 2916 GL but carryover increasing 83 GL.

Figure 3.16: Water availability from allocations and carryover for Southern Basin, 2010–11 to 2018–19



Source: ABARES, MDB water market dataset—water supply.

Note: Allocation includes uncontrolled flows and has within year forfeits removed.

With increased volumes of water held by EWHs, the proportion of allocation and carryover by EWHs would have increased. Between 2010–11 and 2018–19, ABARES estimates that

the share of environmental water in total available water has increased from 11 per cent to almost 19 per cent.¹¹³

Fifth, restrictions placed on the trade of water access entitlements and water allocations affect where water can be moved using trading mechanisms. These restrictions affect both supply and demand in different zones, and causes prices in different zones to diverge. Broadly, unless water systems are connected, water access entitlement and water allocation trade is restricted to within the water system. In Southern Connected Basin, water allocation trade is permitted both within and between the zones making up this system, but inter-zone trade is subject to a number of additional restrictions. The four major water allocation trade restrictions operating in the Southern Connected Basin are:

- Murrumbidgee inter-valley trade limit
- Goulburn to Murray trade limit
- New South Wales to Victoria spill risk trade limit
- Barmah Choke trade limit.

Data on the operation of these trade limits is presented below, together with a brief discussion of their impacts on prices. Trade restrictions are discussed in more detail in chapter 12.

The **Murrumbidgee inter-valley trade limit** is implemented by the New South Wales Government. It reflects the net balance of surface water allocations traded or tagged traded out of the Murrumbidgee. Trade is permissible within the bounds of a lower limit of 0 GL and an upper limit of 100 GL. If the balance reaches 0 GL, trade into the Murrumbidgee is closed and cannot open until the balance reaches 15 GL. If the balance reaches 100 GL, trade out of the Murrumbidgee is closed and cannot open until the balance reaches 85 GL.¹¹⁴

Since 2011–12, the Murrumbidgee inter-valley trade balance has switched regularly between being opened and closed (figure 3.17). During 2016–17, there were regular closures of the Murrumbidgee inter-valley trade, and there were also long periods of closure in 2018–19.

The **Goulburn-to-Murray trade limit** is operated by the Victorian Government. It does not allow trade from the Goulburn, Campaspe, Broken and Loddon systems to the Victorian Murray, New South Wales Murray and South Australian Murray if more than 200 GL of water is owed to the Murray at any one time. If the 200 GL is exceeded, trade is closed and cannot open again it falls below 200 GL.¹¹⁵

Since 2012–13, the Goulburn-to-Murray trade limit has experienced sustained periods where trade was open and closed (figure 3.17). The longest period where trade was open was between October 2014 and October 2016. In contrast, more recently, trade has been closed more often than not. Importantly, trade has been closed for almost the entirety of 2019–20. It is worth noting that on 5 March 2020, the Victorian Government commenced a public consultation on proposed changes to the Goulburn-to-Murray trade limit.¹¹⁶

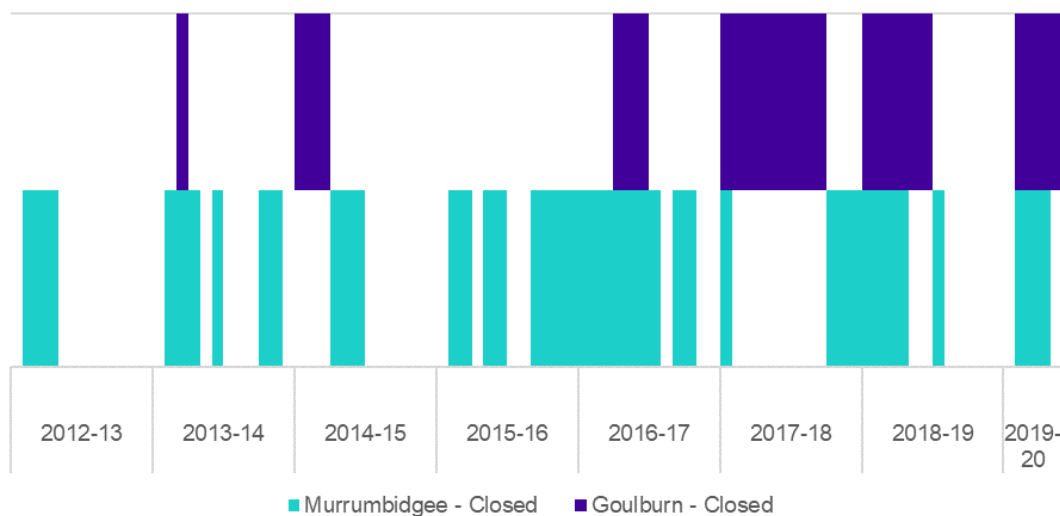
¹¹³ ABARES, MDB water market dataset—water supply.

¹¹⁴ WaterNSW, Murrumbidgee IVT Account Status, <https://www.waternsw.com.au/customer-service/ordering-trading-and-pricing/trading/murrumbidgee#stay>, viewed 19 June 2020.

¹¹⁵ Victorian Water Register, Understanding the Goulburn to Murray trade limit, 17 September 2017, <https://waterregister.vic.gov.au/about/news/171-understanding-the-goulburn-to-murray-trade-limit>, viewed 22 June 2020.

¹¹⁶ Engage Victoria, Department of Environment, Land, Water and Planning (Vic, Goulburn to Murray trade rule review, <https://engage.vic.gov.au/goulburn-murray-trade-rule-review>, viewed 22 June 2020.

Figure 3.17: Murrumbidgee and Goulburn inter-valley trade limits, end of month, 2012–13 to 2019–20



Source: Murrumbidgee trade limit: MDBA response to voluntary information request. Goulburn-to-Murray: Victoria response to voluntary information request.

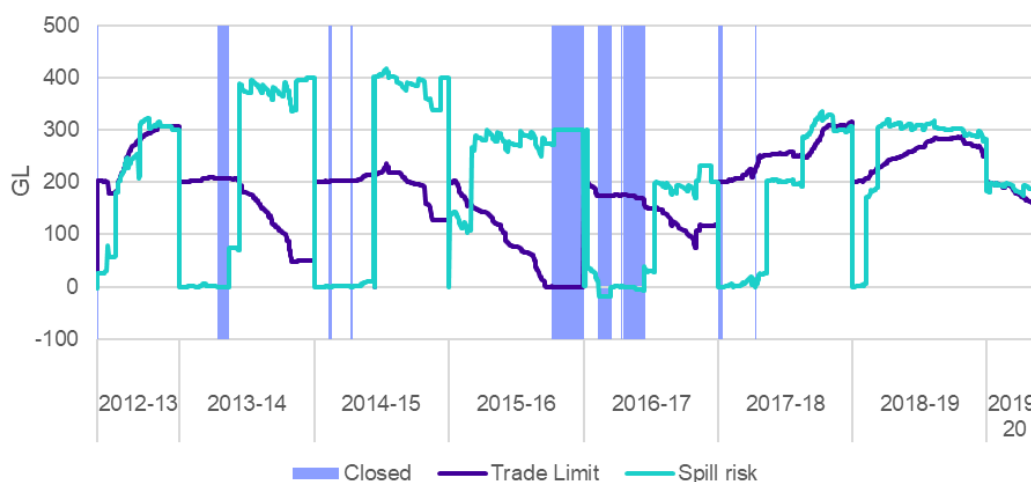
Notes: Data for Murrumbidgee trade limit available from 31 July 2012 to 30 November 2019. Data for Goulburn-to-Murray trade limit available from 30 November 2012 to 30 November 2019. This information will be updated with more detailed data from New South Wales if possible. This figure shows the limit as at the end of the month, not the daily balance. As such, here trade out of Murrumbidgee, is represented as closed for the month when the end of month balance is either greater than or equal to 100 GL or less than or equal to 0 GL (which are the relevant operational limits for this trade restriction), while trade out of Goulburn is shown as closed where the end-of-month status is closed.

The **New South Wales-to-Victoria spill risk trade limit** is implemented by the Victorian Government. It limits allocation trade from New South Wales to Victoria to the lesser of a net annual volume of 200 GL or a volume that keeps the risk of spill in Victoria's share the Murray system below 50 per cent.¹¹⁷

Since 2012–11, the New South Wales-to-Victoria spill risk trade limit mostly did not apply (figure 3.18). However, during late 2015–16 and early 2016–17, there were significant periods when the trade limit applied and so allocation trade from New South Wales to Victoria was not allowed.

¹¹⁷ Victorian Water Register, Understanding the New South Wales to Victoria trade limit, 21 March 2016, <https://waterregister.vic.gov.au/about/news/195-understanding-the-nsw-to-victoria-trade-limit>, viewed 22 June 2020.

Figure 3.18: New South Wales to Victoria spill risk trade limit, 2012–13 to 2019–20



Source: Victorian response to voluntary information request.

Note: Data available from 20 November 2012 to 30 November 2019.

The **Barmah Choke trade limit** is implemented by the MDBA and reflects a physical constraint on the Murray River running through the Barmah–Millewa Forest. The Barmah Choke restricts the flow of the Murray River to 7000 ML per day.¹¹⁸

Broadly, the trade limit ensures that water allocation trade downstream through the Barmah Choke can only occur when there is sufficient matching trade upstream. Each 1 July the Barmah Choke trade balance is reset. A positive balance indicates the volume of water allocation that can be traded from upstream to downstream. A Barmah Choke balance less than 0.1 GL indicates there is no opportunity to trade and can only occur again following water allocation trade from downstream to upstream.

Since 2014–15, the Barmah Choke trade balance has varied between a low of -18 GL at the start of July 2018 to a high of 199 GL in November 2015. During 2015–16, the Barmah Choke trade balance was over 150 GL for a majority of the year. This indicates that for this period there was an ability for over 150 GL of water allocation to be traded from upstream to downstream. More recently during 2019–20, the Barmah Choke trade balance has been generally 0 GL with small periods when water allocation trade could occur. It is important to note that the Barmah Choke trade limit in its current form has been operating since 28 October 2014. Prior to 28 October 2014, there were less restrictions on water allocation trade across the Barmah Choke.¹¹⁹

¹¹⁸ MDBA, Barmah Choke trade balance and restriction, <https://www.mdba.gov.au/managing-water/water-markets-trade/interstate-water-trade/barmah-choke-trade-balance>, viewed 22 June 2020.

¹¹⁹ Source: MDBA response to voluntary information request.

3.2.2. Water demand

There are many types of users of water in the Basin, each with different incentives. Chapter 4 of this interim report provides a detailed examination of these different consumers participate in water markets. For the purpose of this chapter, two major uses of water in the Southern Basin are for irrigated agriculture and achieving environmental objectives by environmental water holders.

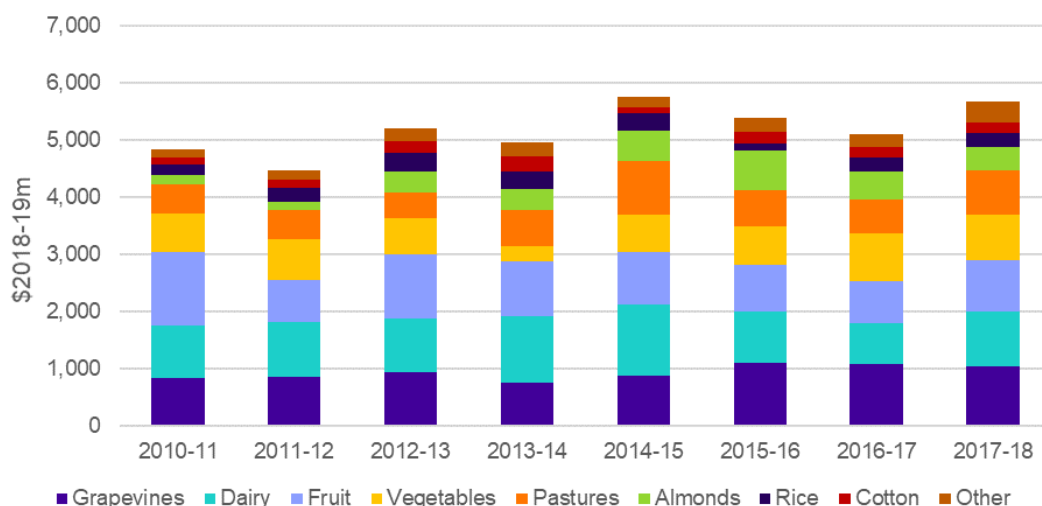
Water users obtain water from a range of sources. For irrigated agriculture, this can include on-farm rainfall, announced allocations made to held water access entitlements—which could be surface water or groundwater—and participating in water allocation markets. There is a degree of substitutability between different sources of water, such that higher than expected rainfall may reduce the need to use announced allocations made to held water access entitlements or participate in water allocation markets. This means that water demanded by end users is not the same as demand *in water markets*. Also some demand in water market comes from participants who are not in themselves water users. For example, investors who may purchase water allocation at one point in time in order to fulfil a forward contract at a later point in time. This section considers some of the main drivers of demand in water markets.

Irrigated agriculture

Across the Southern Basin, many commodities use irrigation water for production. In 2017–18, total Gross Value of Irrigated Agricultural Production (GVIAP) in the Southern Basin was over \$5.7 billion (figure 3.19), with the most valuable commodities being grapevines (\$1037 million), dairy (\$964 million), fruit (\$895 million), vegetables (\$804 million) and pastures (\$771 million).

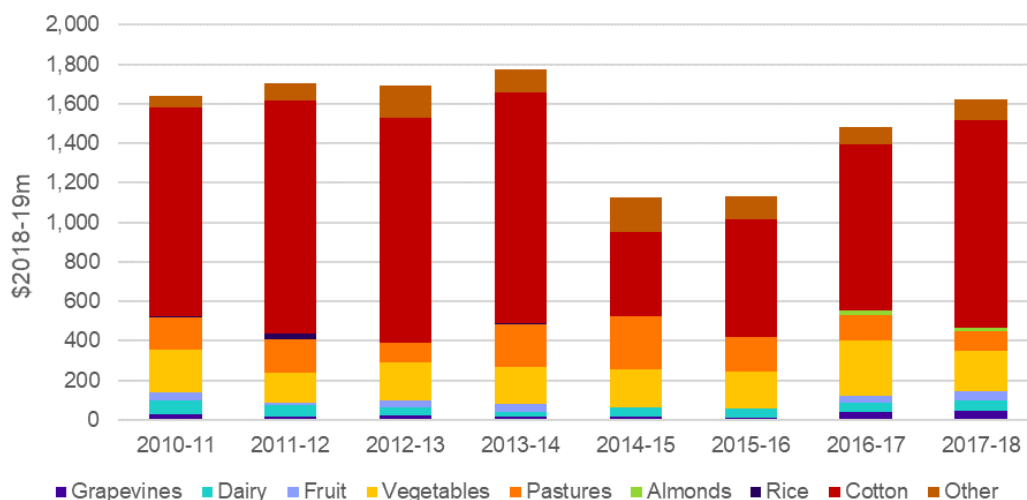
In the Northern Basin, irrigated agriculture is dominated by cotton, although other irrigated commodities are vegetables and irrigated pasture. In 2017–18, the total GVIAP in the Northern Basin was around \$1.6 billion in real terms (figure 3.20).

Figure 3.19: Gross value of irrigated production for Southern Basin, by commodity, 2010–11 to 2017–18 (\$2018–19)



Source: ABARES, MDB water market dataset—demand.

Figure 3.20: Gross value of irrigated production for Northern Basin, by commodity, 2010–11 to 2017–18 (\$2018–19)



Source: ABARES, MDB water market dataset—demand.

Since 2010–11, the GVIAP in the Southern Basin increased on average 2.3 per cent per year in real terms. However, there has not been a uniform increase, with GVIAP decreasing in some years. For example, GVIAP for the Southern Basin decreased in 2015–16 by 6.5 per cent and again in 2016–17 by 5.2 per cent. Importantly, almond GVIAP increased on average 13.9 per cent per year from \$164 million in 2010–11 to \$407 million 2017–18, with GVIAP peaking in \$702 million in 2015–16. This overall growth in GVIAP has occurred in the context of a significant reduction in the consumptive pool, as recovery of water for the environment has removed up to 30 per cent of the total volume of entitlement on issue in some catchments (see discussion on environmental water holders below).

The location of irrigated production differs across commodity type (figure 3.21). For the Southern Basin in 2017–18:

- dairy production is primarily located in northern Victoria, mostly in the Goulburn-Broken water system
- fruit and vegetable production is primarily located in South Australia
- almond production is mostly in Victoria (but has also been increasing elsewhere) and is concentrated in the Victorian Murray below the Barmah Choke
- rice and cotton production is primarily located in New South Wales.

For the Northern Basin:

- cotton dominates irrigated production for the whole region, and is mostly grown in northern New South Wales
- vegetables and pastures are also key commodities, with vegetables being particularly important in the Queensland Border Rivers.

Figure 3.21: Gross value of irrigated production in the Southern Basin, by state and commodity, 2017–18 (\$2018–19)



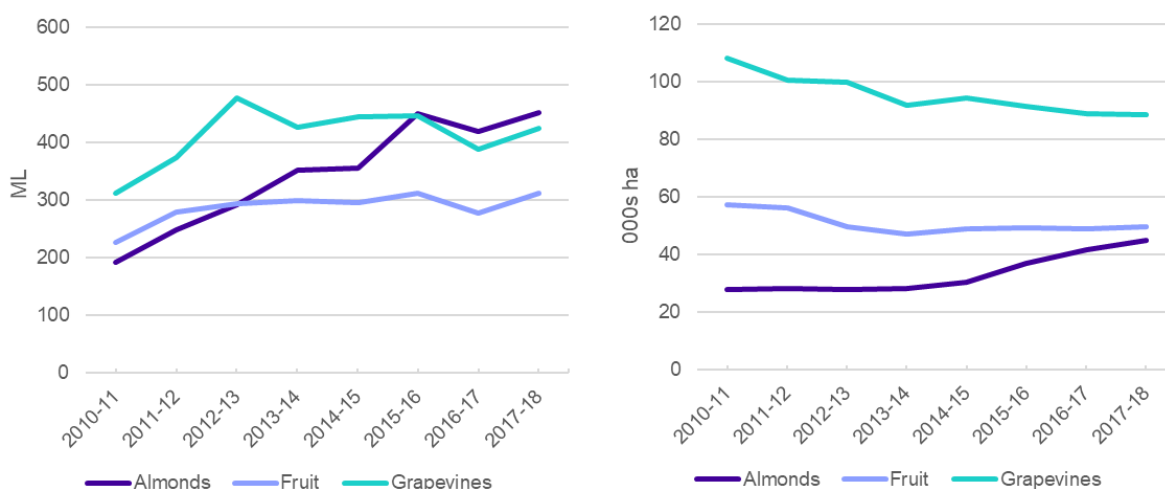
Source: ABARES, MDB water market dataset—demand.

Between 2010–11 and 2017–18, there have also been significant changes in the location of production across the Southern Basin:

- almond production increased in Victoria, South Australia and New South Wales by \$205 million, \$29 million and \$7 million respectively
- fruit production in Victoria decreased by \$656 million while it increased in South Australia by \$258 million
- pasture production in South Australia decreased by \$19 million while it increased in Victoria by \$208 million.

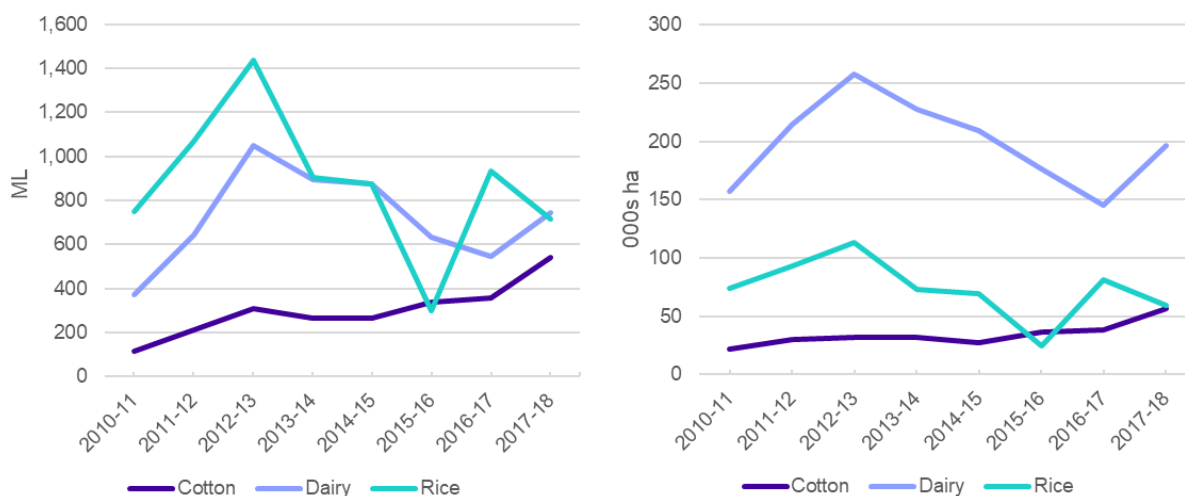
These changes in GVIAP reflect the changes in the volumes applied and area irrigate by horticultural and broadacre industries in the Southern Basin (figure 3.22 and figure 3.23).

Figure 3.22: Volume applied and area irrigated for selected horticultural industries in the Southern Basin, 2010–11 to 2017–18



Source: ABARES, MDB water market dataset—demand.

Figure 3.23: Volume applied and application rate for selected broadacre industries in the Southern Basin, 2010–11 to 2017–18



Source: ABARES, MDB water market dataset—demand.

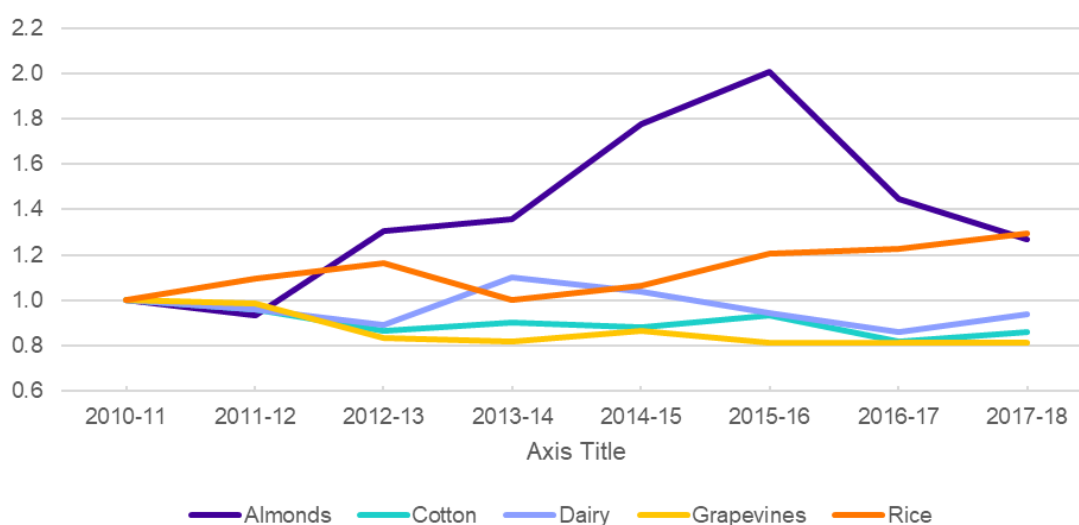
Between 2010–11 and 2017–18, the area of almonds under irrigation and the volume of water applied to them consistently increased by 17 000 hectares (7 per cent per year) and 452 GL (13 per cent per year). This growth has been concentrated in the Victoria Murray below Barmah Choke, New South Wales Murray below Barmah Choke and South Australian Murray. By comparison, the irrigated area of rice and volume of water applied peaked in 2012–13 at 113 thousand hectares and 1.4 GL and reached a low in 2015–16 of 24 thousand hectares and 299 GL, with these changes reflected across New South Wales Murray below Barmah Choke, New South Wales Murray above Barmah Choke and Murrumbidgee. The area of irrigated cotton and volume of irrigation water applied to that crop increased by 35 thousand hectares and 427 GL, with most of these increase occurring in the Murrumbidgee (43 thousand hectares and 469 GL) against reductions in the Lower Darling (8 thousand hectares and 44 GL).

Changes in input and output prices and other factors faced by irrigators affect profitability of irrigation activities, demand for water and the participation of irrigators in water markets. Over the long run, changes in the expectations of the profitability for irrigation activities drive changes in investment patterns and shifts in irrigated land use.

Prices for major irrigated commodities in the Southern Basin have varied considerably since 2010–11 (figure 3.24). In real terms:

- almond prices doubled between 2010–11 and 2015–16, before decreasing by 37 per cent to 2017–18
- rice prices have increased by almost 30 per cent between 2010–11 and 2017–18
- cotton prices have decreased by over 14 per cent between 2010–11 and 2017–18.

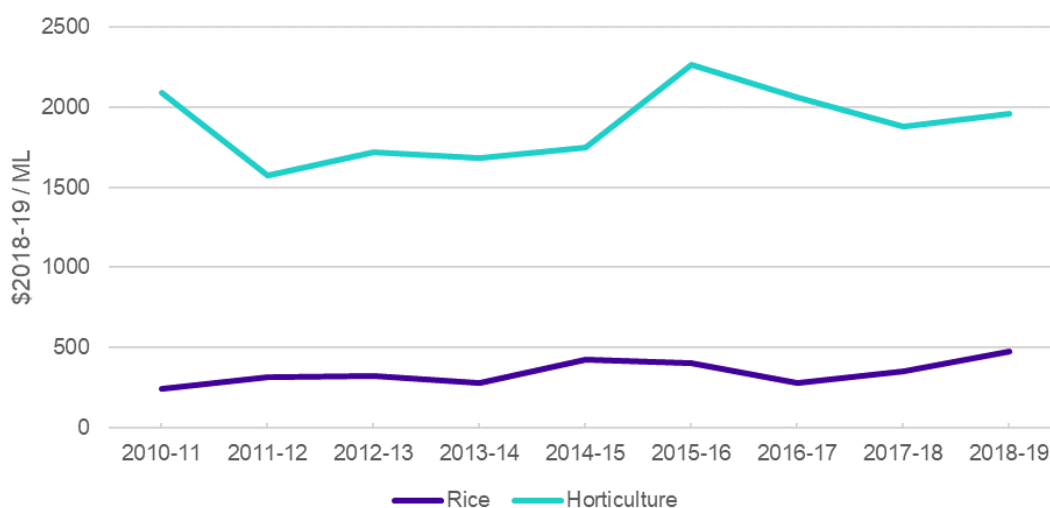
Figure 3.24: Selected annual commodity prices indexes, 2010–11 to 2017–18



Source: ABARES, MDB water market dataset – demand. 2010-11 = 1. Index based on prices in real terms (\$2018–19).

Given commodity prices and inputs across irrigated industries in the Southern Basin, ABARES farm survey results show that the horticulture industry received a substantially higher gross unit return per megalitre of water applied compared to rice (figure 3.25). Between 2010–11 and 2018–19, gross unit returns for the horticulture industry (encompassing pome fruit, citrus, stone fruit, grapes and other tree crops) were \$1886 per ML applied. Over the same period, the rice industry averaged \$345 per ML applied.

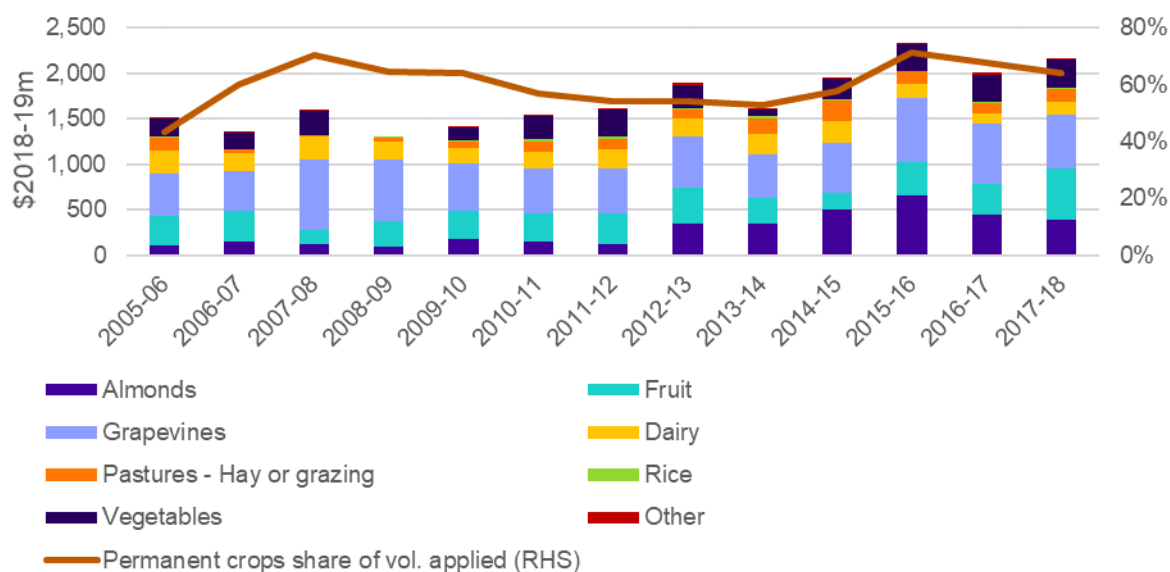
Figure 3.25: Gross unit return to horticulture and rice crops, average per farm, 2010–11 to 2018–19 (\$2018–19 per ML)



Source: ABARES irrigation farm surveys.

In the Murray regions downstream of the Barmah Choke, agricultural production has been concentrated in permanent plantings for some time. Within this segment, almond and fruit production have grown, and are replacing grapevine production to some degree (figure 3.26). Permanent plantings (almonds, grapevines and fruit trees) are highly dominant in this region, accounting for 64 per cent of water volumes applied in 2017–18.

Figure 3.26: Gross value of irrigated agricultural production by commodity in River Murray regions downstream of Barmah Choke, 2010–11 to 2017–18



Source: ABARES, MDB water market dataset – demand.

Notes: Permanent crops share of volume applied is shown on the right axis, and comprises Almonds, Fruit and Grapevines. Includes New South Wales Murray downstream of Barmah Choke; Victoria Murray downstream of Barmah Choke, and South Australian Murray.

Stakeholders have raised concerns about the resilience of the agriculture sector in these regions as production is dependent on a few high value permanent crops.¹²⁰ Several issues have been raised:

- There is concern there will not be sufficient water to sustain permanent plantings and agriculture more generally through prolonged drought, or in an increasingly dry or variable climate due to climate change.¹²¹
- Many of the permanent plantings are new, and so the historical data underestimates their share of water demand. Questions arise about the implications of growth in permanent plantings, and their demand for water as these crops mature, especially for growers of other commodities who may be less able to compete for water in scarce periods.¹²²

¹²⁰ For example, Almond Board of Australia, Submission to the Murray-Darling Basin Water Markets inquiry issues paper, March 2020, pp. 3–4, 6–7. Leeton Shire Council submitted that ‘Diversity of crop type has been the strength of the MIA for over one hundred years and has increased our resilience. Without that diversity our established industries that have built up over many decades will be threatened, impacting local jobs, our local economy and our local community. Further losses in agricultural diversity also poses a serious threat to national food security and will drive up food prices for Australians.’ Leeton Shire Council Submission to the Murray–Darling Basin Water Markets inquiry issues paper, March 2020, p. 2.

¹²¹ For example, the National Irrigators Council (NIC) submitted that ‘The current severe drought is the key factor in high prices, and clearly over coming years the predicted reductions in run off, as a result of climate change, will have real negative impacts on irrigation water availability.’ NIC Submission to the Murray–Darling Basin Water Markets inquiry issues paper, March 2020, p. 9.

¹²² For example, NSW Farmers, Submission to the Murray-Darling Basin Water Markets inquiry issues paper, March 2020, p. 6. SunRice Submission to the Murray–Darling Basin Water Markets inquiry issues paper, March 2020, p. 15, Almond Board of Australia, Submission to the Murray–Darling Basin Water Markets inquiry issues paper, March 2020, pp. 3–4. The Australian Dairy Industry Council Inc. (ADIC) submitted that ‘that the current regulations in the water market should be re-examined to account for increased risks due to significant changes in land use and crop types and subsequent water demand below the Barmah Choke, with focus on consideration of third-party impacts, especially reliability of entitlements’. ADIC Submission to the Murray–Darling Basin Water Markets inquiry issues paper, March 2020, p. 2.

- Some irrigators own low or no volumes of permanent entitlements and are relying on temporary water markets to source the water they need. This is particularly concerning in relation to permanent plantings.¹²³

Answering these questions involves making a range of assumptions about commodity prices and water availability in the future. The ACCC has not undertaken its own scenario modelling to assess these questions, but there are several recent efforts undertaken by others to assess the implications of these changes for water markets and agricultural sectors. In particular, ABARES modelled a range of scenarios to assist the work for the Socio-Economic panel in 2019–20. While there are acknowledged limitations of this work¹²⁴, the key projections arising from this study include:

- ‘Growth in water demand in the lower Murray due to maturing almond trees (particularly in New South Wales and South Australian Murray), leads to greater pressure for inter-regional water trade, more frequently binding trade limits and large differences in prices between regions. Particularly in dry years, trade limits lead to significantly higher prices in the Murray below Barmah region (between \$955/ML and \$1075/ML) compared to the Murrumbidgee (between \$665/ML and \$712/ML).’
- ‘While water supply (including both surface water and other sources such as groundwater) is sufficient to meet estimated demand from horticultural plantings (fruits, nuts and grapevines) in all scenarios, in practice there remains some risk of supply shortfalls within each water year, particularly if future conditions are drier than modelled or trade constraints are tightened. Horticultural plantings are estimated to use around 1276 GL on average each year in the ‘future scenarios’.
- GVIAP is also projected to decrease for some agricultural commodities (chiefly dairy and rice) but increase for almond, although the modelling does not account for commodity or input price shifts as prices are fixed to observed values in 2018–19.¹²⁵

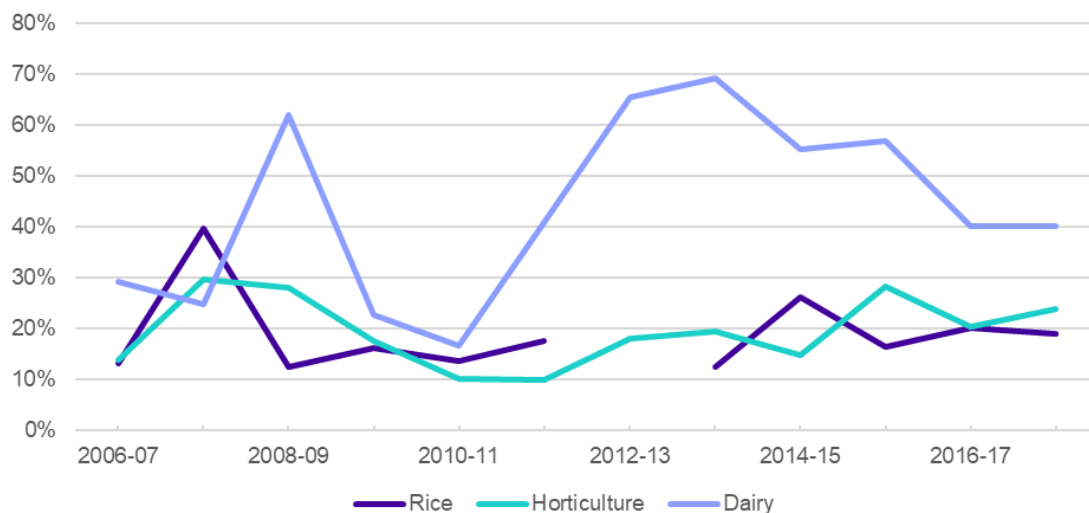
ABARES survey data also shows that dairy farmers are most reliant on temporary water markets to source the water they use. Figure 3.27 shows that in 2017–18, the average dairy farm purchased 40 per cent of volumes of water used, whereas for horticulture farms temporary water purchases amounted to 24 per cent of water use on average, and 19 per cent for rice farms on average.

¹²³ For example, NSW Farmers submitted that ‘Supply and reliability issues experienced by upstream farmers because of the current drought are being exacerbated because many of the new permanent plantings in the recently expanded irrigation areas do not have high security water entitlements and rely upon general security and temporary water entitlements’. NSW Farmers, Submission to the Murray–Darling Basin Water Markets inquiry issues paper, March 2020, p. 6. This issue is also considered further in chapter 4.

¹²⁴ ABARES notes that there are several key caveats to their scenario results: ‘Firstly, the climate sequence used (2006 to 2019) is particularly dry in the context of the longer historical record and may differ from average future climate conditions. Secondly, these scenarios are based on current farms using current capital and technology, and do not allow for long-term adaptation (innovation/technological change) or structural adjustment (changes in capital investment)... Commodity prices are also fixed to observed values in 2018–19. Prices higher or lower than assumed will alter the demand for water from farms producing that commodity, and hence their overall water use and production.’ ABARES, Future scenarios for the southern Murray–Darling Basin: Report to the Independent Assessment of Social and Economic Conditions in the Basin, <https://www.agriculture.gov.au/abares/research-topics/water/future-scenarios-smdb-independent-assessment-social-economic-conditions>, viewed 22 June 2020.

¹²⁵ *ibid.*

Figure 3.27: Reliance on temporary markets: Volume of temporary purchases as proportion of water use, average per farm, Southern Basin



Source: ABARES irrigation farm surveys. Notes: Horticulture: average of 3 regions (Goulburn, Murray, Murrumbidgee); Rice: average of two regions (Murray and Murrumbidgee), no data for 2012–13; Dairy: average of 2 regions (Murray and Goulburn).

Key findings on irrigated agriculture water demand factors

Putting all of the above together, the ACCC’s view is that key trends from irrigated agriculture which are likely to have significantly affected demand for water for irrigation (and irrigator participation in water markets) have been:

- substantial expansion of the almond industry: increased irrigated areas, volume of water applied and production of almonds, which have been concentrated on the Murray River below the Barmah Choke
- increased pasture production in Victoria: used in dairy and other livestock industries, although average area of irrigated pasture per farm declined in 2018–19, reflecting drought conditions in that year
- continued significant role of cotton, rice and other broadacre annual cropping in New South Wales, and
- increased irrigated area and volume applied for cotton in the Murrumbidgee with a decrease irrigated area and volume applied in the Lower Darling.

Environmental water holders

The Australian and state governments have progressively recovered water for the environment and become significant owners of water access entitlements in the Basin. As such, they play an important role affecting water demand. The government environmental water holders (EWH) include:

- Commonwealth Environmental Water Holder (CEWH)
- Victorian Environmental Water Holder (VEWH)
- New South Wales Office of Environment and Heritage (OEH)
- South Australian Minister for Environment and Water
- Murray Darling Basin Authority (MDBA).

It is important to note that recovery of water for the environment began in the 2000s and prior to the implementation of the *Basin Plan 2012* (Cth). Programs for recovering water for the environment have included:

- Water for Rivers
- Living Murray Initiative
- various New South Wales, Victoria and South Australian Government initiatives.¹²⁶

Associated with the *Basin Plan 2012* (Cth), Australian Government programs aimed at recovering water for the environment have included:

- Sustainable Rural Water Use and Infrastructure Program, comprising:
 - irrigation infrastructure projects
 - water purchase mechanisms (also known as the Restoring the Balance program)
 - supply measures
- Private Irrigation Infrastructure Program for New South Wales
- Private Irrigation Infrastructure Program for South Australia
- On-Farm Irrigation Efficiency Program
- Commonwealth On-Farm Further Irrigation Efficiency Program.¹²⁷

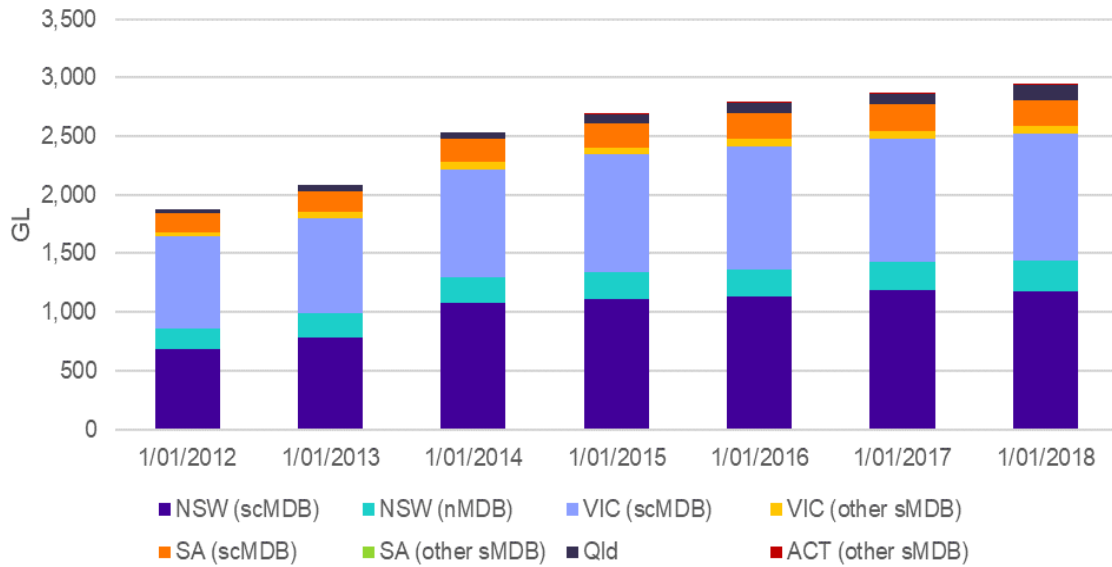
In addition, there have been several programs and initiatives by state governments which have recovered water for the environment.

As at 30 June 2018, 2938 GL of water had been recovered for the environment and held by government environmental water holders across the Basin (figure 3.28). Between 30 June 2012 and 30 June 2018, the total volume of water access entitlement held increased by 1057GL, with Queensland, New South Wales, Australian Capital Territory, Victorian and South Australia water systems accounting for 89GL, 580GL, 324GL, 60GL and 5GL, respectively, of this increase.

¹²⁶ MDBA, *Transition period water take report 2017–18: Report on Cap compliance and transitional SDL accounting*, Canberra, July 2019, p. 148.

¹²⁷ Department of Agriculture, Water and the Environment, Water programs across the Murray-Darling Basin, <https://www.agriculture.gov.au/water/mdb/programs/basin-wide>, viewed 17 June 2020.

Figure 3.28: Water access entitlement volumes (GL) held by EWHs, by state and Basin region, 30 June 2012 to 30 June 2018

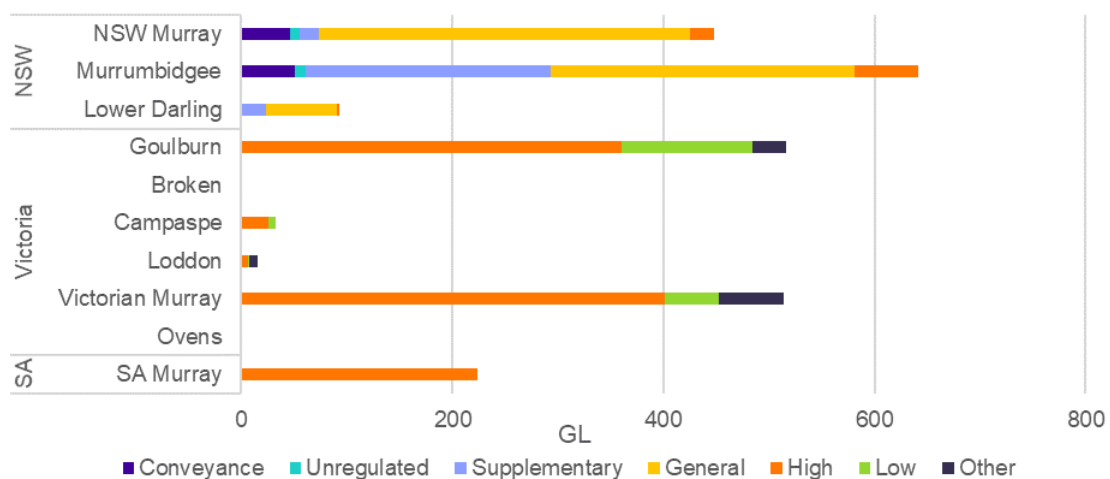


Source: MDBA, Transitional SDL water take reports (multiple years).

Notes: Volumes are expressed in Long Term Average Annual Yield (box 3.2) terms. New South Wales updated their LTDLE factors ('Cap factors'—see box 1) in 2018; the volumes for New South Wales as at 30 June 2018 incorporate these updated factors. nMDB = Northern Basin, scMDB = Southern Connected Basin, sMDB = Southern Basin.

Within the Southern Basin, the Murrumbidgee, New South Wales Murray, Victoria Murray, Goulburn and South Australian Murray water systems accounted for a substantial share of water access entitlements held by EWH on 30 June 2018 (figure 3.29). In addition, almost half of water access entitlements held by EWH in the Southern Basin are higher reliability (in Long Term Average Annual Yield (LTAAY) terms; see box 3.2).

Figure 3.29: Volume of water access entitlements (GL) held by EWHs in the Southern Basin, by reliability, 30 June 2018



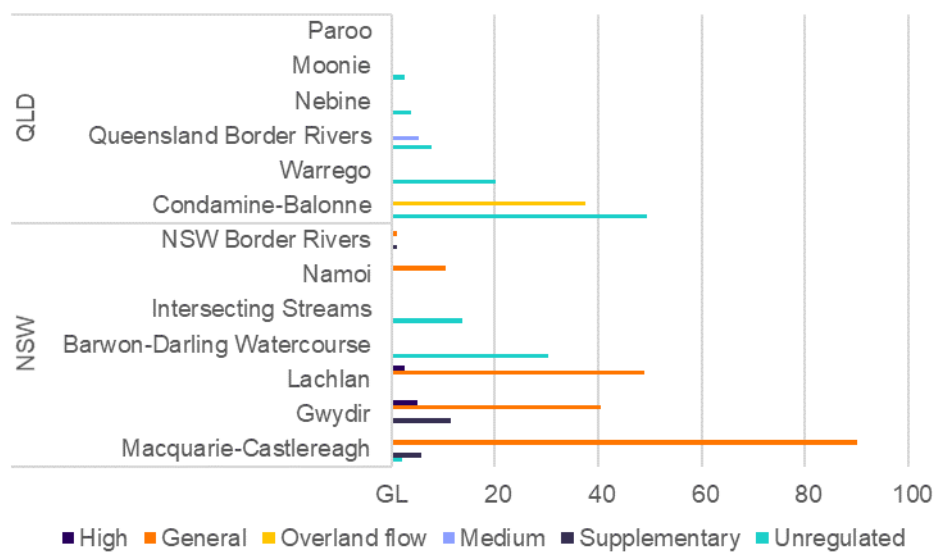
Source: MDBA, Transitional SDL water take reports (multiple years).

Notes: Volumes are expressed in Long Term Average Annual Yield (LTAAY) terms. High reliability includes High Security water access entitlements in New South Wales, High Reliability water access entitlements in Victoria, all water access entitlements in South Australia.

It is worth noting a small volume of water access entitlements are held by EWH in the Southern Basin but are not part of the connected systems (not shown in figure 3.29). As at 30 June 2018, this accounted for around 66 ML (LTAAY terms) or over 2.6 per cent of the total volume of water access entitlements held in the Southern Basin.

In the Northern Basin, the majority of environmental water holdings as at 30 June 2018 were held in the New South Wales catchments of Macquarie-Castlereagh, Gwydir and Lachlan, mostly in the form of general security entitlements, and the Queensland catchment of Condamine-Balonne, as unregulated (unsupplemented¹²⁸) entitlements (figure 3.30).

Figure 3.30: Volume of water access entitlements (GL) held by EWHs in the Northern Basin, by reliability, 30 June 2018



Source: MDBA, Transitional SDL water take reports (multiple years).

Notes: Volumes are expressed in Long Term Average Annual Yield (LTAAY) terms. High reliability includes High Security water access entitlements in New South Wales, High Reliability water access entitlements in Victoria, all water access entitlements in South Australia.

¹²⁸ 'Unsupplemented' is Queensland terminology and corresponds to "unregulated" in *Water Act* (2007) (Cth) terminology.

Box 3.2: Water access entitlement units: nominal versus Long-Term Average Annual Yield (LTAAY)

The 'nominal' or 'face value' of a water access entitlement is usually specified as a specific volumetric amount, usually denominated in megalitres (ML). Water allocated to, and used by, the various classes of entitlement across the Basin varies according to the irrigation crops and practices in each valley, local climate, and water management rules. Long Term Diversion Limit Equivalence (LTDLE) factors provide a conversion between the size of a water entitlement and the long-term average use of that entitlement over the reference period used to develop the Basin Plan (1895-2009). LTDLE factors are specific for an entitlement class within each valley for which water resource plans (WRPs) are being prepared under the Basin Plan. In order to be able to compare across entitlement types in a consistent or 'like-for-like' way, the nominal or face value of an entitlement needs to be converted into a unit that takes into account differences in reliability. This unit is called 'Long-term average annual yield' (LTAAY), and is calculated by multiplying the nominal or face value of an entitlement by its corresponding LTDLE factor, also known as a 'Cap factor'.

Source: Adapted from Brewsher and Simpson (2019) Independent Review of the Victorian Method and Planning Assumptions for Long Term Diversion Limit Equivalence (LTDLE) Factors in the Murray–Darling Basin.

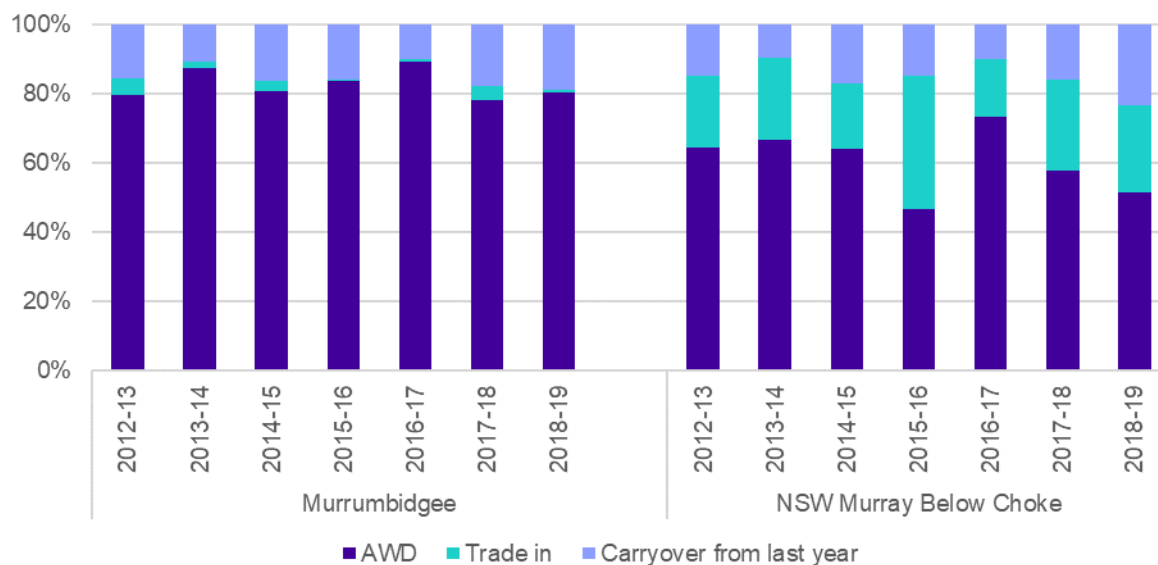
3.3. Implications of trends and drivers for market outcomes: preliminary findings

3.3.1. Carryover and trade interact to allow concentration of water use in particular places, at particular times, for particular uses

In the past, water users were not able to hold water allocations across multiple years, and opportunities to relocate water use across zones (or even outside of IIO networks) were limited. As trade restrictions have been removed and carryover and other policies have allowed water users to individually plan their water user across multiple seasons more directly, the relationship between water *allocations* in a given zone and season and water *use* has become less direct. However, this has occurred more in some zones than others.

The figures below compare water accounting data for New South Wales Murray Below Choke (zone 11) and Murrumbidgee (zone 13). Figure 3.31 shows proportions of account *credits*, comprising water allocated to entitlement holders via Available Water Determinations (AWD), carryover from the previous year, and trade *into* the zone. Figure 3.32 shows proportions of account *debits*, comprising water account usage (excluding uncontrolled flow usage), trade *into* the zone, forfeits and carryover into the following year.

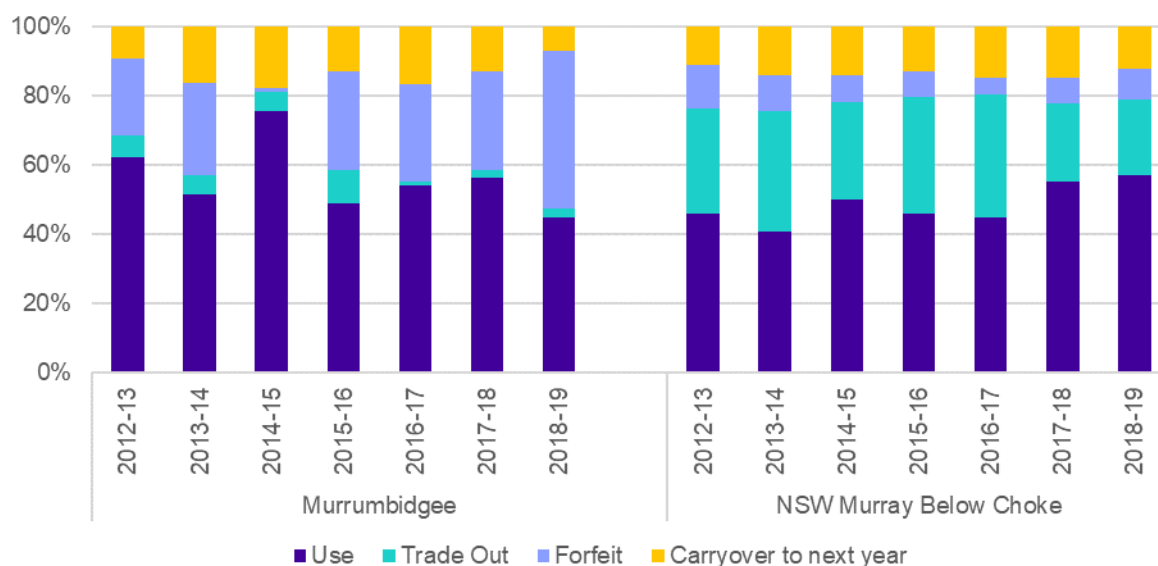
Figure 3.31: Proportion of water account credits by type, Murrumbidgee and New South Wales Murray below choke, 2012–13 to 2018–19



Source: ACCC analysis based on New South Wales General Purpose Water Accounting Reports and New South Wales response to voluntary information request.

Notes: Excludes uncontrolled flow usage.

Figure 3.32: Proportion of water account debits by type, Murrumbidgee and New South Wales Murray below choke, 2012–13 to 2018–19



Source: ACCC analysis based on New South Wales General Purpose Water Accounting Reports and New South Wales response to voluntary information request.

Notes: Excludes uncontrolled flow usage.

Comparison of these figures shows that:

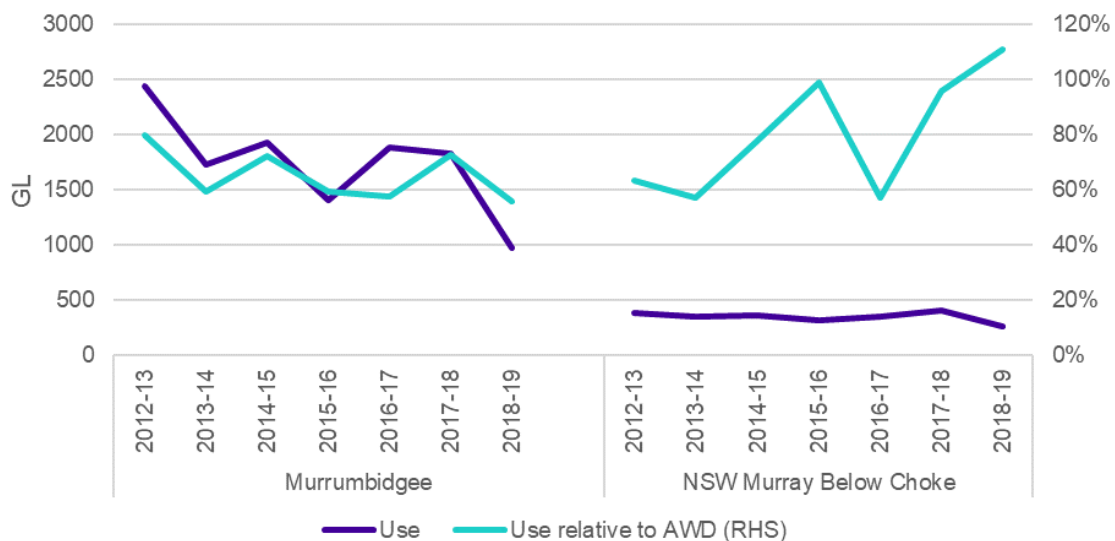
- In Murrumbidgee, Available Water Determinations remain the primary source of credits to users' accounts, accounting for over 80 per cent of credits in each water year since 2012–13. This contrasts with New South Wales Murray below choke, where allocations to entitlement holders represent a much smaller, and on average declining share of

account credits. In 2018–19, allocations to entitlements accounted for only 52 per cent of account credits, with users relying roughly equally on carrying over water in zone 11 and trading in water from outside this zone to source water.¹²⁹ It is worth noting that New South Wales Murray general security (GS) entitlement holders received zero allocations in 2018–19, which means users who held only GS entitlements had no alternative but to use carryover or trade to source water if they wished to use water in that water year.

- In both systems, usage within a given water year accounts for at most 60 per cent of account debits in almost all years (except in 2014–15 for Murrumbidgee), meaning that considerable volumes each year are forfeited (Murrumbidgee) or traded out to other zones (New South Wales Murray). In Murrumbidgee, forfeitures are mostly for water allocated to supplementary licences—this water is forfeited because it cannot be re-regulated (stored) and so this kind of forfeiture does not necessarily return to the consumptive pool to be reallocated in the following water year.

Figure 3.33 shows that actual volumes used in Murrumbidgee have trended downwards with allocations. In contrast, in New South Wales Murray below choke, water use has remained relatively steady despite significantly lower allocations, and therefore usage relative to allocations to entitlement holders has increased significantly, even exceeding 100 per cent in 2018–19. Thus, despite New South Wales Murray GS water entitlements receiving no allocation in 2018–19, water users were still able to use a mix of carryover and trade to source water.

Figure 3.33: Volume of water used (GL) and usage as a proportion of volumes allocated, Murrumbidgee and New South Wales Murray below choke, 2012–13 to 2018–19



Source: ACCC analysis based on New South Wales General Purpose Water Accounting Reports and New South Wales response to voluntary information request. Notes: excludes uncontrolled flow usage.

The ACCC has selected these two regions to illustrate how volumes allocated, used, traded and carried over can vary significantly between different zones. For the final report, this analysis will be extended to cover more zones, including areas in the Northern Basin.

The key point to emerge from the analysis to date is that carryover and trade interact to allow concentration of water use in particular places (zones), at particular times, for particular uses. On the one hand, this is a sign of the market working—water is clearly

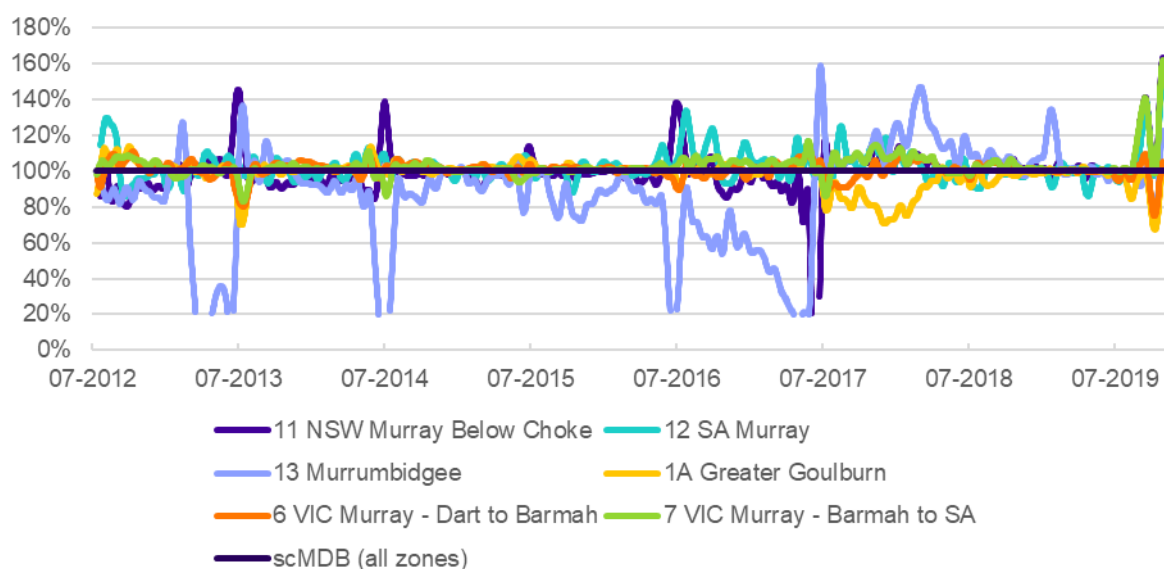
¹²⁹ Note that trade into zone 11 includes carryover parking trades from other zones. The ACCC has not yet developed a methodology for estimating or identifying carryover trades in Basin State registry data.

moving from the place (zone) and time (water year) where it is initially allocated, for use in other places and times. On the other hand, given that many rules, policies and operating procedures were developed before carryover policies were introduced, and before inter-zone trade grew to be the substantial element of market activity that it is today, it becomes more important to ensure market settings are optimised such that users build both the costs and benefits of carryover and trade mechanisms into their decision-making.

3.3.2. Greater use of markets means that trading is pushing up against the limits of the system more often

Overall, the ACCC’s analysis to date shows that inter-valley trade restrictions are becoming more binding over time. Figure 3.34 shows the impacts of binding inter-valley trade limits on average prices in key zones. Where the price series are close to 100 per cent, this means that the average price in that zone is very close to the average price prevailing across the Southern Connected Basin as a whole. Significant divergences away from the 100 per cent line mean that prices in a particular zone are significantly higher or lower than the average price. The figure shows that earlier in the period, price differentials were mainly observed at the end of the water year—this in part can be explained by different states having had different timings for closing trading at the end of the water year (which all states historically have done, at least briefly, to allow for end-of-year accounting processes). However, in more recent years prices have diverged more often *within* the water year, particularly during 2016–17, 2017–18 and the first half of 2019–20, when many trade restrictions were binding for significant periods of time (refer to figure 3.17 and figure 3.18 above). In particular, Greater Goulburn (zone 1a) and Murrumbidgee (zone 13) have seen prolonged periods of significant divergences from Southern Connected Basin average prices in recent years.

Figure 3.34 Average daily price differentials, selected zones compared to average for Southern Connected Basin, 2012–13 to 2019–20



Source: ACCC analysis based on New South Wales, South Australia and Victoria response to voluntary information request. Notes: daily zone and Southern Connected Basin (all zones) price series derived using ABARES GAM methodology.¹³⁰ Excludes zero dollar trades Price differentials of <0.2 and >1.8 are excluded. This figure shows price differentials for each zone as a percentage of the Southern Connected Basin (all zones) average price. For example, on December 8 2017, average prices in zone 1A Greater Goulburn were 71 per cent of the Southern Connected Basin (all zone average price).

¹³⁰ ABARES, Measuring water market prices: statistical methods for interpreting water trade data, 2019. Available at <https://www.agriculture.gov.au/sites/default/files/abares/documents/research-topics/water/measuring-water-market-prices.pdf>, viewed 10 March 2020.

While the overall objective of water markets is not to achieve a single price across the whole Southern Connected Basin, sustained pricing differentials between zones, combined with data on the volume of inter-zone trades that are refused, indicate that there is more demand for inter-valley trade than is able to be met under current inter-valley trade arrangements. This gives rise to the question of whether current settings governing inter-valley trade are optimised. This includes several questions:

- Could there be scope to allow more inter-valley trade, while still appropriately limiting the potential for negative impacts on other water users and the environment?
- Are there costs to inter-valley trade which are not reflected in current prices? If such costs were factored into prices, would demand for inter-valley trade correspondingly reduce (other things being equal)?

These considerations are examined in further detail in chapters 12 and 13 of this report.

4. Buyers and sellers: who trades, what and why

Key points

Water ownership

ACCC provisional analysis of the available data indicates that:

- Water ownership by different participant groups varies widely across Victorian zones, with ownership by agricultural consumptive users (irrigators and agribusiness groups) typically lowest in zones where there are higher levels of ownership by environmental water holders (EWHs) and institutional investors.
- Agricultural consumptive users (irrigators and South Australian IIOs) and EWHs hold the vast majority of tradeable entitlements in the South Australian Murray, while institutional investor ownership is relatively minor.
- First Nation and Traditional Owner groups own a very small proportion (less than 0.1 per cent) of permanent water rights across the Southern Basin.

Water allocation trades

ACCC provisional analysis of total Basin State allocation trade data for the Southern Connected Basin, *including zero dollar trades*, indicates that while Irrigators make the majority of the number of allocation trades each year in the Southern Basin, this accounts for a minority of the volumes traded. EWHs typically trade the largest proportion of allocation volumes in a given year, mostly as a small number of non-commercial (zero dollar) trades.

Commercial water allocation trade by participant group

Although imperfect, analysing allocation trade data from state registers that excludes zero dollar trades is a reasonable indicator of the number and the volume of 'commercial' allocation trades, and the resultant price information is also expected to be more reflective of commercial market outcomes. ACCC provisional analysis of Basin State allocation trade data for the Southern Connected Basin *excluding zero dollar trades* indicates that:

- Irrigators are the largest single trading group in allocation markets by number and volume of trade in the Southern Basin, although their share of total allocation trade has declined somewhat over the last eight years as other participant groups enter water allocation markets. In 2018–19, irrigators accounted for 60 per cent of the total number of allocation purchases and 65 per cent of the number of sales. This accounted for around 44 per cent of total volumes purchased, and 37 per cent of total volumes sold.
- The presence of institutional investors in Southern Connected Basin allocation markets has increased significantly in the last four years. In 2018–19, institutional investors accounted for 16 per cent of the total number of allocation purchases, and 5 per cent of the number of sales, which accounted for 14 per cent of volumes purchased and 20 per cent of volumes sold.
- Water holders identifiable as Retired irrigators account for a small but not insignificant proportion of allocations sold in the Southern Basin each year. While this class of participants is more difficult to identify in Basin State data, the ACCC's provisional estimates are that this class accounts for between 1 per cent and 3 per cent of allocation volumes sold in the Southern Basin in a given year.
- Agribusinesses account for a significant share of the number and volume of allocation purchases in the Southern Basin, purchasing between 9 per cent and 19 per cent of

allocation volumes in any given year.

- EWHs trade a relatively small proportion of allocation volumes in the Southern Basin in a given year, purchasing between 0 per cent and 4 per cent, and selling between 1 per cent and 3 per cent of allocation water volumes traded.
- First Nation and Traditional Owner groups typically make almost no allocation purchases in the Southern Basin in a given year, but consistently account for a very small volume of allocation sales each year (of between 0.2 and 0.5 per cent of allocation volumes).
- Water market participation by different groups differs substantially across zones.

Evidence of potential barriers to more effective participation in water markets

While many irrigators have engaged in allocation and, to a lesser extent, entitlement trade, large proportions of irrigators report having limited or no engagement with water markets, particularly market for leases and newer water products such as carry over parking and forward contracts. The most recently available data indicates that:

- While half or more of irrigators in the Southern Basin report having used allocation and entitlement markets at least once, approximately 25 per cent have never traded an allocation and 50 per cent have never traded a water entitlement.
- Less than 7 per cent of irrigators across the Basin use entitlement leases to source water for their farms, and an even smaller proportion of irrigators use newer water products such as carry over parking or forward contracts.

A significant number of irrigators, particularly in dairy, appear to have adopted water ownership and trading strategies that rely principally on sourcing water in allocation spot markets to manage their water supply risks.

Some irrigators express a lack confidence in various aspects of water markets and water policy and some evidence indicates that this lack of confidence may impact irrigators' use of water trading. Available data indicates that:

- Irrigators' appear to be becoming increasingly negative about the idea of water trading over time. As of 2016, only 28 per cent of irrigators in the Southern Basin agreed that 'water trading had been good for farming.'
- Large proportions of irrigators have expressed opposition to non-farm entities (investors) being allowed to buy water (up to 85 per cent), and retired irrigators being allowed to retain and trade their permanent water rights (up to 48 per cent).
- While majorities of irrigators express positive views on the ease of making temporary and permanent trades, being able to access the information needed to trade, feeling confident in trading water, and in the security of their permanent water rights, minorities of irrigators express opposing views on each of these issues.
- A third or less of irrigators express confidence in the fairness of water markets, water market rules, and the equal treatment of government owned water entitlements.

Few First Nation and Traditional Owner groups use water markets. As a participant group, they own a very small proportion of the permanent water rights on issue and account for a very small proportion of water trade.

This chapter describes the different groups that participate in water markets, the relative size of their water ownership and trading behaviours, and identifies possible barriers some groups may face in more effectively engaging in water markets. The chapter provides an evidence base on the water ownership and trading behaviours different participant groups

use for other areas of this Report to draw on, and considers what barriers may be preventing certain participant groups from better using water markets to meet their water needs.

This chapter is organised as follows:

- Section 4.1 describes the key groups who participate in water markets.
- Section 4.2 presents a framework that describes the key water ownership and trading strategies used by different groups, and asks stakeholders for feedback on whether this framework accurately describes the common strategies currently in use in the Murray–Darling Basin (the Basin). The ACCC intends to use this framework and available data to empirically analyse common patterns of water ownership and trading activity for the final report.
- Section 4.3 examines the relative market share of each participant group in the Basin by presenting data on the quantities of permanent water rights owned each group, and the size of their trade in allocation markets.
- Section 4.4 presents our analysis and findings to date on possible barriers to more effective water market engagement some participant groups may experience.
 - Section 4.4.1, drawing on a study of irrigators' use of water markets in appendix A, presents findings on barriers some irrigators may face to more effectively using water markets. This more detailed analysis of irrigator water market participation reflects that irrigators are the largest individual group of water market participants across the Basin, and that submissions to the ACCC highlighted particular issues that may make it more difficult for some irrigators to effectively use water markets relative to other bigger, better resourced market participants.
 - Section 4.4.2 presents findings on barriers to accessing water faced by First Nation and Traditional Owner groups in the Basin. This reflects submissions to the ACCC and data showing that First Nation and Traditional Owner organisations, as a participant group, own few water rights and are largely absent from water markets.

4.1. Who are the key participant groups in water markets?

There is increasing diversity in who is owning, buying and selling water in the Basin. This section identifies key groups of water market participants, and discusses how they are using Basin water markets and why. These key groups include:¹³¹

- Irrigators, which typically include owner-operator and family owned farms
- Agribusinesses, who are also irrigators, but who are examined as a separate category. This is in part due to stakeholder feedback which raised concern about large agribusinesses as distinct from irrigators more generally
- Investors, including large 'institutional investors', and 'non-institutional' investors such as retired irrigators who have retained their permanent water rights, including through a self-managed superannuation fund
- Water market intermediaries including brokers and exchanges
- Irrigation Infrastructure Operators (IIOs)

¹³¹ In reality, these groups are not necessarily mutually exclusive: some individual water market participants may meet the definition of more than one participant group—for example, some irrigators also undertake environmental watering activities on their farm, and so may share characteristics with the 'environmental water holder' group. However, our analysis allocates water right owners and traders to one group only, and uses these categories to examine the range of ways in which different stakeholders use water markets.

- Environmental water holders (EWHs), including government bodies such as the Commonwealth Environmental Water Holder (CEWH) and state government EWHs, as well as non-government EWHs
- First Nation and Traditional Owner groups (Traditional Owner groups), including primarily but not exclusively Land Councils, Indigenous Corporations and other traditional owner groups
- Urban, Industrial and Recreation groups, which includes other consumptive water users not included in the above categories, such as other government (non-EWH) participants, miners, electricity generators, commercial recreational users, and urban, rural and regional water authorities
- other non-water users, which includes other participants not included in the above categories that buy and sell water but do not use water for a consumptive purpose.

Participants in each of these groups have been active at different levels in Murray–Darling Basin water markets in recent years. Participants within a particular group typically share similar reasons for owning and trading water, as well as a range of personal, business and/or locational characteristics. A short description of each participant group is provided below.

4.1.1. Irrigators

Irrigators are the most numerous and diverse group of Basin water market participants. In 2017–18 (the latest year for which ABS data is available), it is estimated there were just under 10 000 agricultural businesses irrigating land across the Basin.¹³²

Irrigators predominantly own and use water to produce agricultural products. As a group, they are one of the largest owners of permanent water rights, and one of the biggest participants in entitlement and allocation markets (section 4.2). Historically, the typical irrigator has owned sufficient permanent water rights to meet their on-farm water needs and traded temporary water to ‘top up’ water supplies in drier years or sell ‘surplus’ water in wetter years or when not irrigating. However, in recent years, with ongoing reforms to water ownership and trading rules and changes in external market trends and drivers (particularly agricultural input and output markets), the irrigation sector has been undergoing significant structural adjustment and irrigator strategies for owning, using and trading water have become increasingly diversified (section 4.2).

Appendix A to this chapter provides a detailed description of how irrigators are engaging with water markets across the Basin.¹³³

4.1.2. Agribusinesses

Agribusiness are larger agricultural corporations that engage in irrigated farming. Like smaller owner-irrigator businesses, agribusiness irrigators generally own a quantity of permanent water rights and use the water that accrues to those rights, along with water sourced on temporary markets, to produce agricultural products.

The ACCC has examined the water ownership and trading strategies of a number of large agribusinesses with operations in the Southern and Northern Basins. These businesses irrigate permanent plantations (such as fruit and nut tree and berry plantations) and/or annual crops (such as cotton). As a participant group, agribusinesses own and use

¹³² ACCC estimates based on ABS 4618.0—Water Use on Australian Farms, 2017–18.

¹³³ The appendix includes a snapshot of irrigator numbers across the Basin, the type and level of irrigator engagement with different types of water markets, including water allocation and entitlement markets, leases and newer water products such as carry over parking and forward contracts, and summarises the available data on irrigators’ attitudes to water trading and water markets.

significant quantities of water in the Basin (section 4.2). However, the level and type of entitlement ownership varies widely from business to business. Agribusinesses can use a variety of water ownership and trading strategies, ranging from owning sufficient permanent entitlements to meet most of their water needs to owning almost none and relying on temporary markets to source water each year.

4.1.3. Investors, including institutional investors and retired irrigators

Investors refers to parties holding water allocations and/or entitlements for the purpose of future financial gain that is unrelated to its use as an input in agricultural, industrial or other production. Over the last ten years, there has been increased participation by water investors (section 4.2) in water markets in the Basin (particularly Victoria and southern New South Wales). In particular, 'unbundling' reforms and removals of restrictions based on purpose of water use have allowed parties who do not directly use water to buy permanent water rights in the Basin.¹³⁴

There are various types of investors currently operating in Basin water markets, including:

- **Institutional investors**¹³⁵, which include investment fund managers (corporate superannuation and other fund types) that typically do not engage in any irrigated or other agricultural activity. Such institutional investors own a water portfolio of permanent and temporary water rights and sell water products such as leases, forward contracts, carryover parking and spot allocation sales to irrigators. These water products can help irrigators manage water price and supply risk more effectively and at lower cost.
- **Non-Institutional investors**, predominantly retired irrigators or self-managed superannuation funds who retain ownership of their permanent water rights and supply water products to water markets. These investors generally operate on a much smaller scale than institutional investors.

Chapter 5 discusses issues related to investors in more detail.

4.1.4. Water market intermediaries

A water broker, for the purposes of this inquiry, is a water market intermediary who, for a commission or fee or other form of remuneration or payment, offers one or more of the following services:¹³⁶

- trading tradeable water rights on behalf of another person
- investigating tradeable water right trading possibilities on behalf of another person
- preparing and submitting documents necessary for the trade of a tradeable water right on behalf of another person.

The ACCC has identified approximately 80 broker firms that operate in the Basin with some firms having multiple employees and/or contractors engaged in brokering and available data

¹³⁴ Productivity Commission, National Water Reform, Report no. 87, Canberra, 2017.

¹³⁵ It is worth noting that the category of 'investor' may not always be mutually exclusive to other categories of water market participants. In particular, some investors may have both an agribusiness arm which uses water to produce agricultural products and a water investment portfolio that sells water products to other agricultural producers. Water owned by the investor arm of the business may also supply the agribusiness arm. Note that chapter 5 examines the activities of a subset of investors in greater detail. Statistics presented for this smaller group in chapter 5 may not necessarily match statistics presented in this chapter; this is because the analysis in chapter 4 covers a larger group, and no attempt has been made to account for investors which also have an agribusiness arm as this data is only available for the limited set of investors analysed in chapter 5.

¹³⁶ Other organisations which also act as water market intermediaries include exchanges and online trading platforms. While brokers investigate trading options for their clients, water exchanges operate as a trading platform matching buyers and sellers through an automated process or bulletin board. Water exchanges may also offer similar services to brokers such as organising and submitting the necessary paperwork to the relevant trade approval authority. In some cases, an entity may offer both brokering and exchange services (chapter 6).

indicates that the use of intermediaries across the Southern Basin is widespread.¹³⁷ Brokers can also own and trade water in their own right.

Chapter 6 address water broker roles, practices and conduct in detail.

4.1.5. Irrigation Infrastructure Operators

An irrigation infrastructure operator (IIO) owns and/or operates water service infrastructure primarily for the purpose of delivering water to irrigated farms. While the majority of the volume of water delivered typically goes to irrigated farms, many IIO customers also use small quantities of water (a few ML) for stock and domestic use.

There are 21 medium to large IIOs in the Basin, and a number of smaller IIOs such as New South Wales private irrigation trusts and districts.¹³⁸ IIOs in New South Wales and South Australia are among the largest holders of water access entitlements within the consumptive pool for the Southern Connected Basin. In 2018–19, IIOs held 72 per cent, 22 per cent and 25 per cent of high security water access entitlements (WAEs) on issue in Murrumbidgee, New South Wales Murray and South Australian Murray, respectively, and 50 per cent and 67 per cent of general security WAE on issue in Murrumbidgee and New South Wales Murray (section 4.2).¹³⁹ These permanent water rights were typically granted to the IIOs by state governments when they were corporatized.

IIOs participate in the trade of permanent and temporary water into and out of their irrigation networks, typically at the request of irrigators within the irrigation district. IIOs also act as trade approval authorities for trades within their networks.

Chapter 3 includes more information on IIOs.

4.1.6. Environmental water holders

A range of government and non-government environmental water holders (EWHs) have been active in permanent and temporary water markets in recent years, with government EWHs being the dominant participants in this group. As noted in chapter 3, the key government EWHs include the:

- Commonwealth Environmental Water Holder (CEWH)
- Victorian Environmental Water Holder (VEWH)
- New South Wales Department of Planning, Industry and Environment
- South Australian Minister for Environment and Water
- Murray–Darling Basin Authority (MDBA).

Governments have been accumulating large portfolios of permanent water rights over recent years through various means, including direct purchases of entitlements from irrigators and various infrastructure programmes. However, they are currently not active buyers of entitlements in Basin water markets.

EWHs typically transfer temporary water accruing to their permanent rights to environmentally significant locations across the Basin to generate environmental benefits. These transfers of water are typically registered on state water registers as zero dollar water

¹³⁷ See chapter 6.

¹³⁸ ACCC, Water Monitoring Report 2017–18, Monitoring approach and assumptions, https://www.accc.gov.au/system/files/ACCC%20Water%20Monitoring%20Report%202017%E2%80%9318%20Monitoring%20Approach%20and%20Assumptions_Final.pdf, p. 2–4. Viewed 22 June 2020.

¹³⁹ ACCC provisional estimates based on South Australia and Victoria response to voluntary information request and New South Wales Water Register data.

allocation trades. Under certain circumstances, EWHs also engage in commercial trade by buying or selling water on allocation markets. These trades, undertaken at prevailing market prices, are also recorded on state water registers.

Section 4.2 includes data on EWH water ownership and allocation trade.

4.1.7. First Nations and Traditional Owner groups

There are more than 40 First Nations in the Basin.¹⁴⁰ First Nations and Traditional Owners (Traditional Owner groups), which primarily consist of Land Councils, Indigenous Corporations and other traditional owner organisations, use water in the Basin to generate a range of cultural, environmental and economic benefits.¹⁴¹ However, they have submitted to the ACCC that as a group Traditional Owners own few permanent water rights and are largely absent from water markets.¹⁴²

Section 4.2 includes data on Traditional Owner groups' water ownership and water trading behaviours and section 4.3 discusses possible barriers to this participant group more effectively engaging with water markets.

4.1.8. Urban, Industrial and Recreation users

This participant group includes other consumptive water users not included in the above categories, and includes other government (non-EWH) participants, mining companies, power stations, commercial recreational users such as golf courses, and urban, rural and regional water authorities. Within this category, regional water authorities and town councils are the most active traders and hold the largest volume of entitlement.

4.1.9. Other non-water users

This participant group is a residual category and includes those non-water users not allocated to any category above. This category could include, for example, persons who hold 'sleeper' water rights, to which water is allocated each year but not used or traded.

4.2. Water ownership of participant groups

Currently, there is no consolidated Basin-wide data that shows the type and volume of permanent water rights owned by the key participant groups described in section 4.1. The ACCC has undertaken provisional analysis of water trade, ownership and accounts data provided by the Basin States to construct a dataset on water ownership by each participant group in Victorian and South Australian source zones (box 4.1 provides an overview of the ACCC's methodology).

This section presents this provisional analysis on water ownership and discusses the key trends observed in Victorian and South Australian trading zones. As more data becomes available, it is our intention to replicate this work for the whole Basin and further refine our analysis of water ownership by participant groups for the final report.

¹⁴⁰ MDBA, Cultural flows, <https://www.mdba.gov.au/discover-basin/water/cultural-flows>, viewed 22 June 2020.

¹⁴¹ Murray Lower Darling Rivers Aboriginal Nations, Submission to the Murray-Darling Basin inquiry, February 2020.

¹⁴² Submission to the Murray-Darling Basin inquiry, *ibid*.

Box 4.1: ACCC methodology to derive statistics on water ownership and trading activity by participant group

There is limited data publicly available on the type and quantity of permanent water rights owned by the participant groups, across the Basin or by trading zone or catchment. Similarly, there is little data publicly available on water market activity by participant group, with the exception of government environmental water holders.

The inquiry Team is acquiring registry data from Basin States, and is undertaking work to classify water access entitlement owners, water account holders, and water traders into the user groups identified in this chapter.

To date, the inquiry has:

- estimated the proportion of high and low reliability entitlements in the Victorian and South Australian Basin by participant groups
- estimated the proportion of water allocation trading activity in the Southern Connected Basin by participant group.

To date, New South Wales has not provided data to the inquiry which identifies water access entitlement owners or permanent traders, and ownership data provided by Queensland has not yet been analysed.

The ACCC's classification work to date has used the following steps:

- First, use publicly available information to identify participants belonging to the following groups: EWHs, IIOs, Traditional Owners groups¹⁴³, Urban, Industrial and Recreational users and other government entities such as water authorities and shire or town councils.
- Second, use information obtained by the inquiry to identify and categorise certain key participants, such as 'Institutional Investors' and 'Agribusinesses', and allocating all superannuation funds (except those already assigned to the 'Institutional Investor' category) to the category of 'non-Institutional Investors'. Note that the 'Agribusiness' category currently includes certain agribusinesses individually identified by the ACCC, and pastoral companies; agribusiness which use water but have not yet been specifically identified by the ACCC form part of the 'Other-water user' category.
- Third, for participants who have not been classified in the steps above, use water account data provided by Basin States to classify participants in this residual group into two sub-groups: 'Irrigators, incl. other-water user' and 'Other-non-water user'. The ACCC notes that the majority of irrigators will fall into the 'Irrigators, incl. other-water user' category:
 - To date, classification into these residual water user / non-water user groups has been based on accounts held by an individual party within one particular state. Therefore, in cases where an individual party in this residual category holds accounts in multiple states, the estimates will overstate activity for the 'Other non-water user' category.

This work will be finalised and replicated for the other states / trading zones, and presented in the inquiry's final report.

The ACCC acknowledges that this classification is a work in progress, and notes that all

¹⁴³ Note that the 'Traditional Owners groups' category includes entities such as Aboriginal Land Councils, Aboriginal Associations, Tribal Councils and Aboriginal Corporations. No attempt has been made to identify individual persons as belonging to this group.

results arising from this work are provisional and should be interpreted as provisional estimates.

4.2.1. Water ownership in Victorian source zones by participant groups

Figure 4.1 reports the proportion of high reliability water entitlements in Victorian source zones owned by the different participant groups identified in section 4.1. Figure 4.2 reports the proportion of low reliability water entitlements in Victorian source zones owned by different participant groups.

Provisional observations on water ownership in Victorian zones (figures 4.1 and 4.2)

Irrigators (as proxied by the *Irrigators incl. other water users* group) own approximately half or more of the high reliability water entitlements in each of the source zones. Irrigators own the lowest proportions of high reliability entitlements in the Murray (47 per cent), Campaspe (52 per cent), Goulburn (53 per cent) and Loddon (64 per cent) source zones and the highest proportion in the Bullarook zone (91 per cent). This same group owns approximately two thirds or more of the low reliability water entitlements in each source zone, apart from Campaspe where it holds 27 per cent and Bullarook where it holds 91 per cent.

The *Agribusiness* group owns approximately 6 per cent of high reliability water entitlements in the Murray zone and 2 per cent in Goulburn. It also holds around 1 per cent of the low reliability entitlements in these same zones.

The *I/O* group owns approximately 10 per cent of high reliability entitlements in the Campaspe and Broken zones and smaller proportion of between 1 per cent and 3 per cent in the Murray and Goulburn zones.

The *EWH* group, which primarily includes government owned environmental water, holds significant proportions of the high reliability water entitlements in the Goulburn (31 per cent), Murray (30 per cent), Campaspe (28 per cent) and Loddon zones (18 per cent), with a smaller proportion owned in the Broken zone (4 per cent). This participant group also owns significant proportions of the low reliability entitlements in the Murray and Campaspe (13 per cent each) zones and Loddon (7 per cent).

The *Institutional Investor* group, which includes financial investors and super funds, own significant proportions of high reliability water entitlements in the Murray (9 per cent) and Goulburn zones (7 per cent), and low reliability entitlements in these same zone (11 per cent and 6 per cent respectively).¹⁴⁴

The *Non-Institutional Investor* group, which predominately includes retired irrigators who have retained ownership of permanent water rights, own very small proportions of the high and low reliability entitlements in Victorian source zones generally, with less than 0.2 per cent of either type of water entitlement in the Goulburn, Murray and Loddon zones.

The *Other Non-Water Users* group, which includes yet to be identified non-water users other than EWHs and investors, holds significant proportions of high and low reliability water entitlements in all zones. Of high reliability entitlements, this includes Ovens (35 per cent), Loddon (17 per cent), Broken (15 per cent), Bullarook and Campaspe (10 per cent each). Of

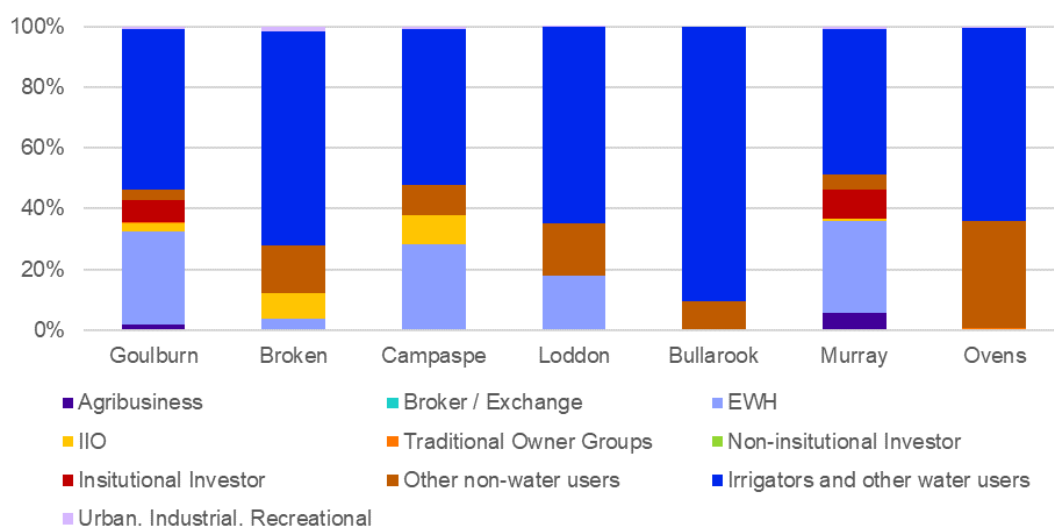
¹⁴⁴ See additional analysis in chapter 5, which analyses entitlement volumes for four large institutional investors with total entitlements on issue in the Southern Basin, and estimates that these investors collectively held 7 per cent of all high reliability/security entitlements across the southern Murray–Darling Basin, 7 per cent of all Victorian low reliability entitlements and 2 per cent of all New South Wales general security entitlements on issue in the Southern Murray–Darling Basin as at 1 July 2019. This analysis relies on comparisons with New South Wales public register data, which has not been analysed in relation to all participant groups, and as such is not presented in this chapter. As noted in box 4.1, the ACCC intends to extend the analysis presented in this chapter to cover the whole Basin for its final report.

low reliability water entitlements, this includes Campaspe (64 per cent), Loddon (26 per cent) and Broken (17 per cent) and Bullarook (9 per cent).

Traditional Owners groups own a very small proportion of the high reliability entitlements in the Goulburn and Murray zones (0.04 per cent in each), and an equally low proportion of the low reliability entitlements (0.03 per cent in the Goulburn (0.03 per cent) and the Murray zones (0.07 per cent).

Overall, this analysis finds that, as at February 2020, water ownership by different participant groups varies widely across Victorian source zones. Water ownership by agricultural consumptive users (that is, irrigators and agribusiness) is typically lowest in zones where there are higher levels of ownership by EWHs and institutional investors. Traditional Owners groups own a very small proportion (less than 0.1 per cent of permanent water rights) across the Southern Basin.

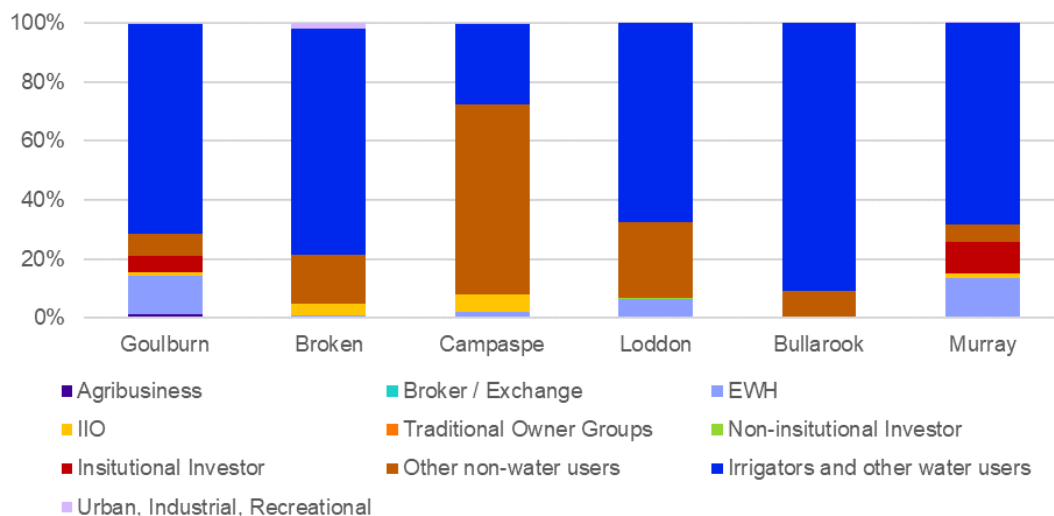
Figure 4.1: Proportion of high reliability water entitlements owned, by participant type and Victorian Basin source zone, as at February 2020



Source: ACCC analysis based on Victoria Government response to voluntary information request. Provisional estimates.

Notes: 'Urban, Industrial, Recreational' includes other water users including government (non-EWH) agencies, recreation, industrial and urban water users.

Figure 4.2: Proportion of low reliability water entitlements owned, by participant type and Victorian Basin source zone, as at February 2020



Source: ACCC analysis based on Victoria Government response to voluntary information request. Provisional estimates.
Notes: 'Urban, Industrial, Recreational' includes government (non-EWH), recreation, industrial and urban users.

4.2.2. Water ownership in the South Australian Murray by participant groups

Figure 4.3 reports the proportion of South Australian Murray WAE ownership by WAE class and participant group.

Provisional observations on water ownership in South Australia (figure 4.3)

The South Australian Murray has a range of different entitlement classes, several of which are defined by the purpose for which water available under the entitlement may be used.

Class 3 (Irrigation, Recreation and Environment) is the largest class in terms of volume of entitlement on issue, and accounts for around 70 per cent of the total entitlement on issue in the South Australian Murray water source. Figure 4.3 shows that an estimated 35 per cent of Class 3 entitlements are held by EWHs, almost 30 per cent by the *Irrigator* group, and a further 26 per cent by South Australian IIOs (whose entitlements are mostly used for irrigation). *Non-institutional investor* ownership of South Australian Murray entitlements is relatively minor (less than 4 per cent of Class 3 water rights). *Irrigators* also own an estimated 50 per cent of Class 1, 41 per cent of Class 5 and 84 per cent of Class 8 entitlements, although the total volume of entitlement on issue in these classes is much smaller than for Class 3. In addition to holding some Class 3 entitlements, EWHs also hold the majority of Class 9 (wetland) entitlements.

Classes 2 and 6 are both reserved for urban water use: as figure 4.3 reflects, Class 2 and 6 entitlements are held exclusively by the South Australian Water Corporation (allocated to the residual *Urban, Industrial and Recreation users group*), but Class 6 entitlements are not tradeable.¹⁴⁵

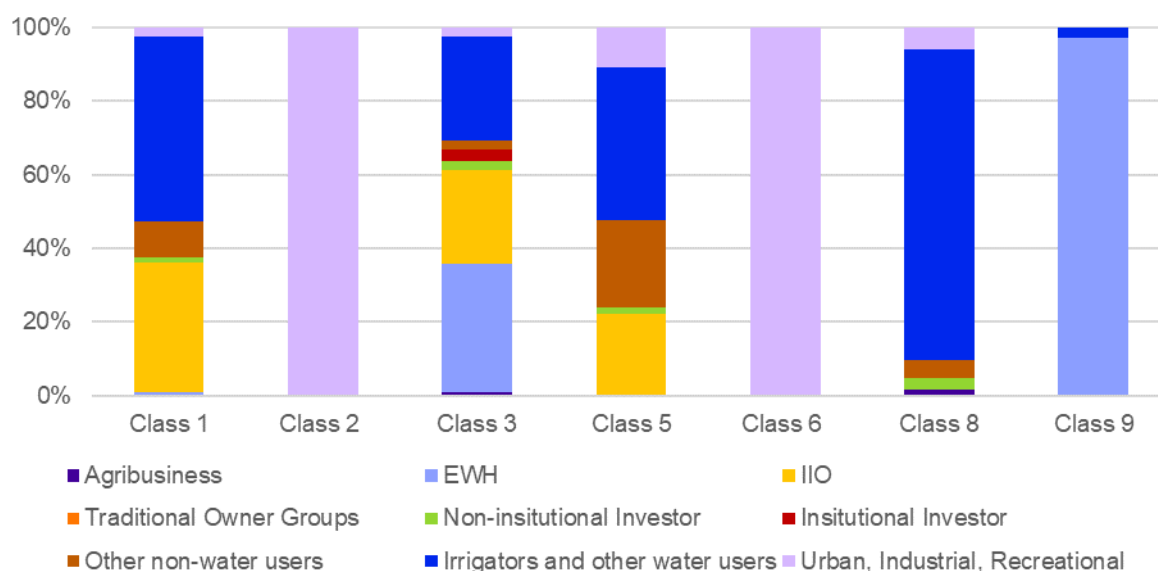
¹⁴⁵ Department for Environment and Water (South Australia), Tradeable water entitlements in the South Australian River Murray, <https://www.environment.sa.gov.au/topics/river-murray/water-markets-and-trade/tradeable-water-entitlements-river-murray>, viewed 22 June 2020.

Class 5 (industrial and industrial dairy) is the only category where a significant proportion of the entitlement class is held by the *Other-non-water user* group. However, given Class 5 represents in total only 1 per cent of the total volume of South Australian Murray entitlement on issue, this means that in reality this class holds only a very small volume of entitlement.

Traditional Owners Groups are not visible in figure 4.3, as the ACCC’s provisional analysis indicates that this group holds only 92ML of Class 3 entitlement (around 0.02 per cent of South Australian Murray entitlements on issue).

Overall, this provisional analysis shows that, as at November 2019, agricultural consumptive water users (such as irrigators and South Australian IIOs) and EWH users hold the vast majority of tradeable entitlements in the South Australian Murray, while institutional investor ownership is relatively minor. As with Victorian WAEs, Traditional Owners groups own a very small proportion of permanent water rights in South Australia.

Figure 4.3: Proportion of South Australian Basin regulated surface Water Access Entitlement ownership, by WAE class and participant type, as at 30 November 2019



Source: ACCC analysis based on South Australian Government response to voluntary information request. Provisional estimates.

Notes: 'Urban, Industrial, Recreational' includes government (non-EWH), recreation, industrial and urban users. Entitlement Classes are as follows: Class 1: Stock, domestic and stock and domestic purposes; Class 2: Urban water use—country towns; Class 3: Irrigation, Recreation and Environment; Class 5: Industrial and industrial dairy; Class 6: Metropolitan Adelaide Consumptive Pool; Class 8: All purpose; Class 9: Wetlands.

4.3. Allocation trade of participant groups

Currently, there is also no consolidated Basin-wide data that shows the type and volume of trading of different water products (such as entitlements, allocations, leases, carry-over parking and forward contracts) by the participant groups described in section 4.1. As with water ownership data, the ACCC has undertaken provisional analysis of water trade data from state registers to analyse allocation trading by each participant group in the Southern Basin from 2012–13 to the 2019–20 year to date (see box 4.1). This provisional analysis will be further refined for the final report.

This section presents this analysis and discusses the key trends observed in the Southern Basin, by trading zone and over time.

4.3.1. Water allocation trade in the Southern Connected Basin, by participant groups, including zero dollar trades

State water register trade data records allocation trades that result from commercial water trades undertaken between two parties at the prevailing market price, as well as movements in water allocation between trading zones (whether or not an ownership change has also occurred—such trades are sometimes referred to as ‘transfers’ by water market participants). These movements of water, which are typically recorded in the state registers as ‘zero dollar trades’, occur for various reasons, including to account for:

- the transfer of environmental water between EWH accounts
- the delivery of water previously contracted under a lease or other water product
- the transfer of water between accounts owned by the same person
- the movement of water allocation through a series of water accounts, in order to give effect to an underlying contract between two parties (for example, where a contract between buyer and seller takes effect via the trade of water allocation from the seller to an intermediary, and then from the intermediary to the buyer—in such cases one of these trades may be reported as zero dollar with the intention of avoiding ‘double counting’).¹⁴⁶

Consequently, raw allocation ‘trade’ data (including commercial trades and zero dollar trades) is indicative of all allocation water trades made in a given year by different groups for whatever reason. Issues concerning the difficulties of distinguishing between different types of trade are discussed further in chapter 8 and chapter 10.

The analysis below first presents the raw allocation trade data *inclusive* of zero dollar trades that reflects transfers of water allocations (that is, trades resulting from commercial transactions and other water movements). It then presents allocation trade data *exclusive* of zero dollar trades, which better proxies commercial allocation trades undertaken at prevailing market prices.

Figure 4.4 reports the proportion of the total *number* of allocation trades undertaken each water year in the Southern Connected Basin, from 2012–13 to 2019–20, by each participant group. The left-hand side of the chart shows the trader classification from the perspective of the ‘transferee’ or ‘buyer’, while the right-hand side shows the classification from the perspective of the ‘transferor’ or ‘seller’. For a trade which does not involve a change of ownership (for example, an inter-zone movement of water allocation between one person’s own accounts), the trader classification for the ‘transferor’ and ‘transferee’ is the same.

Figure 4.5 reports the proportion of the total *volume* of allocation trades in a given year in the Southern Connected Basin, from 2012–13 to 2019–20 by key participant groups.

Provisional observations on trades of water allocations (including zero dollar ‘trades’) in the Southern Basin (figures 4.4 and 4.5)

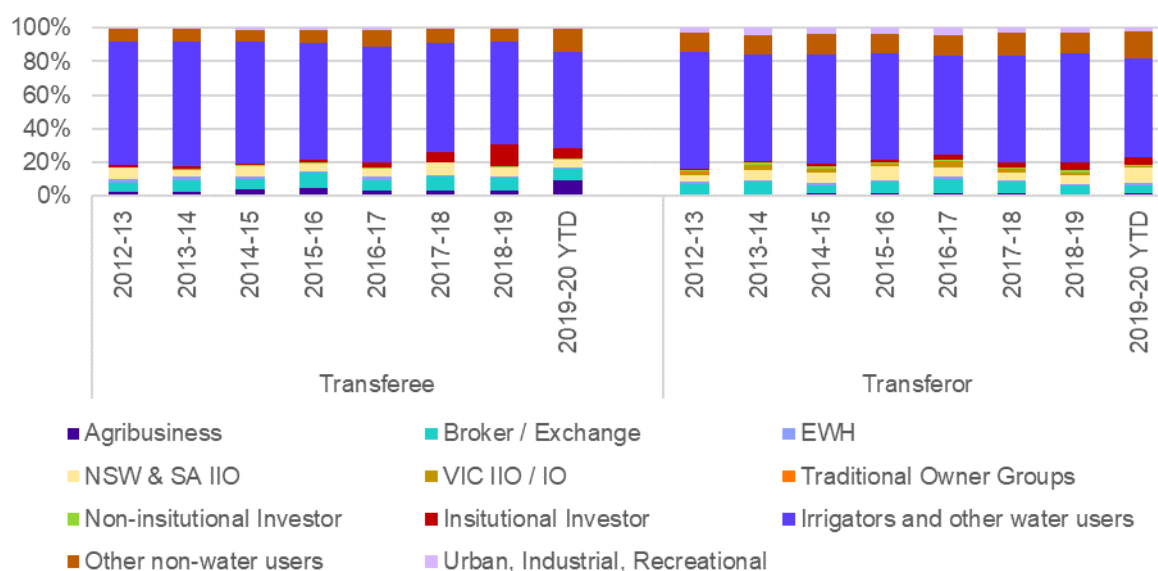
Provisional ACCC analysis indicates that irrigators (as proxied by the *Irrigators incl. other water users*) make the largest proportion of the number of allocation trades each year in the Southern Connected Basin (figure 4.4). However, these trades account for a much smaller proportion of the volume (ML) traded each year (figure 4.5). In 2018–19, for example, irrigators were the transferees/buyers for 61 per cent of allocation trades and were the transferors/sellers for 65 per cent of trades. However, these transactions accounted for only 23 per cent of the total volume of water allocations transferred (from the transferee perspective), or 20 per cent of volumes (from the transferor perspective). This indicates that,

¹⁴⁶ Zero dollar trades can also be commercial trades made at prevailing market prices but then inaccurately recorded on state registers at zero dollar for various reasons. This issue discussed further in chapter 8.

on average, irrigators tend to engage in a relatively high number of smaller volume allocation trades.

The *EWH* group, which includes government and non-government environmental water holders, undertakes only a very small proportion of the number of allocation trades each year in the Southern Connected Basin (figure 4.4). These trades include non-commercial movements of environmental water that has accrued to WAEs held by EWHs as well as commercial trades made by EWHs. However, EWHs account for the largest proportion of *volumes* traded in a given year by any participant group (figure 4.5). In 2018–19, for example, the EWH group made up just 0.7 per cent of the total number of transferees/buyers and 1.3 per cent of the total number of transferors/sellers. However, these trades accounted for 32 per cent of the volume of trades (from the transferee perspective) and 42 per cent of volumes traded (from the transferor perspective). This indicates that EWHs take part in a relatively small number of higher volume transfers.

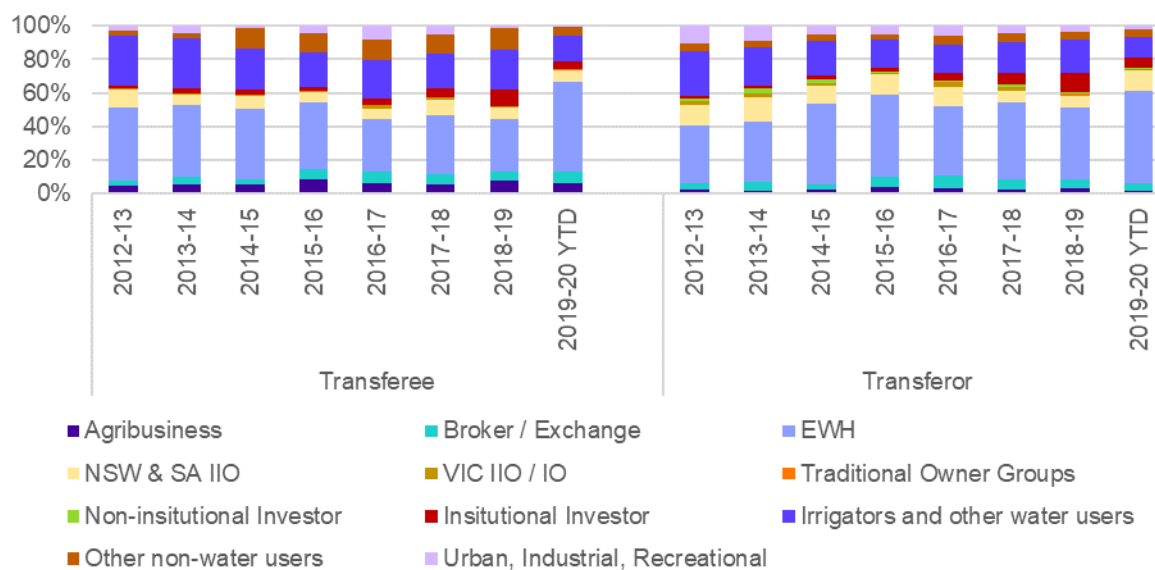
Figure 4.4: Proportion of the total number of allocation trades (transferee and transferor), by key participant groups, Southern Connected Basin, 2012–13 to 2019–20



Source: ACCC analysis based on South Australian, Victorian and New South Water Governments responses to voluntary information request. Provisional estimates.

Notes: 'Urban, Industrial, Recreational' includes other water users including government (non-EWH) agencies, recreation, industrial and urban water users. The 'Transferee' side of the chart presents trader classification for the buyer or 'transferee' side of the transaction. The 'Transferor' side of the chart presents trader classification for the seller or 'transferor' side of the transaction. Includes zero dollar trades.

Figure 4.5: Proportion of total volume of allocation trades (transferee and transferor), by key participant groups, Southern Connected Basin, 2012–13 to 2019–20



Source: ACCC analysis based on South Australian, Victorian and New South Wales Governments responses to voluntary information request. Provisional estimates.

Notes: 'Urban, Industrial, Recreational' includes other water users including government (non-EWH) agencies, recreation, industrial and urban water users. The 'Transferee' side of the chart presents trader classification for the buyer or 'transferee' side of the transaction. The 'Transferor' side of the chart presents trader classification for the seller or 'transferor' side of the transaction. Includes zero dollar trades.

More detailed analysis of state water register allocation trade data shows that the highest proportions of EWH allocation trades by volume have most recently occurred in zones 12, 13, 14, 1a, 4a, 6, and 7. Provisional estimates of EWH activity in these zones in 2018–19 indicate that in terms of trade *volumes*, EWHs accounted for approximately:¹⁴⁷

- in zone 12: 74 per cent of all trade volumes on the transferee side and 48 per cent of all trades on the transferor
- in zone 13: 15 per cent (transferee side) and 64 per cent (transferor side)
- in zone 14: 60 per cent (transferee side) and 60 per cent (transferor side)
- in zone 1a: 27 per cent (transferee side) and 27 per cent (transferor side)
- in zone 4a: 57 per cent (transferee side) and 38 per cent (transferor side)
- in zone 6: 51 per cent (transferee side) and 36 per cent (transferor side)
- in zone 7: 10 per cent (transferee side) and 45 per cent (transferor side).

Overall, this provisional analysis indicates that, while irrigators account for the largest proportion of the total number of allocation trades each year in the Southern Basin, they make relatively a much smaller proportion of volumes traded. In contrast, EWHs account for the largest proportion of volumes traded in any given year, but the majority of this volume is traded in a small number of non-commercial transactions between EWH accounts (that is, zero dollar trades).

¹⁴⁷ The ACCC analysed the volumes of allocation trades (excluding zero dollar trades) undertaken by key participant groups in the trading zones in the Southern Connected Basin from 2012–13 to 2019–20. Analysis was based on South Australian, Victorian and New South Water Governments responses to voluntary information requests. Provisional estimates. See box 4.1 for more details.

To obtain a more accurate picture of ‘commercial’ allocation trades made by different participant groups, we turn to figure 4.6 and figure 4.7, which report adjusted state register allocation trade data by excluding non-commercial, zero dollar trades.

4.3.2. Commercial allocation trade in the Southern Connected Basin by participant groups (excluding zero dollar ‘trades’)

Figure 4.6 reports the proportion of the total number of ‘commercial’ allocation trades (excluding zero dollar trades) in a given year, by key participant groups in the Southern Basin from 2012–13 to 2019–20. Figure 4.7 reports the proportion of total volume of these trades in a given year, by key participant groups in the Southern Connected Basin from 2012–13 to 2019–20.

As noted above, although imperfect, allocation trade data from state registers that excludes zero dollar trades is a better indicator of the number and the volume of commercial allocation trades, and the resultant price information is also expected to be more reflective of commercial outcomes. For simplicity, and to distinguish this analysis from the analysis above which included zero dollar trades, this section refers to ‘buyers’ and ‘sellers’ rather than ‘transferees’ and ‘transferors’. This analysis also uses the term ‘commercial allocation trades’ to reference the set of trades which have a non-zero price. It is important to recognise that this is an imperfect measure, because some trades which are actually commercial in nature may have been incorrectly reported as a zero dollar trade, or vice-versa. Issues with price reporting are discussed in chapter 10 of this report.

Provisional observations on commercial allocation trade in the Southern Connected Basin (figures 4.6 and 4.7)

Provisional ACCC analysis indicates that irrigators (as proxied by the *Irrigators incl. other water users*) are the largest single trading group in allocation markets in the Southern Connected Basin. Irrigators made up the majority of the allocation ‘commercial’ trades over 2012–13 to 2018–19 (figure 4.6). They were also the largest single group of allocation buyers and sellers by volume in any given year in the Southern Connected Basin (figure 4.7). In 2018–19, for example, irrigators made 59 per cent of all ‘commercial’ allocation purchases and 65 per cent of all ‘commercial’ allocation sales in the Southern Basin. These trades accounted for 44 per cent of allocation volumes bought commercially that year, and 37 per cent of allocation volumes sold.

The proportion of commercial allocation trade undertaken by irrigators has been declining over the last eight years:

- Between 2012–13 and 2018–19, the proportion of the number of allocation purchases made by the irrigators decreased from 71 per cent of total trades to 59 per cent.¹⁴⁸
- Over the same period, the proportion of allocation volumes purchased by irrigators decreased from 55 per cent of total volumes to 44 per cent, while the proportion of volumes sold decreased from 47 per cent to 37 per cent a year.

The presence of *Institutional Investors* in Southern Connected Basin allocations markets has increased significantly in recent years. As a group, they typically sell more water than they buy in any given year:

- The proportion of the number of allocation purchases made by the institutional investors increased from 1 per cent of all purchases in 2015–16 to 16 per cent in 2018–19. The proportion of the number of allocation sales increased from 1 per cent in 2015–16 to 5 per cent in 2018–19.

¹⁴⁸ The proportion of the number of allocation sales made by irrigators does not exhibit a similar downward trend, fluctuating between 55 per cent and 65 per cent a year between 2012–13 and 2018–19.

- The proportion of allocation volumes bought and sold by institutional investors has also increased over the period. In 2015–16, institutional investors bought 4 per cent of total allocation volumes that year and sold 7 per cent. By 2018–19, this increased to 14 per cent and 20 per cent, respectively.

Retired irrigators (as proxied by the *Non-Institutional Investors* group), who have exited irrigated farming but retain ownership of permanent water rights, are theorised to participate in water markets predominately by selling water allocations made against their entitlements. While the data presented does not allow analysis of the employment status of traders (for example, to assess whether a trader is in fact a retired irrigator), the *non-Institutional Investor* group, comprised of superannuation funds that are not identified as *Institutional Investors*¹⁴⁹, is used as a proxy for retired irrigators. Provisional ACCC analysis indicates that this group does indeed predominately sell water allocations, and accounts for a small but not insignificant proportion of the volume of allocations sold in the market in a given year:

- Between 2012–13 and 2018–19, non-institutional investors typically made less than 0.1 per cent of the number of allocation purchases in the Southern Basin in a given year and approximately 1 per cent of allocation sales.
- Over the same period, these trades have typically accounted for less than 0.2 per cent of the volume of allocations purchased but between 1 per cent and 4 per cent of allocation volumes sold in a given year.

Agribusinesses (as proxied by the *Agribusiness* group¹⁵⁰) have accounted for a significant share of allocation purchases over the last eight years but a much smaller proportion of sales. Agribusinesses typically buy more water by volume in a given year than they sell, and the proportion of the water allocation volumes they buy is increasing over time:

- Between 2012–13 and 2018–19, agribusinesses made between 3 per cent and 5 per cent of the number of allocation purchases in a year, and approximately 1 per cent of the sales in the Southern Basin.
- By volume over the same period, agribusinesses accounted for between 9 per cent and 19 per cent of all allocations purchased in any given year, and between 2 per cent to 4 per cent of all allocations sold.

The *Urban, Industrial and Recreation users* group, which includes non-EWH government, commercial recreation, industrial and urban participants, is a significant seller in Southern Connected Basin allocations markets. Participants in this group typically buy little water in a given year but consistently sell large volumes of allocations in the market each year, although their share of the allocation sales has been gradually decreasing over time:

- Between 2012–13 and 2018–19, this group made less than 0.4 per cent of the number of allocation purchases in a given year, but between 3 per cent and 6 per cent of all sales in the market in a year.
- By volume over the same period, this group bought less than 0.2 per cent of allocation water in any given year but sold between 7 per cent and 11 per cent of allocation volumes.

¹⁴⁹ Such traders predominantly appear in the data as a family superannuation fund—e.g. a trader name such as ‘John and Mary Smith Superannuation Fund’.

¹⁵⁰ See notes on definition of the category in box 4.1.

Brokers and exchanges participate in water markets both as service providers and, at times, as trading principals. Our data shows that as a group, brokers and exchanges have accounted for a significant but variable share of allocation buy and sell trade over the last eight years (as trading principals). On average, brokers and exchanges sell a higher proportion of allocation water in a given year than they buy:

- Between 2012–13 and 2018–19, brokers and exchanges' share of the number of allocation purchases and sales in a given year fluctuated between 7 per cent and 12 per cent of all trades.
- Over the same period, brokers and exchanges' share of allocation volumes bought in a given year fluctuated between 8 per cent and 11 per cent, while their share of total allocation volumes sold fluctuated between 8 per cent and 15 per cent.

IIOs and IOs have also accounted for a significant but variable share of allocation buy and sell trade over the last eight years:

- New South Wales and South Australian IIOs consistently make up between 3 per cent and 9 per cent of the number of all purchases and sales in any given year over the 2012–13 and 2018–19 period, accounting for between 7 per cent and 20 per cent of the volume of allocations bought and sold in any given year.
- Victorian IIOs and IOs consistently make a higher proportion of sales than purchases, and sell a higher proportion of water than they buy.

Environmental water holders, which primarily constitutes government EWHs, engage in irregular and relatively small *commercial* trades in the Southern Connected Basin:

- Between 2012–13 and 2018–19, the EWH group made between zero and 2 per cent of the total number of allocation buy and sales in any given year.
- Over the same period, EWH's purchased between zero and 4 per cent of allocation volumes, and more regularly sold between 1 per cent and 3 per cent of allocation water traded in a given year.

Traditional Owner groups have made almost no allocation purchases over the 2012–13 and 2018–19 period in the Southern Connected Basin, but have consistently made a very small number of allocation sales each year:

- Over 2012–13 and 2018–19, Traditional Owner groups made between zero and 0.1 per cent of the number of allocation purchases, and between 0.2 per cent and 0.3 per cent of allocation sales in a given year.
- Over this same period, these purchases accounted for between zero and 0.2 per cent of all allocation volumes purchased, and between 0.2 per cent and 0.5 per cent of all allocation water sold in a given year.

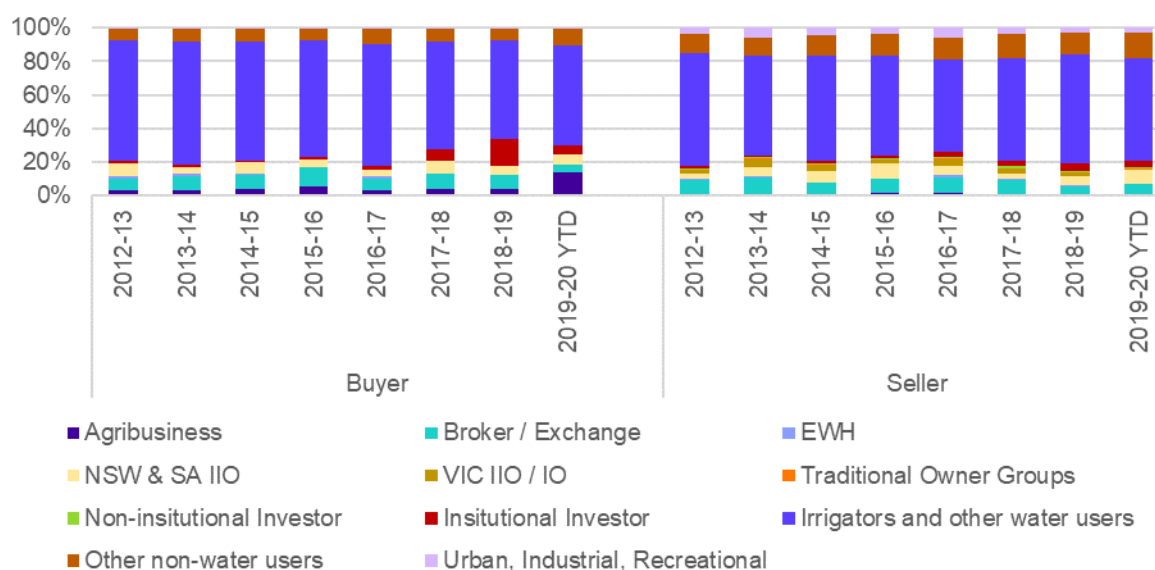
The *Other Non-Water User* group, which includes non-water using participants not included in other categories, consistently accounts for a significant share of allocation buy and sell trade over the last eight years. As a group, they typically sell more water than they buy in a given year:

- Between 2012–13 and 2018–19, this group made between 7 per cent and 10 per cent of the number of allocation purchases in any given year, and between 11 per cent and 14 per cent of all sales in the Southern Basin in a year.
- By volume over the same period, this group accounts for between 5 per cent and 9 per cent of allocation volumes purchased in a given year, and between 8 per cent and 11 per cent allocation volumes sold on the market in any given year.

Overall, this provisional analysis of overall participation in water allocation markets in the Southern Connected Basin indicates that:

- Irrigators are the largest single trading group in allocation markets in the Southern Basin. However, their proportion of total allocation trade has been declining over the last eight years.
- The presence of institutional investors in Southern Connected Basin allocations markets as a buy and seller is significant and has increased substantially in the last four years.
- Retired irrigators account for a small but not insignificant proportion of allocations sold in the Southern Basin each year.
- Agribusinesses have been buying a significant and increasing share of allocation volumes over the last eight years in the Southern Connected Basin.
- IIOs and IOs account for a significant and variable share of allocation buy and sell trade in the Southern Connected Basin.
- Environmental water holders, including government environmental water owners, make irregular and relatively small commercial allocation trades in the Southern Basin.
- Traditional Owner groups made almost no allocation purchases over the 2012–13 and 2018–19 period, but consistently make a very small number of allocation sales each year.

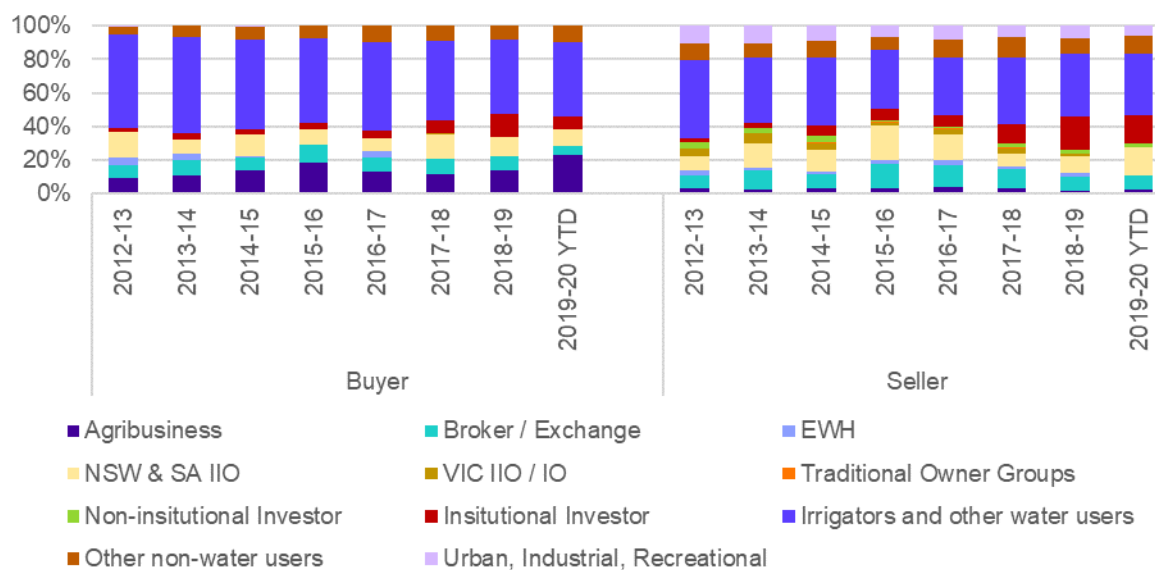
Figure 4.6: Proportion of total number of allocation trades (buy and sell), excluding zero dollar trades, by key participant groups, Southern Connected Basin, 2012–13 to 2019–20.



Source: ACCC analysis based on South Australian, Victorian and New South Water Governments responses to voluntary information request. Provisional estimates.

Notes: 'Urban, Industrial, Recreational' includes other water users including government (non-EWH) agencies, recreation, industrial and urban water users.

Figure 4.7: Proportion of volume of allocation trades (buy and sell) excluding zero dollar trades, by key participant groups, Southern Connected Basin, 2012–13 to 2019–20



Source: ACCC analysis based on South Australian, Victorian and New South Water Governments responses to voluntary information request. Provisional estimates.

Notes: 'Urban, Industrial, Recreational' includes other water users including government (non-EWH) agencies, recreation, industrial and urban water users.

4.3.3. Commercial allocation trade by participant groups across Southern Connected Basin trading zones

While irrigators (as proxied by the *Irrigators and Other Water Users* group) are typically the largest single trading group in allocation markets across the Southern Connected Basin, the size of their market share varies significantly across trading zones. Of the larger trading zones in the Southern Connected Basin in terms of water allocated or volumes traded¹⁵¹, Irrigators typically have the largest allocation market share in zones 6 and 1A. In zone 6, for example, in 2018–19 for example irrigators bought 82 per cent and sold 77 per cent of total allocation volumes traded, while in zone 1A, they bought 43 per cent and sold 49 per cent of allocation volumes that year.

Similarly, of the larger trading zones, Irrigators typically have their smallest allocation market share in zones 10 and 13, where New South Wales and South Australian IIOs have large market shares. In zone 10, in 2018–19 irrigators bought only 1 per cent and sold 14 per cent of total allocation volumes traded, while in zone 13, they bought 33 per cent and sold 14 per cent of allocation volumes traded that year.

Over recent years, irrigators' market share of allocation trade has declined most in the trading zones that have seen the largest growth in institutional investor trade, particularly in zones 11, 13, 1A and 7. In zone 7, for example, irrigators' share of allocation volumes bought and sold has decreased from 71 per cent and 68 per cent respectively in 2012–13, to 40 per cent and 32 per cent in 2018–19.

While *Institutional Investors* have some level of market share in all trading zones of the Southern Connected Basin, of the larger trading zones their highest market shares of allocation trade by volume have been in zones 7, 11 and 1A in recent years. Institutional

¹⁵¹ Larger zones in terms of water allocated or volumes traded include zones 10, 11, 12, 13, 1A, 6 and 7.

investors are typically least active in zone 10, where they bought and sold less than 1 per cent of allocation volumes in this zone in 2018–19. As noted above, institutional investors' share of allocation buy and sell trade by volume has increased most in zones that have seen the largest decrease in irrigator allocation trade allocation, in particular in zones 11, 13, 1A and 7.

Retired irrigators (proxied by the *Non-Institutional Investor* group) predominantly sell water allocations in any given year. In the larger trading zones, they typically have their highest allocation market share in zones 7 and 12. In 2018–19, for example, this group is estimated to have sold 4 per cent of total allocation volumes in zone 7 and 2 per cent of allocations volumes in zone 12.

The *New South Wales and South Australian IIOs* as a group have their highest allocation market shares in the larger zones of 10, 11, 12 and 13, with their highest share in zone 10. In 2018–19, for example, this group bought 99 per cent and sold 73 per cent of water allocations volumes traded that year in that zone.

Brokers and exchanges buy and sell significant proportions of water allocation volumes in all of the larger trading zones of the Southern Connected Basin, except for zones 10 and 12, and their market shares can fluctuate significantly across water years. Brokers appear to have a significantly stronger presence in New South Wales trading zones compared to Victorian and South Australian zones. For the period 2012–13 to 2019–20 (year to 30 November 2019), Brokers accounted for over 17 per cent of allocation volumes sold (excluding zero dollar transactions) in New South Wales trading zones, and 13 per cent of allocations purchased, compared to 7 per cent of both purchases and sales in South Australian and Victorian zones. Chapter 9 considers the relationships between broker participation as market principals and the underlying Basin State water access entitlement frameworks and trading processes in more detail.

The *Urban, Industrial and Recreation users* group, which typically sell significant volumes of water allocations each year, has its highest allocation market shares in the larger zones of 12, 1A, 6 and 7. In 2018–19, in these zones, this group sold 22 per cent, 11 per cent, 9 per cent and 4 per cent respectively of all allocation volumes sold.

The *Agribusiness* group, which typically buys significant volumes of allocation water, typically has its highest market share in the larger trading zones of 7, 12, 13 and 11. In 2018–19, Agribusinesses purchased 21 per cent, 13 per cent, 5 per cent and 5 per cent respectively of allocations volumes in these zones that year.

The *EWH* group, which irregularly buys and sells allocations on spot markets, has made the largest purchases of water allocations (as a proportion of zone volumes) in recent years in the larger trading zones of:

- Zone 12 in 2012–13 and 2013–14, where EWHs purchased 12 per cent and 10 per cent of allocations volumes in those zones in those years
- Zone 11 in 2014–15, where they purchased 7 per cent of allocation volumes in the zone that year
- Zone 13 in 2016–17, where they purchased 6 per cent of allocation volumes in the zone that year.

The *EWH* group's largest sales have occurred in zone 1 in 2015–16, 2016–17 and 2018–19, where EWHs sold 8 per cent, 6 per cent and 6 per cent, respectively of total allocations volumes in that zone in those years.

As noted above, *Traditional Owner* groups, while trading allocations in very small numbers, typically sell more water than they buy. Traditional Owner groups have been most active in

zone 14, irregularly selling a significant proportion of the total volume of allocations sold in this zone in a given year. In the larger trading zones of 11, 12 and 3, Traditional Owner groups have sold smaller proportions of water (typically between 0 per cent and 3 per cent of total volumes sold in the zone in a given year).

Overall, this provisional analysis indicates that participation by different groups in water allocation markets in the Southern Basin varies substantially across zones:

- Irrigators typically have the largest allocation market share in zones 6 and 1A.
- Institutional Investors have their largest allocation market share in zones 7, 11 and 1A.
- Irrigators' share of allocation trade has declined most in trading zones that have seen the largest growth in institutional investor trade, particularly in zones 11, 13, 1A and 7.
- Retired irrigators typically have their largest allocation market share as sellers in zones 7 and 12.
- Agribusinesses are most active as buyers in zones 7, 12, 13 and 11.
- EWHs, over the last eight years, have made irregular but significant commercial allocation purchases in zones 11, 12 and 13 and commercial sales in zone 1.
- Traditional Owner groups have been most active as sellers in zone 14.

4.4. Water ownership and trading strategies used by participant groups

Sections 4.2 and 4.3 above each summarise data on water ownership and allocation trade by different participant groups in the Southern Basin. However, a participant's decisions on what permanent water rights to own and what type of water trade to engage do not occur in isolation. Water trading is typically undertaken as part of a wider *water ownership and trading strategy* that is designed to ensure a participant can reliably secure enough water to achieve their water use needs, whether commercial, environmental or cultural.

A water ownership and trading strategy (or 'water strategy') can be defined as the integrated approach to water ownership (including water entitlements, shares etc.) and water trading (including of entitlements, allocations, leases, carry over parking and forward contracts) a market participant uses to secure the water they need. An irrigator's water strategy, for example, may be to secure the water they typically need for a growing season by holding one or two types of water entitlements within their catchment to supply most of their water needs, and to only buy temporary water when needed to supplement what they get from their permanent water rights. An investor's strategy, alternatively, may be to hold a diverse portfolio of water entitlements across a number of catchments or zones to ensure they can reliably meet the water supply obligations of their contracted customers.

To better understand the relationship between the ownership of permanent water rights and water trading behaviours, the ACCC has developed a framework described in table 4.1 below that describes the most common water strategies used by different types of participant groups in the Basin.¹⁵² The ACCC will use this framework along with available data on water ownership and trading to further analyse water strategies used by different market participants for the final report. This analysis will aim to identify which water strategies are

¹⁵² Recent research has considered possible frameworks for describing in an integrated way how different water market participants own and trade water. Seidl et al 2020, for example, analysed water market participants' reasons for owning and trading water, the type of permanent water rights they owned and the water trading they engaged in. The participant groups studied included irrigators, agribusinesses ('agri-corporates'), investors ('financial investors', 'entrepreneurs' and 'speculators') and EWHs. Seidl et al identified various 'water user types' that corresponded to different levels of sophistication in terms of: the type of permanent water rights owned (ranging from owning no permanent water, to a limited portfolio of one or two entitlement types in one zone, to a diversified portfolio of entitlements of differing levels of reliability in more than one zone), and the type of water trading they used (ranging from no trade at all, to allocation and/or entitlement only trade, to increasingly frequent and sophisticated trade using leases carryover parking and multi-year forwards).

currently in use and by who, how frequently they are used, and the reasons why a participant chooses a particular strategy (that is, the strategy drivers).

Table 4.1: Key water ownership and trading strategies identified by the ACCC

Market participant type	Water ownership & trading strategies	Aim of strategy
Traditional non-trading irrigator, agri-business and EWHs	Owns limited portfolio of entitlements ¹⁵³ , no allocation or entitlement trade, may use carry over	Owns all the water they use, uses carryover but does not trade to meet water needs
Traditional trading irrigator or agri-business	Owns limited portfolio of entitlements, trades allocations only, may use carry over	Mostly owns the water they use, buys allocations to supplement water supply, or sells surplus water to earn income
Diversified trading irrigator or agri-business	Owns diverse portfolio of entitlements ¹⁵⁴ , trades allocations, may use carry over	Mostly owns the water they use, buys allocations to supplement water supply, or sells surplus water to earn income
Innovative trading irrigator or agri-business	Owns diverse portfolio of entitlements, trades entitlements and allocations, uses leases or a newer water product, may use carry over	Owns some of the water they use, trades entitlements to diversify supply risk, secures temporary water through allocations, leases or other water products
No portfolio trading irrigator or agri-business	Owns no entitlements, trades allocations leases and other water products, may use carry over	Owns none of the water they need, sources water through allocation trade, leases and newer water products
Traditional investor or agribusiness	Owns diverse portfolio of entitlements, trades allocations and entitlements, uses carry over	Mostly owns the water they need, but also buys allocations to supplement supply to meet obligations to market for long-term leases and forward contracts
Innovative investor	Owns diverse portfolio of entitlements, trades allocations and entitlements, uses carry over	Mostly owns the water they need, but also buys allocations to supplement supply to meet obligations to market for long-term leases and forward contracts, also trades allocations for profit

Questions for stakeholders

- Does table 4.1 accurately reflect the key water ownership and trading strategies currently in use by the water market participants? If not, what changes would you make to table 4.1 to more accurately describe the key strategies in use? Please explain the reasons for the changes.

¹⁵³ Holds entitlement in one valley of at most two classes (e.g. high and low reliability) sufficient for supplying, or exceeding, their own on-farm water needs in a year with average water availability.

¹⁵⁴ Holds at least two entitlements of different security and/or across different catchments, at most two classes (e.g. high and low reliability) sufficient for supplying, or exceeding, their own on-farm water needs in a year with average water availability.

4.5. Possible barriers to more effective water market engagement

Submissions to this inquiry have highlighted the significant benefits that water markets are providing to irrigators and other water users across the Basin.¹⁵⁵ Data indicates that most irrigators have used allocation markets, and to a lesser extent entitlement markets at some level, and that the proportion of irrigators trading in these markets has been increasing over time.¹⁵⁶ However, evidence available to this inquiry and summarised below also shows that certain groups of participants, in particular some irrigators and Traditional Owner groups, rarely or never engage in allocation or entitlement trade. The evidence also indicates that only a small proportion of irrigators as a whole use other types of water products such as leases, and an even smaller proportion use carryover parking or forward contracts.

There are many factors that feed into a decision to use or not to use a given water product, and non-use of a particular product or not using water markets at all are not, by themselves, evidence of a problem or barrier to trade. To better understand the extent to which the observed non-engagement by these groups is the result of an informed choice or indicative of some barrier to participation in water markets, the ACCC is seeking additional information on why these participants report rarely or never using certain water products.

This section summarises the available evidence on the level of irrigator and Traditional Owner group engagement with each type of water market product (including for allocations, entitlements, leases, carryover parking and forward contracts), the possible barriers that may prevent use of these water products, and seeks further information from stakeholders on these barriers.¹⁵⁷

4.5.1. Irrigator engagement with water markets

Submission to this inquiry have stated that while many irrigators are using and benefiting from water trading¹⁵⁸, some irrigators are experiencing difficulties in effectively engaging with water markets and are suffering negative impacts as a result.¹⁵⁹

¹⁵⁵ Almond Board Australia, Submission to the Murray–Darling Basin inquiry, March 2020; AWBA, Submission to the Murray–Darling Basin inquiry, January 2020; Aware Water Group, Submission to the Murray–Darling Basin inquiry, January 2020; Citrus Australia, Submission to the Murray–Darling Basin Water Markets inquiry issues paper, January 2020; Commonwealth Department of Agriculture, Submission to the Murray–Darling Basin inquiry, January 2020; H2OX, Submission to the Murray–Darling Basin inquiry, February 2020; Kilter Rural, Submission to the Murray–Darling Basin inquiry, March 2020; Tom Martin, Submission to the Murray–Darling Basin inquiry, February 2020.

¹⁵⁶ Appendix A, figure A.2.

¹⁵⁷ Effective engagement with a water market typically requires that a buyer or seller has ready access to enough market information on the price and characteristics of the water products being traded to allow them to make an informed trading choice that best match their individual water use needs.

¹⁵⁸ Almond Board Australia, Submission to the Murray–Darling Basin inquiry, March 2020; AWBA, Submission to the Murray–Darling Basin inquiry, January 2020; Aware Water Group, Submission to the Murray–Darling Basin inquiry, January 2020; Citrus Australia, Submission to the Murray–Darling Basin inquiry, January 2020; Commonwealth Department of Agriculture, Submission to the Murray–Darling Basin inquiry, January 2020; H2OX, Submission to the Murray–Darling Basin inquiry, February 2020; Kilter Rural, Submission to the Murray–Darling Basin inquiry, March 2020; Tom Martin, Submission to the Murray–Darling Basin inquiry, February 2020.

¹⁵⁹ AJ and MH Spiers, Submission to the Murray–Darling Basin inquiry, January 2020; Australian Grape and Wine Incorporated, Submission to the Murray–Darling Basin inquiry, January 2020; Central Irrigation Trust, Submission to the Murray–Darling Basin inquiry, January 2020; Citrus Australia, Submission to the Murray–Darling Basin inquiry, January 2020; Commonwealth Department of Agriculture, Submission to the Murray–Darling Basin inquiry, January 2020; NSW Farmers' Association, Submission to the Murray–Darling Basin inquiry, February 2020; Select Harvest, Submission to the Murray–Darling Basin inquiry, April 2020; SunRice, Submission to the Murray–Darling Basin inquiry, February 2020.

There are many factors that can drive an irrigator's decision to engage or not engage with a particular water market. Key categories of these drivers include:

- market-based drivers: including current and future trends or changes in commodity prices, demand for agricultural products, seasonal weather or longer term climate conditions etc. that can impact water use and water availability (demand and supply) and so drive a decision to buy and sell a water product at a given time
- institutional and infrastructure drivers: including trading and operational rules and physical constraints that can impact if, when and how an irrigator can buy or sell water
- government policy drivers: including policies governing access to carryover and interventions such as water buybacks or irrigation infrastructure subsidies that can alter the incentives for an irrigator to engage in certain types of water ownership and trade
- an irrigator's individual circumstances and characteristics: including the characteristics of the irrigator's business (that is, their farm type, size, location, profitability, debt levels, access to capital etc.), the types of risks they face and their attitudes to managing risk, their access to and use of government programmes, and characteristics of the irrigator themselves, which can include:
 - their ability to collect, process and use market related information (for example, do they have the experience, skills and knowledge to trade, the time and money to meet the informational transaction costs of trading, or access to a water market intermediary to advise or act of their behalf?)
 - their future plans (do they intent to expand, adjust or exit their business?)
 - their attitudes to and confidence in water markets and trading (do they have confidence in water markets and the security of their water rights, or are they uncertain or expect the rules to change?).

The ACCC is interested in irrigator participation in water markets as irrigators are the largest group of water market participants. In comparison to other participant groups (such as EWHs, institutional investors, agribusinesses, IIOs and WMIs) irrigators, particularly smaller, family owned farmers, may be more susceptible to certain barriers that limit their ability to effectively engage with different kinds of water markets. This may result in these irrigators producing less, earning lower profits, being more likely to go out of business and less likely to make structural adjustments as market conditions change.

To better understand the potential magnitude and scope of any barriers to trade that irrigators may be experiencing, the ACCC, with the help of two external consultants (box 4.2), has undertaken analysis of how many irrigators are using and not using each type of water product, the individual circumstances and characteristics of irrigators who trade and don't trade these products, and their attitudes to trading and water markets. Appendix A summaries key results and findings of this analysis. The consultants' reports are available on the inquiry webpage.

Box 4.2: Water inquiry consultancies on irrigator engagement with water markets

The ACCC has commissioned two consultants to perform and report on analysis of data collected in surveys of Basin irrigators undertaken between 1998 and 2018. The aim of the work was to gain a clearer and more representative understanding of irrigators' water ownership and trading behaviours, and their attitudes to water trading and water markets.

The Centre for Global Food and Resources at the University of Adelaide has conducted various surveys of irrigators across the Basin from 1998 to 2015. These surveys, amongst other things, asked irrigators about their water ownership, water trading and farm management behaviours, and included a number of attitudinal questions.

The Health Research Institute at the University of Canberra undertakes an annual survey—the Regional Wellbeing Survey—of people in Australian regional areas. The 2015 and 2016 surveys, amongst other things, asked Basin irrigators about their water use, water ownership, water trading and farm management behaviours. They also asked irrigators to indicate to what degree they agreed or disagreed with various statements related to the process of trading water, their confidence in water markets and water market rules, and the security of their permanent water rights.

The ACCC has incorporated relevant data and analysis from the consultants' reports in the interim report and will further consider their analysis in the ACCC's final report.

This section draws on the available evidence on irrigators' use of water markets, including from submissions, the academic literature and our consultants' reports, to identify key issues related to irrigator engagement and non-engagement with water markets. For each issue outlined below, we are seeking stakeholders' views on the extent to which these issues, or other factors, may contribute to barriers to effective irrigator engagement with water markets. We will consider this stakeholder feedback along with additional components of the consultants' analysis in the final report.

Issue 1: Some irrigators appear to have limited engagement with water markets, particularly leases and newer water products

Submissions to the inquiry have highlighted that some irrigators, particularly smaller, family owned operators, find it difficult to effectively engage with water markets and identify some causes of the difficulties.¹⁶⁰

Central Irrigation Trust noted the complexity of the information needed to forecast water availability and market conditions:¹⁶¹

'... water is very complex, some of which is caused by history and the resulting development of irrigation across the Murray Darling Basin; some of which results from the jurisdictional control over water; and some which results from the delivery of that water through a complex hydrological system of rivers, creeks, dams, lakes and streams. Compounding this complexity is the variable nature of the key ingredient rainfall and runoff. It is not hard to see that there are very few people that have

¹⁶⁰ AJ and MH Spiers, Submission to the Murray–Darling Basin inquiry, January 2020; Australian Grape and Wine Incorporated, Submission to the Murray–Darling Basin inquiry, January 2020; Central Irrigation Trust, Submission to the Murray–Darling Basin inquiry, January 2020; Citrus Australia, Submission to the Murray–Darling Basin inquiry, January 2020; Commonwealth Department of Agriculture, Submission to the Murray–Darling Basin inquiry, January 2020; NSW Farmers' Association, Submission to the Murray–Darling Basin inquiry, February 2020; Select Harvest, Submission to the Murray–Darling Basin inquiry, April 2020; SunRice, Submission to the Murray–Darling Basin inquiry, February 2020.

¹⁶¹ Central Irrigation Trust, Submission to the Murray–Darling Basin inquiry, January 2020.

sufficient information or understanding to be considered informed on the water resource and markets.’

NSW Farmers highlighted the lack of availability of key types of information:¹⁶²

‘NSW Farmers believes improvements in the transparency of water trade are urgently required. Readily available information including price, location and volume, provide market participants with the information required to make informed decisions. Without transparency and improved functional capacity, trust in the water market and wider water reforms is being eroded, and the ability of the water market to deliver the social, economic and environmental objectives of the Murray–Darling Basin Plan is greatly diminished.’

Australian Grape and Wine Incorporated emphasised the limitations smaller irrigators face relative to larger operators when trying to access and analyse market information:¹⁶³

‘...there is a large range across wine grape growers’ ability and capacity to engage with the water market which leads to problems associated with information asymmetry. Some vineyard owners and operators are large wine companies, or corporate style winegrowing entities with dedicated technical staff with the capacity and resources to engage with the water markets on a continuous basis. Other growers are small family or sole—trader entities, and engagement with the complex rules and regulations that are associated with the water markets is daunting for them.’

Select Harvest noted that the combination of a lack of readily available data and differences in market participant resources puts smaller players at a commercial disadvantage when trading:¹⁶⁴

‘A lack of consolidated, accurate, comprehensive and timely data on water rights trading activity gives a significant informational advantage to large, well-resourced and connected Sophisticated Investors and large scale irrigators (like Select Harvests) over smaller market participants.’

Finally, AJ and MH Spiers, in their submission, stated that while new and useful water products are becoming available in water markets, some irrigators had not considered them or could not afford to use them:¹⁶⁵

‘The number of products available to irrigators (long term and short term leases) has given irrigators who sold their permanent water shares some years ago, a greater amount of flexibility and security going forward. I do not think the majority of irrigators have explored these options OR if they have they may not be able to afford to purchase water at the current prices in 2019.’

Allocation markets

Available data indicates that as of 2016 approximately 75 per cent of irrigators in the Southern Basin reported having traded (bought or sold) an allocation at least once, and that irrigator use of allocation trade measured in this way has been increasing over time.¹⁶⁶ However, it also shows that in 2016 a quarter of irrigators (approximately 25 per cent) reported having never traded (bought or sold) an allocation, and only a small proportion of

¹⁶² NSW Farmers’ Association, Submission to the Murray–Darling Basin inquiry, February 2020.

¹⁶³ Australian Grape and Wine Incorporated, Submission to the Murray–Darling Basin inquiry, January 2020.

¹⁶⁴ Select Harvest, Submission to the Murray–Darling Basin inquiry, April 2020.

¹⁶⁵ AJ and MH Spiers, Submission to the Murray–Darling Basin inquiry, January 2020.

¹⁶⁶ Appendix A, figure A.2.

irrigators (less than 15 per cent) report having both bought and sold an allocation over a five year period prior to 2016.¹⁶⁷ Appendix A includes more detailed data on irrigator engagement with allocation markets.

This data indicates that while the majority of irrigators report having used allocation markets at least once, a significant minority are not engaging with allocation markets at all, and a larger proportion of irrigators trade allocations only infrequently.

An irrigator's use of allocation trade, as noted above, will vary depending on a range of market-based, institutional, government policy and individual drivers, amongst others. To better understand the extent to which the observed non-engagement with allocation trade by some irrigators was an informed choice or evidence of some barrier to trade, the ACCC commissioned analysis of irrigator engagement with water markets (box 4.2) and compared the individual characteristics of irrigators engaging and not-engaging in allocation trade, including the characteristics of an irrigator's business, the irrigators themselves and their attitudes to water trade and water policy generally (appendix A).

Initial analysis of individual irrigator characteristics (summarised below) found a number of significant differences between irrigators who traded water allocations in a given year and irrigators that did not trade allocations in the same year.¹⁶⁸

In terms of business characteristics, water allocation traders in the Southern Basin, on average, were found to have higher net farm incomes (on average 15 per cent higher) than non-traders. This difference may be because allocation traders earned additional income from selling their allocations while non-traders did not. Alternatively, it may suggest some positive association between higher access to capital or cash flow and the likelihood of an irrigator engaging in allocation trade.

Allocation traders were also found to have carried over a higher volume of water than non-traders (on average 72 per cent more water in the year of trading). These differences may suggest that traders usually managed a larger water volume than non-traders, which offers them the flexibility to trade water allocations.

There were a range of significant differences in the personal characteristics of irrigators who traded and did not trade allocations. Allocation traders compared with non-traders:

- were three years younger (traders were on average aged 57.5 years compared to 60.5 for non-traders)
- had four years less farming experience (traders had on average 35.3 years of experience compared to non-traders who had on average 39.6 years)
- had higher post-secondary education attainment (traders were more likely to have gone to TAFE or University than non-traders).

These differences may suggest that irrigators who were younger, had worked in the industry for less time, and had a higher level of educational attainment found it easier to navigate the information and administrative requirements to engage in allocation trade.

Allocation traders were also found to be more likely to have a whole farm plan, and to be planning for climate change. These differences may indicate that irrigators who are willing or

¹⁶⁷ Appendix A, figure A.3.

¹⁶⁸ The comparison was for allocation trade in 2015 across the Southern Basin. We note that these differences are indicative of statistically significant associations (between a characteristics and trade behaviour) rather than causation and may or may not be associated to a driver of trading or not trading. The full analysis can be found in S Wheeler and others, Water market literature review and empirical analysis, Consultant report prepared for the ACCC Water Market inquiry, 2020, table 6.5, and pp.118–119. The ACCC will be undertaking further analysis of the drivers of irrigator engagement and non-engagement with allocation trade for the final report to better understand the nature and extent of any barriers to more effective engagement with each type of water product.

able to engage in a higher level of forward looking farm management practices are also more willing or able to navigate the information and process requirements to engage in allocation trade. There were also a range of significant differences in the attitudes held by irrigators who traded and did not trade allocations:

- Allocation traders on average reported a more positive attitude to water trading.¹⁶⁹ They also had a more positive attitude to investors.¹⁷⁰ These differences may suggest that irrigators who were more open to the idea of trading water in principle were more willing to use water trading in practice.
- Allocation traders expressed less 'traditional' attitudes to farming than non-traders.¹⁷¹ They also had a more positive attitude to environmental water recovery.¹⁷² These attitudinal differences may suggest that irrigators who hold more traditional attitudes to farming may be less willing to use allocation trade as a farm management tool.

The ACCC will be undertaking further analysis of the drivers of irrigator engagement and non-engagement with allocation trade for the final report to better understand the nature and extent of any barriers to more effective engagement with allocation markets.

Water entitlement markets

Available data indicates that as of 2016 approximately 50 per cent of irrigators in the Southern Basin reported having traded (bought or sold) a WAE at least once, and that irrigator use of entitlement trade measured in this way has been increasing over time.¹⁷³ However, it also shows that in 2016 around half of all irrigators (approximately 50 per cent) reported having never traded (bought or sold) an entitlement. In addition, only a small proportion of irrigators (less than 10 per cent) reported having both bought and sold an entitlement over the five year period prior to 2016.¹⁷⁴ Appendix A includes more detailed data on irrigator engagement with entitlement markets.

This indicates that while around half of irrigators report having used entitlement markets at least once, 50 per cent of irrigators in the Southern Basin have never bought or sold water entitlement.

An irrigator's use of entitlement trade, as noted above, will vary depending on a range of market-based, institutional, government policy and individual drivers, amongst others. To better understand the extent to which the observed non-engagement with entitlement trade by some irrigators was the result of an informed choice or some barrier to trade, the ACCC commissioned analysis of irrigator engagement with water markets (box 4.2) and compared the individual characteristics of irrigators engaging and not-engaging in entitlement trade, including the characteristics of an irrigator's business, the irrigators themselves and their attitudes to water trade and water policy generally (appendix A). Initial analysis of individual irrigator characteristics summarised below, found a number of significant differences

¹⁶⁹ Allocation traders agreed more than non-traders with statements 'I believe water trading has been a good thing for farming'.

¹⁷⁰ Allocation traders agreed more than non-traders with the statements 'Retired irrigators no longer farming should be allowed to retain and trade water' and 'Corporate non-farm entities should be allowed to invest in water'.

¹⁷¹ Allocation traders agreed less than non-traders with the statements 'Farming is the only occupation I want to do' and 'I could never imagine living anywhere other than this area'.

¹⁷² Allocation traders agreed less that 'The Commonwealth Environmental Water Holder belongs in the agriculture not the environment department' and 'I believe the Basin Plan should be suspended'.

¹⁷³ Appendix A, figure A.2.

¹⁷⁴ Appendix A, figure A.3.

between irrigators who traded water entitlements in a given year and irrigators who did not trade entitlements in the same year.¹⁷⁵

In terms of farm characteristics, water entitlement traders in the Southern Basin, on average:

- held greater volumes of entitlements (high security entitlements, low security entitlement in Victoria and general security entitlements in New South Wales)
- irrigated a significantly larger area of land than non-traders (on average 78 per cent more)
- carried over more water into the season they traded in.

These differences are suggestive of a number of possible causal relationships between farm characteristics and engaging in entitlement trade, particularly entitlement sales, including:

- Irrigators holding greater volumes of entitlements can more easily sell some to raise funds while maintaining farming operations compared to farms with smaller entitlement holdings.
- Irrigators with more land may have greater flexibility to move to non-irrigated land uses than irrigators with smaller farms and so can more easily sell some of their permanent water rights.
- Irrigators who use larger volumes of carry over may have greater flexibility to sell entitlements and rely more on carry over to manage water supply risk.

Water entitlement traders in the Southern Basin also, on average, were more likely to have received an irrigation infrastructure grant than for non-traders, and were more likely to be in the horticultural industry. There is a direct causal relationship between an irrigator accepting a government irrigation infrastructure grant and selling water entitlements to the government. The association of entitlement trade with irrigators in the horticultural industry may reflect the rapid growth of this sector and these types of farms trading a larger number of entitlements.

None of the personal characteristics of irrigators (such as age, years in the industry or educational attainment) that were found to be significantly different between allocation traders and non-traders above, were significant for entitlement trade. However, entitlement traders were found to engage in certain farm management behaviours at significantly higher rates than non-traders of entitlements. Entitlement traders were also found to be more likely to have planned for climate change on farm, bought income protection insurance and bought crop insurance. These differences may indicate that irrigators who are willing or able to engage in a higher level of forward looking farm management practices are also more willing or able to navigate the information and process requirements to engage in entitlement trade.

There were also a range of significant differences in the attitudes held by irrigators who traded and did not trade entitlements:

- Entitlement traders, like allocation traders, on average reported a more positive attitude to water trading. They also had a more positive attitude to investors. These differences may suggest that irrigators who were more open to the idea of trading water in principle were more willing to use water trading in practice.¹⁷⁶

¹⁷⁵ The comparison was for entitlement trade in 2015 across the Southern Basin. We note that these differences are indicative of statistically significant associations (between a characteristic and trade behaviour) rather than causation and may or may not be associated to a driver of trading or not trading. The full analysis can be found in S Wheeler and others, *Water market literature review and empirical analysis*, Consultant report prepared for the ACCC Water Market inquiry, 2020, table 6.7, pp. 123–124. The ACCC will be undertaking further analysis of the drivers of irrigator engagement and non-engagement with entitlement trade for the final report to better understand the nature and extent of any barriers to more effective engagement with each type of water product.

¹⁷⁶ Entitlement traders agreed more than non-traders with statements 'I believe water trading has been a good thing for farming' and also agreed more than non-traders with the statement 'Corporate non-farm entities should be allowed to invest in water'.

- Entitlement traders were also more positively disposed to environmental water recovery and the Basin Plan.¹⁷⁷

The ACCC will be undertaking further analysis of the drivers of irrigator engagement and non-engagement with entitlement trade for the final report to better understand the nature and extent of any barriers to more effective engagement with entitlement markets.

Leases and newer water products

As with allocation and entitlement trade, an irrigator's use of newer water products (for example, single and multi-year leases, carry over parking and single and multi-year forward contracts) should vary depending on a range of market-based, institutional, government policy and individual drivers. However, provisional analysis indicates that only a relatively small proportion of irrigators use leases and an even smaller proportion use carry over parking and forward contracts. This analysis is detailed below.

Leases

Analysis of irrigator survey data from 2018 found that approximately 6.7 per cent of irrigators across the whole Basin reported using water that, in part, was sourced from leased entitlements.¹⁷⁸ Of all irrigators surveyed across the whole Basin in 2018 on how they secured water for their farms:

- 1.4 per cent reported using water from their own entitlements and from entitlements they leased from others
- 3.6 per cent reported using water from their own entitlements, leased entitlements, and allocations purchased on the temporary market
- 3.2 per cent reported using no water from their own entitlements (all water from purchases on temporary market and/or leased entitlements).¹⁷⁹

Information on irrigators' use of leases also comes from semi-structured qualitative interviews undertaken in 2018 with water trading stakeholders in the Basin, which similarly found that most irrigators and many agribusinesses did not use leases.¹⁸⁰

Information on irrigators' use of leases from semi-structured qualitative interviews undertaken in 2018 also found that use of leases was strongly associated with the amount of water owned; smaller irrigators with smaller holdings of permanent water ownership were less likely to use leases than irrigators and agribusinesses with larger water holdings.¹⁸¹

However, the research found that smaller irrigators that did use a lease, tended to lease water from friends and relatives, from their own self-managed super account, or from other irrigators, while larger irrigators and agribusinesses that used leases, tended to use

¹⁷⁷ Entitlement traders agreed more than non-traders with the statements 'Most irrigators think increasing environmental water flows is a good thing', 'It is essential to make allocations to the environment otherwise irrigation will not be long-term sustainable', 'The Murray–Darling Basin Authority is serious about helping our community to solve our own environmental flow problems' and 'More money should be spent on water buybacks by the Commonwealth', and they agreed less with the statement 'The Commonwealth Environmental Water Holder belongs in the agriculture not the environment department' and 'I believe the Basin Plan should be suspended'.

¹⁷⁸ The question did not differentiate between single and multi-year leases. Appendix A, p. 17 from J Schirmer and D Peel, *Understanding participation in water trading by irrigators in the Murray–Darling Basin*, Consultant report prepared for the ACCC Water Market inquiry, 2020, table 8, p. 13. Basin irrigators using surface water (excludes those who rely solely on groundwater).

¹⁷⁹ Appendix A, p. 17 from J Schirmer and D Peel, *Understanding participation in water trading by irrigators in the Murray–Darling Basin*, Consultant report prepared for the ACCC Water Market inquiry, 2020, table 8, p. 13. Basin irrigators using surface water (excludes those who rely solely on groundwater).

¹⁸⁰ Appendix A, pp. 17–18; from S Wheeler and others, *Water market literature review and empirical analysis*, Consultant report prepared for the ACCC Water Market inquiry, 2020, p. 142.

¹⁸¹ *ibid.*

longer-term leases sourced from commercial operators, either as part of leasing land, or as a stand-alone water lease from non-landholder investors.¹⁸²

Newer water products

There is little data available on the number of irrigators using newer water products such as carry over parking and forward contracts. Provisional analysis indicates that while relatively significant volumes of water are being transferred under carryover parking and forward contracts, the number of irrigators using these water products is likely to be very small.

ACCC analysis of trading activity undertaken by investors in Victoria in 2018–19 shows that these investors took in approximately 17GL of water from irrigators under carryover parking contracts and returned approximately 10 GL to irrigators that year. The same analysis showed that these investors provided just over 50 GL of water under forward contracts in Victoria in 2018–19.¹⁸³

Other analysis undertaken by the ACCC's consultants of a sample of a large Southern Basin water intermediary's trade data¹⁸⁴ found that over the three years from 2016–17 to 2018–19, this particular intermediary mediated only 40 carryover parking contracts and 48 forward contracts between irrigators and various counter parties, including other irrigators, investors, IIOs and other (unidentified) parties.¹⁸⁵

The ACCC will further investigate the level of use of carryover parking and forward contracts by irrigators for the final report using trade and water account data provided by Basin States.

Questions for stakeholders

Analysis of the available data indicates that while half or more of irrigators in the Southern Basin report having used allocation and entitlement markets at least once, significant proportions of irrigators report never using water markets or only engaging with them infrequently. For example:

- up to 25 per cent of irrigators have reported never trading a water allocation
- up to 50 per cent of irrigators have reported never trading a water entitlement
- only a small proportion of irrigators across the Basin (less than 7 per cent) report using leases
- an even lower proportion of irrigators appear to use new water products such as carryover parking or forward contracts.

Non-use of a water product is not, by itself, evidence of a problem or barrier to trade. An irrigator's use or non-use of a given water product will depend on a range of factors including:

- market-based factors such as the cost, reliability, availability of the water product
- institutional and infrastructure factors, including trading and operational rules and constraints that can impact if, when and how an irrigator can buy, sell and use a given water product
- government policies such as changes to carryover access, water buybacks or irrigation

¹⁸² *ibid*, p. 143.

¹⁸³ Chapter 5, figure 5.7.

¹⁸⁴ The broker was responsible for approximately 11 per cent of all non-zero dollar Basin allocation trade volumes in 2018–19.

¹⁸⁵ S Wheeler and others, Water market literature review and empirical analysis, Consultant report prepared for the ACCC Water Market inquiry, 2020, pp. 143–145. See also C Seidl, S Wheeler and A Zuo, 2020b, 'Treating water markets like stock markets: Key water market reform lessons in the Murray-Darling Basin', *Journal of Hydrology*, vol. 581, pp. 124–39.

infrastructure subsidies that can alter the incentives for using certain water products

- an irrigator's individual circumstances and characteristics, including:
 - their farm location, profitability, debt levels, ability to access capital etc.
 - their attitudes to managing water supply and price risk, or abilities to estimate these risks
 - characteristics of the irrigators themselves, including their ability to collect, process and use trade related information, their future plans to expand, change or exit their farm business, and their confidence in the water trading processes, water market rules, or the wider regulation of water in the Basin.

Submissions to this inquiry have highlighted some issues stakeholders believe are making it more difficult for certain irrigators to effectively engage with different types of water markets, including:

- the complexity of information needed to forecast water availability and market conditions
- a lack of availability of key types of trade information such as price, location and volumes
- time and resource limitations of smaller irrigators to access and analyse market information
- some irrigators not considering use of certain water products
- the cost of certain water products.

The ACCC is seeking information on the extent to which the observed level of non-use of each kind of water product by irrigators is the result of an informed business decision, or may be indicative of some barrier(s) to trade.

- What barriers, if any, prevent irrigators from buying or selling allocations or entitlements, or using leases, carryover parking or forward contracts? Please describe the barrier(s) and give specific examples.
- How do these barriers prevent irrigators from using a given water product?
- What is the impact of the barrier on the irrigator?

Issue 2: Some irrigators appear to have adopted riskier water ownership and trading strategies that rely principally on sourcing water in allocation spot markets to manage their water supply risks

A number of submissions raised issues of irrigators not being able to access enough water or having to pay high water prices because they do not hold enough water entitlements to meet their typical water needs and are required to source water from the allocation markets. In these cases, the irrigator typically does not appear to have taken action to mitigate water supply and price risk by using water products (such as single- or multi-year leases or forward contracts) that would allow them to 'lock in' future water supplies at a fixed price.

The Australian Dairy Industry Council (ADIC) submission noted that many dairy farmers sold water entitlements during the previous drought and their businesses are now not profitable as allocation prices have risen:¹⁸⁶

'We know during the millennium drought that dairy farmers disproportionately sold permanent entitlements, and now require 60 per cent more water than they own, increasing business risk by requiring the purchase of this water on the market. ...dairy farmers are [now] 'facing a perfect storm of low milk prices, dry conditions, and high water prices, which is threatening viability across the Basin, and putting at risk 20 percent of Australia's milk supply.'

Jeremy Rourke highlighted the case of farmers who chose to sell entitlements to investment in infrastructure but now regret the decision as they are unable to afford water in the temporary market:¹⁸⁷

'Without having the ability to see 'the bigger picture', many farmers thought that it was a good idea to trade their water asset for a more efficient and state of the art farm irrigation system and rely more heavily on a temporary water market where water could be sustainably accessed until further farming profitability would allow them to once again purchase permanent water rights. How disastrously wrong those decisions have turned out to be! Many farmers now find themselves with expensive irrigation infrastructure without the ability to utilize it due to the high price of water therefore having no way of running a viable farming business.'

Murray Valley Wine Growers noted that they have observed an increase in permanent planting in the Sunraysia region without sufficient holdings of permanent water rights to secure supply for these plantings.¹⁸⁸ Citrus Australia highlighted the issue of irrigators buying farms without permanent water rights and being exposed to supply and price risks in water allocation markets.¹⁸⁹

While many submissions pointed to the benefits to irrigators of leases and forward contracts¹⁹⁰, others expressed a view that many irrigators are not considering using these products, or have chosen not to because of cost.¹⁹¹

The evidence available to the ACCC to date supports the view expressed in these submissions, that there are a number of irrigators who, for various reasons, have and continue to adopt water ownership and trading strategies based principally on sourcing water needs from water allocation 'spot' markets to manage their water supply risks.

In particular, data available to this inquiry indicates that a higher proportion of irrigators have sold entitlements in recent years than purchased entitlements¹⁹², with a higher proportion of irrigators of some farm types selling water entitlements relative to others (such as dairy and horticulture).¹⁹³ This has likely increased their reliance on purchasing water on temporary markets.¹⁹⁴ At the same time as this change has been occurring, our analysis of data and anecdotal evidence above also indicates that only a relatively small proportion of irrigators

¹⁸⁶ Australian Dairy Industry Council, Submission to the Murray–Darling Basin inquiry, February 2020.

¹⁸⁷ Jeremy Rourke, Submission to the Murray–Darling Basin inquiry, January 2020.

¹⁸⁸ Murray Valley Wine Growers, Submission to the Murray–Darling Basin inquiry, February 2020.

¹⁸⁹ Citrus Australia, Submission to the Murray–Darling Basin inquiry, January 2020.

¹⁹⁰ H2OX, Submission to the Murray–Darling Basin inquiry, February 2020; Almond Board Australia, Submission to the Murray–Darling Basin inquiry, March 2020; AWBA, Submission to the Murray–Darling Basin inquiry, January 2020.

¹⁹¹ AJ and MH Spiers, Submission to the Murray–Darling Basin inquiry, January 2020.

¹⁹² Appendix A, figures A.4 and A.5, pp. 10–11 from S Wheeler and others, *Water market literature review and empirical analysis*, Consultant report prepared for the ACCC Water Market inquiry, 2020, figures 6.1 and 6.2, pp. 128–129.

¹⁹³ Appendix A, figure A.6 from ABARES Murray–Darling Basin Irrigation Survey.

¹⁹⁴ Appendix A, pp. 13–16.

across the Basin are using alternative water products such as leases or forward contracts to source their water.¹⁹⁵ This is supported by recent research in this area.¹⁹⁶

Questions for stakeholders

Submissions and available data indicate that in recent years a significant number of irrigators, particularly in dairy, have adopted water ownership and trading strategies that involve selling permanent water rights and relying more on sourcing water in allocation spot markets.

The ACCC is seeking information on the extent to which some irrigators are adopting riskier water ownership and trading strategies and what measures are being (or not being) used to mitigate the change in risk.

- How many and what type of irrigators are adopting these riskier water ownership and trading strategies?
- Why are they adopting these riskier water ownership and trading strategies?
- What risk management strategies, if any, are they using to mitigate the increase in supply and price risk? Why?
- Are their barriers to these irrigators adopting certain risk management strategies, including increased use of single and multi-year lease, forward contracts or other strategies?
- Are irrigators who adopt these riskier water ownership and trading strategies able to accurately assess the change to their water supply and price risks?

Issue 3: Some irrigators express a lack confidence in various aspects of water markets and water policy

Stakeholders at public forums and in submissions have expressed to the ACCC a range of positive and negative views on issues directly and indirectly related to water markets and water trading.¹⁹⁷

To gain a clearer and representative understanding of what views irrigators hold of water markets and trading, the ACCC has commissioned analysis of data collected in a number of surveys undertaken across the Basin between 1998 and 2016.¹⁹⁸

Researchers from the Centre for Global Food and Resources at the University of Adelaide asked irrigators in various areas of the Basin about their views on the benefits of water trading in 1999, in 2010 and in 2016:¹⁹⁹

- Almost three quarters of irrigators surveyed (73 per cent) in the GMID in 1999 agreed (agreed or strongly agreed) with the statement that ‘water trading was a good idea’, while

¹⁹⁵ Appendix A, pp. 17–20 from J Schirmer and D Peel, *Understanding participation in water trading by irrigators in the Murray–Darling Basin*, Consultant report prepared for the ACCC Water Market inquiry, 2020, table 8, p. 13, and S Wheeler and others, *Water market literature review and empirical analysis*, Consultant report prepared for the ACCC Water Market inquiry, 2020, pp. 143–145.

¹⁹⁶ C Seidl, S Wheeler and A Zuo, 2020b, ‘Treating water markets like stock markets: Key water market reform lessons in the Murray–Darling Basin’, *Journal of Hydrology*, vol. 581, pp. 124–39.

¹⁹⁷ Submissions and summary notes of public forums can be found on the ACCC’s water inquiry webpage at: <https://www.accc.gov.au/focus-areas/inquiries-ongoing/murray-darling-basin-water-markets-inquiry/submissions>.

¹⁹⁸ The surveys were undertaken by researchers at the Centre for Global Food and Resources at the University of Adelaide, and the Health Research Institute at the University of Canberra over a number of years. More details on the surveys, the analysis the ACCC commissioned and the results can be found in Appendix A, box A.1.

¹⁹⁹ Appendix A, figures A.10 and A.11, pp. 20–22 from S Wheeler and others, *Water market literature review and empirical analysis*, Consultant report prepared for the ACCC Water Market inquiry, 2020, figures 6.9 and 6.13, pp. 150, 153.

only 14 per cent disagreed (disagree or strongly disagree). This contrasts with results in 2010, where less than half of irrigators surveyed (46 per cent) in the Southern Basin agreed with the statement that 'water trading had been good for farming' while 41 per cent disagreed. By 2016, the positive attitude to water trading declined further with only 28 per cent of irrigators in the Southern Basin agreeing that 'water trading had been good for farming' while a majority (56 per cent) disagreed with that statement.

- Irrigators in the same survey also expressed negative attitudes toward investors in water markets. A large majority of irrigators surveyed (85 per cent) in the Southern Basin in 2016 disagreed with the idea of non-farm entities being allowed to buy water, while almost half (48 per cent) disagreed with the idea that retired farmers should be being allowed to retain and trade water.

In the 2015 and 2016 Regional Wellbeing Surveys, researchers at the Health Research Institute at the University of Canberra, asked irrigators across the Basin to what degree they agreed or disagreed with statements related to the process of trading water, and their confidence in water markets and market rules and regulations. The results are summarized below.²⁰⁰

More than half of the irrigators surveyed in 2015 and 2016 expressed positive views on the ease of making temporary and permanent trades, and expressed confidence on being able to access the information they needed to trade. In both cases a relatively small minority of irrigator expressed the opposite view:

- A majority of irrigators across the Basin in 2015 and 2016 (65 to 71 per cent) agreed that trading temporary water was easy. A slightly smaller majority (57 to 63 per cent) also agreed that trading permanent was easy. However, a minority of irrigators (between 12 and 18 per cent) disagreed with the idea that trading temporary or permanent water was easy.
- A majority of irrigators across the Basin in 2015 and 2016 (53 to 64 per cent) also agreed that the information needed to trade water was easy to access. However, a minority of irrigators in both years (17 to 19 per cent) did not agree with this view.

Approximately half of irrigators surveyed also expressed confidence in being able to trade water as a tool to manage their farms. However, on this question a significant minority of irrigators did not express confidence in their abilities to trade water. Around half of irrigators in 2015 and 2016 (48 to 53 per cent) agreed that they felt confident in trading water as part of their farm management, while a quarter or more of irrigators (25 to 28 per cent) did not agree that they felt confident in using water trading.

However, when researchers asked about attitudes to water markets and water market rules, less than a third of irrigators across the Basin in 2015 and 2016 expressed confidence in the fairness of water markets or in water market rules, while up to half of irrigators expressed a lack of confidence:

- Only 23 per cent and 32 per cent of irrigators in 2015 and 2016 respectively, agreed that the water market was fair for all users, while 48 per cent and 37 per cent of irrigators in 2015 and 2016 respectively, did not.
- 16 per cent and 26 per cent of irrigators in 2015 and 2016 respectively, agreed that market rules were stable, while 49 per cent and 43 per cent of irrigators in 2015 and 2016 respectively, did not.

²⁰⁰ See Appendix A, box A.1 from J Schirmer and D Peel, *Understanding participation in water trading by irrigators in the Murray–Darling Basin*, Consultant report prepared for the ACCC Water Market inquiry, 2020, pp. 25–27.

- 22 per cent of irrigators in 2015 agreed that recent changes to rules had increased their confidence in water markets, while 48 per cent in 2016 did not.²⁰¹

Researchers also asked irrigators for their attitudes on the security of their permanent water rights. While a majority of irrigators expressed confidence in the security of their permanent water access rights, between a quarter and a third of irrigators did not. 54 per cent and 60 per cent of irrigators in 2015 and 2016 respectively, agreed that their rights to access water were secure, while 33 per cent and 24 per cent of irrigators in 2015 and 2016 respectively, did not.

Moreover, when researchers asked irrigators whether they agreed that all entitlements were subject to the same rules, a quarter or less of irrigators agreed that entitlements held by the government were subject to the same rules and charges as other participants' entitlements. Only 17 per cent and 26 per cent of irrigators in 2015 and 2016 respectively, agreed that entitlements held by the government were subject to the same rules and charges as other participants' entitlements, while 44 per cent and 41 per cent of irrigators in 2015 and 2016 respectively, did not agree that government and non-government held entitlements received equal treatment.

Questions for stakeholders

The ACCC is interested in better understanding irrigator views on water trading, the process of water trading, and irrigators' confidence in water markets and market rules.

Survey data indicates that irrigators appear to be becoming increasingly negative about the idea of water trading in general:

- Given the benefits to farmers of being able to trade water and the increase in use of allocation and entitlement trade by irrigators in recent years, what do you believe explains the reported decline over time in irrigators' views that water trading is a good idea?

Survey data also indicates that while half or more of irrigators appear to believe that the process of allocation and entitlement trade is relatively easy, only a third or less of irrigators express confidence in the fairness of water markets or water market rules:

- What might explain the difference between irrigators' more positive views on the ease of making an allocation or entitlement trade and their more negative views on the fairness of water markets and water market rules?
- What might explain irrigators' lack of confidence in water market rules?

A quarter or less of irrigators agree that entitlements held by the government were subject to the same rules and charges as other participants' entitlements:

- Given that under existing rules water entitlements held by government environmental water holders are subject to the same rules and charges as entitlements held by irrigators, what might explain irrigators' views that these entitlements are not subject to the same rules and charges?

A large majority of irrigators do not agree with the idea that non-farm entities (investors) should be allowed to buy water, and around half of irrigators do not agree that retired irrigators should be allowed to retain their water rights and trade water:

- What might explain irrigators' views that non-farm entities (investors) should not be allowed to buy water, and that retired irrigators should not be allowed to retain their water rights?

²⁰¹ This question was not asked in 2016.

4.5.2. First Nation and Traditional Owner groups

Traditional Owner organisations have submitted to the ACCC that, as a participant group, they own few water rights in the Basin, are largely absent from water markets, and face historic and contemporary barriers to owning and accessing water through water markets:

*'Australia's colonial history and the exclusion of Aboriginal peoples from holding land when water entitlements were distributed prior to the capping of water extraction and the separation of land and water means that Aboriginal peoples are largely excluded from holding water today (McAvoy 2006). Indeed, Traditional Owner-specific water rights are reported to be less than 0.01 per cent of water use rights in Australia (Jackson and Langton, 2012)... Given the unaddressed injustices of the dispossession and associated ongoing legacies raised here, many Traditional Owners—and supporters—object to the notion that Aboriginal peoples should have to buy back these rights. Adding to this, historical and structural inequities mean Aboriginal peoples are often without access to financial resources to buy water in this way.'*²⁰²

Traditional Owner organisations have expressed an aspiration to increase their access to water to allow them to generate cultural, environmental and economic benefits for their communities and organisations:

*'There is an urgent need to re-allocate water to Traditional Owners. This historic (and ongoing) lack of access to water rights not only deprives Traditional Owners of the means by which to care for Country and support economic development, but it also precludes them from participating in the water market itself (O'Donnell and Garrick, 2019; McAvoy 2006).'*²⁰³

Traditional Owner organisations have noted that while treating water as a property right which can be traded is at odds with many Traditional Owner beliefs, water markets are seen by some participants as a pathway to increasing access to water.

*'For many First Nations peoples, the separation of water from land, the formulation of water 'products' as commodities that can be held and traded for private profit and the disembodiment of water from its sacred and spiritual contexts are fundamentally at odds with deeply enshrined water values and custodial responsibilities.'*²⁰⁴

These stakeholders consider that, under current governance arrangements, the most viable, immediate pathway for Traditional Owners in the Basin to access water is via entering the water market.²⁰⁵ Commonwealth and state governments have responded to such concerns in recent years by taking several actions to increase Aboriginal peoples and Traditional Owner groups' access to water in the Basin (box 4.3).

²⁰² Murray Lower Darling Rivers Aboriginal Nations, Submission to the Murray–Darling Basin inquiry, February 2020.

²⁰³ Murray Lower Darling Rivers Aboriginal Nations, Submission to the Murray–Darling Basin inquiry, February 2020.

²⁰⁴ Murray Lower Darling Rivers Aboriginal Nations, Submission to the Murray–Darling Basin inquiry, February 2020.

²⁰⁵ Murray Lower Darling Rivers Aboriginal Nations, Submission to the Murray–Darling Basin inquiry, February 2020.

Box 4.3: Recent government initiatives to increase Aboriginal peoples and Traditional Owner groups' access to water

Commonwealth and state governments have initiatives to improve Aboriginal peoples' access to water in the Basin include:

- State and Commonwealth government and non-government environmental water holders have entered into partnerships with Aboriginal peoples in areas across the Basin to use environmental water in ways that support both environmental objectives and generate cultural flows.²⁰⁶
- First Nations in the Basin have entered into partnership agreements with the MDBA to jointly undertake water research, planning and management in the Basin, and to develop a framework for planning, delivering, and assessing cultural water flows.²⁰⁷
- The Australian Government has committed \$40 million in funding to establish a water investment program that supports Aboriginal communities to plan for and acquire cultural and economic water entitlements.²⁰⁸
- The Victorian Government, through the Aboriginal Water Program, has committed to increasing Aboriginal participation in water resource management by supporting the use of water to meet cultural values, and identifying how to transfer water rights to Aboriginal groups to support economic development.²⁰⁹

As part of the first stage of the Victorian Government's Aboriginal Water Program, the University of Melbourne published a discussion paper which outlines Aboriginal peoples' aspirations on water access and use in the Basin, and the options and barriers to expanding access to water.²¹⁰ The paper emphasised a range of financial barriers to Traditional Owner groups buying and holding permanent water rights and accessing water allocations to those rights, including funding to acquire water, to pay ongoing fees and charges and for building and maintaining infrastructure to deliver water.²¹¹

²⁰⁶ Water Access for Aboriginal Economic Development Stage 1: Discussion Paper, 2019, p. 22.

²⁰⁷ MDBA, Partnerships with Traditional Owners, <https://www.mdba.gov.au/about-us/partnerships-engagement/aboriginal-partnerships>, viewed 22 June 2020.

²⁰⁸ *ibid.*

²⁰⁹ Department for Environment, Land, Water and Planning (Vic), The Aboriginal water program, <https://www.water.vic.gov.au/aboriginal-values/the-aboriginal-water-program>, viewed 22 June 2020.

²¹⁰ Water Access for Aboriginal Economic Development Stage 1: Discussion Paper, 2019. The discussion paper is part of the first stage of work in Program 1, but intersects significantly with Program 2 (the individual business concepts developed by Traditional Owners) and Program 3 (which includes much of the evaluation and oversight components of the work). This paper has been prepared by Erin O'Donnell at Melbourne Law School. I gratefully acknowledge the feedback from Murray and Lower Darling Rivers Aboriginal Nations (MLDRIN) and the Federation of Victorian Traditional Owner Corporations (FVTOC).

²¹¹ Water Access for Aboriginal Economic Development Stage 1: Discussion Paper, 2019, p. 15.

The Murray Lower Darling Rivers Aboriginal Nations (MLDRIN) noted in their submission to the ACCC that while there has been some recent policy and funding commitments by Commonwealth and state governments, these have not yet resulted in any reallocation of water to Aboriginal peoples in the Basin.²¹² Further, MLDRIN urged the ACCC to consider water market outcomes as part of the inquiry, including the historic exclusion of Aboriginal peoples from basin water markets.²¹³ They submitted that changes to water markets to increase Aboriginal peoples' participation should include:

- 'lowering barriers to entry for Aboriginal participants, such as time-limited exemptions to [water] fees and charges, purchasing and reallocating of water entitlements, and other barriers
- ensuring any adjustment to water market operations needs to strengthen the capacity for water markets to enable re-allocation of water to Aboriginal people in future
- taking into account findings from significant state-level projects which are currently underway, including the Water Access for Economic Development project in Victoria.'²¹⁴

The ACCC's provisional analysis of ownership of permanent water rights in the Victorian and South Australian Basin indicates that Traditional Owner groups own a very small proportion of the permanent water rights on issue in the Basin (see figures 4.1 to 4.3 above). Similarly, provisional analysis of allocation trade data in the Southern Connected Basin over the 2012–13 and 2018–19 period indicate that Traditional Owner groups very rarely purchase allocations, but do consistently make a very small number of allocation sales each year (see figures 4.4 to 4.7 above).

The ACCC's terms of reference does not extend to considering the concerns about historical lack of access or dispossession of water rights of Traditional Owner groups in the Basin. However, we seek further information on what barriers Traditional Owner groups across the Basin are currently facing when seeking to acquire permanent and temporary water.

Questions for stakeholders

Traditional Owner groups are typically not engaged with water markets. As a participant group, they own a very small proportion of the permanent water rights on issue in the Basin. They very rarely purchase allocations, and in any given year sell only a small proportion of water allocation volumes in a limited number of trading zones.

- What barriers, financial, regulatory or other, do Traditional Owner groups currently face to acquiring permanent and temporary water in basin water markets? Please provide examples of these barriers, as well as evidence of their magnitude, frequency, and impact.

²¹² Murray Lower Darling Rivers Aboriginal Nations, Submission to the Murray-Darling Basin inquiry, February 2020.

²¹³ Submission to the Murray-Darling Basin inquiry, *ibid.*

²¹⁴ Submission to the Murray-Darling Basin inquiry, *ibid.*

Part III—Market integrity and conduct

This part includes three chapters on issues relating to the conduct of certain market participants and potential regulatory solutions to increase confidence in the integrity of the Murray–Darling Basin water markets.

Chapter 5 examines the role, strategies and conduct of water investors. The chapter sets out the benefits provided by investors to the basin water markets and the concerns raised by stakeholders about the conduct of investors. The ACCC's initial analysis of investors' conduct for the interim report has focused on the market position and trading activities of four large investors operating in the basin water markets.

Chapter 6 examines the roles, practices and conduct of water brokers. It sets out the concerns raised by stakeholders about the conduct of water brokers and assesses how these concerns undermine confidence in the market and affect perceptions of market integrity and fairness.

Chapter 7 examines regulatory settings and solutions for the basin water markets. It first assesses the effectiveness of the regulatory environment for the basin water markets. It then considers regulatory options to address the problem conduct and potential for harmful behaviours identified in the previous chapters, and seeks feedback on these options.

5. Investor role, strategies and conduct

Key Points

- Investors provide benefits to water markets. They provide new sources of capital to irrigated agriculture, increase water market liquidity and provide a range of water products which help irrigators to manage water supply risks.
- During the inquiry, many stakeholders raised concerns about the conduct of investors in water markets. In broad terms, the concerns relate to the ability of investors to influence water markets and specific conduct resulting in market distortions and artificially inflated prices.
- The ACCC notes that there are limited rules targeting the trading behaviour of market participants in the water markets that specifically aim to prevent market manipulation.
- To assess the concerns raised by stakeholders, the ACCC has focused its initial analysis on the market position and trading activities of four large investors operating in the Murray-Darling Basin water markets. As at 30 June 2019, the four investors collectively held 7 per cent of all high reliability/security entitlements across the Southern Connected Murray-Darling Basin, 7 per cent of all Victorian low reliability entitlements and 2 per cent of all New South Wales general security entitlements on issue in the Southern Connected Basin. By contrast, the four investors accounted for around 19 per cent of the volume of allocation trade-out (excluding zero dollar trade) in 2018-19 and 16 per cent in the first half of 2019–20.
- The four investors broadly pursue buy and hold entitlement strategies that aim to achieve long term capital growth, and generate income by supplying water products. A key difference in their strategies relates to allocation purchases. In contrast to the other investors, one investor was a very large purchaser of temporary allocations in 2018–19.
- The ACCC is continuing to investigate the concerns raised by stakeholders, as well as other unusual trading activities observed in the trade data. The inquiry is concerned about conduct that is harming the efficient working of water markets and distorting price signals.
- The inquiry is also considering the investment objectives, incentives and capabilities of different types of investors and whether these may create opportunities for some investors to engage in conduct that could distort water prices and thus undermine the efficient working of the water market.
- The ACCC will report its findings in the final report.

5.1. Introduction

The inquiry's Terms of Reference include consideration of the 'role and practices of market participants, including water brokers, water exchanges, investment funds and significant traders of water allocations and entitlements'. This chapter examines the role and practices of water investors.

Many stakeholders have raised concerns about the conduct of water investors in water markets (discussed below at 5.3). The ACCC is examining whether investors have engaged in conduct that harms the efficient operation of the Murray–Darling Basin water markets and distorts trading prices for temporary water, or have the incentives and opportunities to do so.

As set out in chapter 4, the ACCC defines water investors as those holding, trading and/or managing water assets for the purpose of future financial gain, which is unrelated to their use as an input in agricultural, industrial or other production.

There are different types of water investors, from large superannuation funds and fund management businesses to retired farmers that have ceased agricultural operations but have retained their water access entitlements, including in self-managed superannuation funds.

Investment in water entitlements provides opportunities for both capital growth (entitlement value) and yield (from the sale of water products such as leases, forwards and spot allocation sales), and allocation trading provides pure trading gains.

The ACCC understands that the reason investors have increasingly invested in water is because of the long-term increase in water asset values, to diversify their investment portfolios with water assets which share little correlation with other asset classes and the fact that variability in water market prices presents significant opportunities for investment trade returns.²¹⁵ Water entitlements offer investors long term capital appreciation due to increasing demand from high-value permanent horticulture production, the impact of climate change²¹⁶, and reduced supply from government recovery of water entitlements for environmental purposes.

5.2. Investors provide benefits to the Murray-Darling Basin water markets

5.2.1. Investors provide new sources of capital to irrigated agriculture

Investors' participation in water markets has provided new sources of capital to irrigated agriculture. This is acknowledged by a number of stakeholders.²¹⁷ The National Irrigators Council (NIC) submitted that the presence of investors in the water market has enabled some irrigators to invest available capital into land or agricultural production rather than owning water entitlements, and manage their business more effectively.²¹⁸ This has assisted some irrigators expand their irrigated production area, without the significant capital outlay of a water entitlement purchase.²¹⁹

Water products supplied by investors provide avenues for irrigators to better structure their finances according to business needs. For example, water acquired through a lease may represent an operating expense, as opposed to the capital cost of a water entitlement. Riparian Capital Partners submitted that water products [such as leases and forward contracts] allow irrigators to appropriately manage both operational water risks and the structure of capital and water balance sheets.²²⁰

²¹⁵ S Wheeler and others, *Water market literature review and empirical analysis*, Consultant report prepared for the ACCC Water Market inquiry, 2020, p. 58.

²¹⁶ C Seidl and others, 'Treating water markets like stock markets: Key water market reform lessons in the Murray–Darling Basin', *Journal of Hydrology*, vol. 581, 2020, p. 7.

²¹⁷ New South Wales Irrigators' Council, Submission to the Murray–Darling Basin inquiry, January 2020, p. 11; Riparian Capital Partners Pty Ltd, Submission to the Murray–Darling Basin inquiry, January 2020, p. 11; Bega Cheese Limited, Submission to the Murray–Darling Basin inquiry, February 2020, p. 7; Select Harvests Limited, Submission to the Murray–Darling Basin inquiry, April 2020, p. 3.

²¹⁸ National Irrigators' Council, Submission to the Murray–Darling Basin inquiry, January 2020, p. 14; also raised at the ACCC Murray–Darling Basin inquiry, Kerang public forum.

²¹⁹ Southern Cross Farms, Submission to the Murray–Darling Basin inquiry, February 2020, p. 14.

²²⁰ Riparian Capital Partners Pty Limited, Submission to the Murray–Darling Basin inquiry, January 2020, p. 4.

Box 5.1: Example: expanding agricultural production

An irrigator has a tree nut orchard. The irrigator has further land adjacent to the orchard that they are considering developing.

To support additional permanent plantings, the irrigator wants to secure access to high reliability water access entitlements. However, the irrigator does not have enough capital to develop the land and purchase additional water entitlements.

The irrigator could lease water entitlements from an investor, and invest the available capital into land. The irrigator would have access to all the features of owning the entitlement, without the significant expenditure required to purchase a water entitlement.

The lease provides an alternative to seeking finance or outlaying capital to purchase water access entitlements.

5.2.2. Investors increase water market liquidity

Water market liquidity describes the readiness with which participants are able to buy and sell water assets at predictable prices. Indicators of market liquidity are the presence of many buyers and sellers in the market and a narrow spread between bid and offer (buy and sell) prices with transactions taking place reasonably frequently.

The NSW Farmers' Association (NSW Farmers) submitted that policy reforms to separate water from land ownership has facilitated the entry of new investors in water markets.²²¹ Investor participation in water markets has increased the number of potential buyers and sellers of water allocations, improving market liquidity. Increased liquidity makes it easier for market participants to transfer water to different locations for different water needs, and to buy and sell water at prices that reflect underlying supply and demand conditions.

NSW Farmers notes that investors provide out-of-cycle investment in the water markets by selling water allocations at a time when irrigators need to buy. Investors do not have water needs linked to agricultural production cycles. As a result, investors are a natural counterparty to irrigators which increases the liquidity of the water markets.

The National Farmers Federation submitted that investors add financial liquidity to markets, enabling producers to hedge risk efficiently, particularly against a variable climate. It submitted that, if appropriately regulated, they provide a valuable service to communities.²²²

Increased liquidity in the market may also allow irrigators to better achieve the full market value for their water assets, particularly, for example, if they seek to sell their water entitlements.²²³

5.2.3. Investors provide irrigators with a range of water products which help manage water risks

Investors offer a range of products that assist irrigators in managing their businesses more effectively, including leases, forward contracts, and carryover parking (as described at section 5.6.2 below).

These products provide irrigators with flexibility in terms of on-farm production decisions, managing water supply risks and forward planning specific to their business, and the option

²²¹ NSW Farmers' Association, Submission to the Murray–Darling Basin inquiry, February 2020, p. 5.

²²² National Farmers' Federation, Submission to the Murray–Darling Basin inquiry, February 2020, p. 8.

²²³ Kilter Rural, Submission to the Murray–Darling Basin inquiry, March 2020, p. 10.

of reducing their exposure to the allocation market.²²⁴ As noted by the Victorian Farmers Federation Sunraysia Branch, these products allow buyers to spread their risk and ensure adequate water supply at a known price across several years.²²⁵

The NIC noted that investors' participation in the water market enables many irrigators to more effectively hedge water access or water supply and water price (input cost) risk. Forward water contracts also enable irrigators to secure water allocations for future years, which may allow irrigators to more confidently forward sell their expected production at times when forward commodity price is relatively high and profitable.²²⁶

Riparian Capital Partners submitted that water products allow irrigators to manage water risks of their operations and structure both their capital and water balance sheets appropriately. Further, they say that these products are likely to have resulted in the smoothing of supply and demand conditions from season to season, as irrigators secure leases and/or forward water allocations at lower prices, allowing them to produce in seasons when in-season supply and pricing conditions may not have allowed (that is, in dry conditions when water allocation prices are higher than the capacity to pay for watering of the particular crop).²²⁷

Box 5.2: Example: using water products to mitigate risk

ABC Farms has 20 000 megalitres (ML) of high security entitlements, which it partly owns and partly leases from a third party. At 100 per cent allocation the entitlements do not generate enough water to meet ABC Farms' needs, so it has been purchasing water on the temporary market. The forecast is for below average rainfall in the region. ABC Farms is concerned that temporary market purchases are exposed to significant price volatility. To reduce its water supply risk, ABC Farms enters into a three year forward contract with an investor for supply of 2500 ML of water each year. Under the forward contract, the investor is required to supply ABC Farms with a fixed amount of water on agreed delivery dates at a fixed price.

While there is some risk that it might rain and the price of water on the temporary market will not increase, the forward contract has benefits to ABC Farms:

- water certainty—the investor is obliged under the contract to supply the agreed volume of water.
- price certainty—water is supplied at the agreed price under the forward contract, regardless of the fluctuation of prices on the temporary market
- no upfront capital outlay—ABC Farms pays for the water at the time it is delivered under the forward contract
- production cost certainty—ABC Farms has a better sense of water costs so may be more confident to forward sell its crop.

5.3. Stakeholders have raised concerns about the conduct of investors

In public forums and submissions in response to the issues paper, and in complaints to the ACCC, many stakeholders raised concerns about the conduct of investors in water markets. In the public forums in the Southern Basin, stakeholders have raised general concerns about the presence of investors in the water markets and questioned their value. Many have

²²⁴ ACCC Murray–Darling Basin inquiry, Renmark public forum.

²²⁵ Victorian Farmers Federation Sunraysia Branch, Submission to the Murray–Darling Basin inquiry, January 2020, p. 6.

²²⁶ National Irrigators' Council, Submission to the Murray–Darling Basin inquiry, January 2020, p. 14.

²²⁷ Riparian Capital Partners Pty Ltd, Submission to the Murray–Darling Basin inquiry, January 2020, p. 4.

alleged that investor behaviour has resulted in materially higher water allocation prices.²²⁸ In broad terms, the concerns relate to the investors' ability to influence the water markets and specific conduct resulting in market distortions and artificially inflated prices.

The ACCC is continuing to investigate the concerns raised by stakeholders, as well as other trading activities observed in the data that may seem unusual or suspicious. Many of these concerns and trading behaviours will not involve breaches of the *Competition and Consumer Act 2010* (Cth) (CCA) or other legislation.

However, the ACCC is concerned about conduct harming the efficient working of the water markets and distorting price signals, and is investigating the concerns raised and other conduct of market participants on that basis.

5.3.1. Stakeholders are concerned about investors' ability to influence water markets

Stakeholders raised concerns about the competitive dynamics of water markets. Some have alleged that investors have market power and are using this power to influence the market.

Some stakeholders submitted that investors have multiple advantages that result in an ability to influence the market. They state investors have advantages in analytical resources, financial market access and financial backing, and are unconstrained by the need to apply water for agricultural production.²²⁹ Participants at the Shepparton forum submitted that larger buyers operating in shallow markets may be able to influence market quantities and prices to their advantage.

5.3.2. Stakeholders allege investors withhold water to raise prices

Some stakeholders raised concerns that investors are buying water allocations and withholding water from the water markets to artificially drive prices higher.²³⁰

Some stakeholders allege that investors buy a large proportion of available allocations early in the water year, when seasonal allocation and trade volumes are low. This clears lower-priced allocations and forces up the price for allocations. Stakeholders allege that investors do not supply these purchased allocations for a large part of the season, while also withholding allocations received under their own entitlements. This allegedly restricts market supply sufficiently to artificially raise allocation prices by a material amount. Stakeholders allege investors then supply allocations to the market at inflated prices at times of peak demand.

Stakeholders also allege that investors carry over allocations at the end of the water year to withhold allocations across multiple water years to push prices up. They state these allocations could otherwise have been used by irrigators in preceding water years at lower prices.²³¹

²²⁸ Murray River Group of Councils, Submission to the Murray–Darling Basin inquiry, January 2020, p. 4; Select Harvests Limited, Submission to the Murray–Darling Basin inquiry, April 2020, p. 2; ACCC Murray–Darling Basin inquiry, Southern Basin public forums.

²²⁹ Select Harvests Limited, Submission to the Murray–Darling Basin inquiry, April 2020, p. 2.

²³⁰ NSW Farmers' Association, Submission to the Murray–Darling Basin inquiry, February 2020, p. 5; ACCC Murray–Darling Basin inquiry, Renmark public forum.

²³¹ Australian Grape & Wine Incorporated, Submission to the Murray–Darling Basin inquiry, January 2020, p. 8; National Irrigators' Council, Submission to the Murray–Darling Basin inquiry, January 2020, p. 15; Fruit Growers Victoria Limited, Submission to the Murray–Darling Basin inquiry, February 2020; ACCC Murray–Darling Basin inquiry, Goulburn Murray Irrigation District Water Leadership, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2; Deniliquin and Shepparton public forums.

5.3.3. Stakeholders allege investors conduct allocation transactions to manipulate water markets

Some stakeholders raised concerns that investors, by themselves or jointly with brokers, conduct allocation transactions in such a way to create or maintain artificially higher allocation prices.²³² In particular, stakeholders made the following allegations:

- investors place substantial allocation buy orders on allocation announcement days, and around forecasted rain events, to ensure allocation prices are not eroded
- investors pay above market prices on small parcels of allocations to drive up the value of underlying entitlements
- investors place concurrent buy and sell orders to maintain prices within a narrow predetermined band
- investors are manipulating inter-valley trade to create or maintain a floor price in the destination zone
- investors trade on inside information.

5.3.4. Stakeholders allege investors distort market information to suit their interests

Stakeholders raised concerns about investors engaging in conduct that distorts market information to suit their interests.

Some stakeholders allege that investors sometimes conduct trades outside exchanges to influence information about market price. They allege that investors buy allocations on exchanges pushing the prices up but then directly, or through a broker, approach irrigators to offer large sales of allocations. As these trades are not listed on commonly-used exchanges, they do not affect exchange prices. It is alleged this conduct results in information asymmetries between investors and market participants that are reliant on exchanges for price information, and maintains artificially high ‘market prices’.

5.3.5. Limited rules governing the trading behaviours of water market participants

The ACCC notes that there are limited rules targeting the trading behaviour of market participants in the water markets that specifically aim to prevent market manipulation. This is discussed in chapter 7.

Some stakeholders have submitted that robust market manipulation prohibitions and enforcement mechanisms are required, similar to those that exist in other regulated markets.²³³ They submitted that the conduct of some investors (and brokers) is only possible because the water markets lack appropriate regulation.²³⁴

5.4. Opportunities and incentives for investors in water markets

As part of its assessment of the concerns raised by stakeholders, the ACCC is considering the objectives, incentives and capabilities of investors and whether they may create

²³² Almond Board of Australia, Submission to the Murray–Darling Basin inquiry, 5 March 2020, p. 21; Select Harvests Limited, Submission to the Murray–Darling Basin inquiry, April 2020, p. 2; ACCC Murray–Darling Basin inquiry, Deniliquin public forum.

²³³ For example, Part 7.10 of the *Corporations Act 2001* (Cth) prohibits specific types of trading that manipulate markets for financial products and other types of market misconduct.

²³⁴ Select Harvests Limited, Submission to the Murray–Darling Basin inquiry, April 2020, p. 3; Citrus Australia, Submission to the Murray–Darling Basin inquiry, January 2020.

opportunities for some market participants to engage in conduct that could distort water prices and thus undermine the efficient working of the water market.

5.4.1. Investors have an interest in rising water prices

As indicated, there are different types of water investors, including large superannuation funds, fund management businesses and retired farmers that have retained their water access entitlements.

While the specific strategic objectives are likely to vary between different types of water investors, all investors aim to maximise the profitability of their investment in water assets subject to their assumed level of risk. This is in contrast to irrigators that generally participate in water markets foremost to obtain additional water required to meet crop needs at the lowest possible price in order to maximise the return on agricultural production, and sell water at times when allocations exceed production needs.

Generally investors will have an interest in the price of water entitlements and water allocations increasing (within and between trading zones) over the period they are held, in order to generate capital growth and increase returns.

Some institutional investors conduct frequent water asset valuations for the purpose of reporting to current fund members and attracting new investment. These investors have an additional interest in prices of both entitlements and allocation water rising when reporting portfolio values to their investors and the market.

5.4.2. Investors may have different interests in regard to price volatility

Some investors would also be interested in annual cyclical price movements which create opportunities to trade profitably in the temporary allocation market. Such trading strategies seek to take advantage of price movements over the course of the water year, but may change the level of risk the investor assumes.

Superannuation funds generally have a longer term investment horizon and the ACCC considers they may be more likely to favour lower risk and steady returns on investment. They may be more likely to commit a larger portion of their allocation volumes to supplying leases and forward contracts. Leases, for example, can provide investors with a steady and known income across a number of water years.

Investors that hold water within a water year or carry over water into a following water year in anticipation of higher allocation prices face the risk of unexpected rainfall putting downward pressure on allocation prices. Although investors can monitor climate forecasts to minimise this risk, this is a factor they are unable to control and that must be taken into account in their investment strategy.

5.4.3. Some investors' capabilities give them an advantage in water markets

Water markets are particularly complex and it is a challenge for all water market participants to be able to gather, analyse and act upon information available from a variety of sources.

Investors that actively manage their portfolio can invest in, and develop extensive knowledge and experience in, sourcing and analysing water market information and monitoring of trading activities across the Southern Basin. Some investors may also have the ability to leverage expertise developed in other asset markets. Some investors appear to have strategies and business processes in place to capitalise on water market opportunities.

In addition, some investors would have substantial capital resources available, which could enable them to acquire and hold water entitlements or allocations, and take advantage of price movements over the water year and between wet and dry years.

The ACCC is seeking to better understand the objectives, incentives and capabilities of different types of water investors. The ACCC will assess whether these may create potential opportunities for harmful conduct to occur by some investors.

5.5. The inquiry has examined the position of four large investors operating in the Murray–Darling Basin

To assess the concerns raised by stakeholders, the ACCC has focused its initial analysis on four large water investors in the Murray–Darling Basin. These investors are Argyle Investment Management and Argyle Capital Partners (together Argyle Group), Kilter Rural, Duxton Water and Aware Water. A reference to investors in sections 5.5, 5.6 and 5.7 of this chapter is a reference to these four investors.

The ACCC has used its compulsory information gathering powers under the CCA to obtain information and documents on the investors' water holdings, transactions and trading strategies. The ACCC has used this information together with Basin State data to examine the conduct of the investors.

The ACCC will expand its analysis to other investors in the Murray–Darling Basin for the final report.

5.5.1. Methodology for analysing investors' water access entitlements

Unless otherwise indicated, information on investors' water holdings includes both water access entitlements and irrigation rights within irrigation infrastructure operators (IIOs).

There are significant differences between various entitlement classes. In this section we have treated Victorian high reliability, South Australian high reliability and New South Wales high security entitlements (collectively referred to as high security entitlements) as analogous because they each provide reliable access to water across multiple water years.

In contrast, New South Wales general security entitlements and Victorian low reliability entitlements serve different purposes because of Victoria's and New South Wales's respective approaches to water management. In wet and average years, New South Wales general security entitlements will receive a volume of water against their entitlements. Outside of extreme wet years, Victorian low reliability entitlements in the Murray and Goulburn valleys will not receive any water.²³⁵ Therefore, Victorian low reliability entitlements are held almost exclusively for the purposes of carryover. In this section the ACCC has distinguished between New South Wales general security entitlements and Victorian low reliability entitlements unless otherwise indicated.

5.5.2. Entitlements held for agricultural production

Some investors have invested in agricultural enterprises in addition to their water market trading operations. While a number of potential arrangements exist, some investors dedicate a portion of their water access entitlements to these agricultural operations.

These entitlements and the associated water allocations are rarely, if ever, available to be traded on the water market. Therefore, the ACCC's analysis has sought to exclude these

²³⁵ Historical allocation determination data from the Northern Victorian Resource Manager: <https://nvrn.net.au/resources-and-data/historical-allocation-data>; public data on allocation determinations also available for New South Wales from the Water New South Wales Register: <https://waterregister.watnsw.com.au/water-register-frame>.

entitlements when analysing investor behaviour in water markets. Unless otherwise indicated, the following analysis of investor water access entitlements excludes entitlements held for agricultural production.

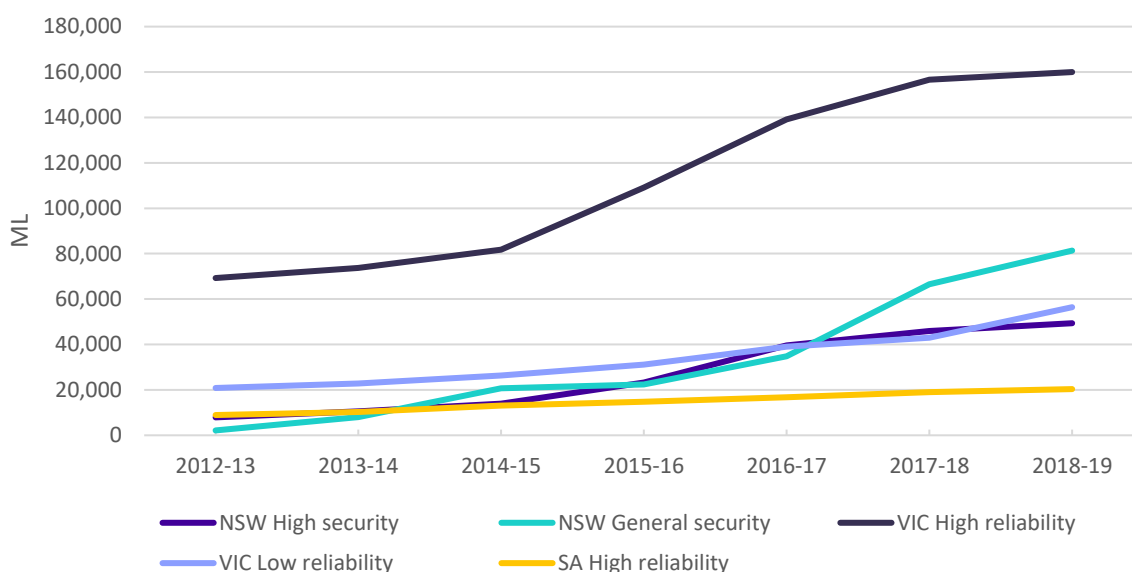
5.5.3. The investors’ water access entitlements are predominantly in the Southern Connected Basin

The vast majority of the investor entitlement holdings are concentrated in the Southern Connected Basin.

As at 30 June 2019, the investors collectively held 230 gigalitres (GL) of high security entitlements, 138 GL of low security entitlements and 4 GL of supplementary entitlements across the Southern Connected Basin. The investors’ entitlement holdings are more heavily weighted towards high security entitlements with between 54 and 68 per cent of their portfolio consisting of high security entitlements. Collectively, this represents approximately 7 per cent of all high security entitlements on issue across the Southern Connected Basin, 7 per cent of all Victorian low reliability entitlements and 2 per cent of all New South Wales general security entitlements on issue.

Outside the Southern Connected Basin, the investors held a total of 26 GL of water entitlements in various entitlement classes, including high and low security, medium security, groundwater and unsupplemented water entitlements.

Figure 5.1: Investor entitlement holdings, by class and year



Source: ACCC analysis based on s. 95ZK responses.

Figure 5.1 illustrates that investors’ entitlement portfolios have grown markedly since 2013. There has been heavy investment in Victorian high reliability entitlements which have grown from around 69 GL as of June 2013 to almost 160 GL as of June 2019. There has been considerable growth in New South Wales high security entitlements, which have increased by around 42 GL over the same period. South Australian Murray entitlements have not experienced similar levels of investment from the investors, having grown by approximately 11 GL since June 2013.

There has also been considerable growth in general security and low reliability entitlements. Victorian low reliability entitlements have grown steadily since June 2013, approximately doubling by volume. Investment in New South Wales general security entitlements has

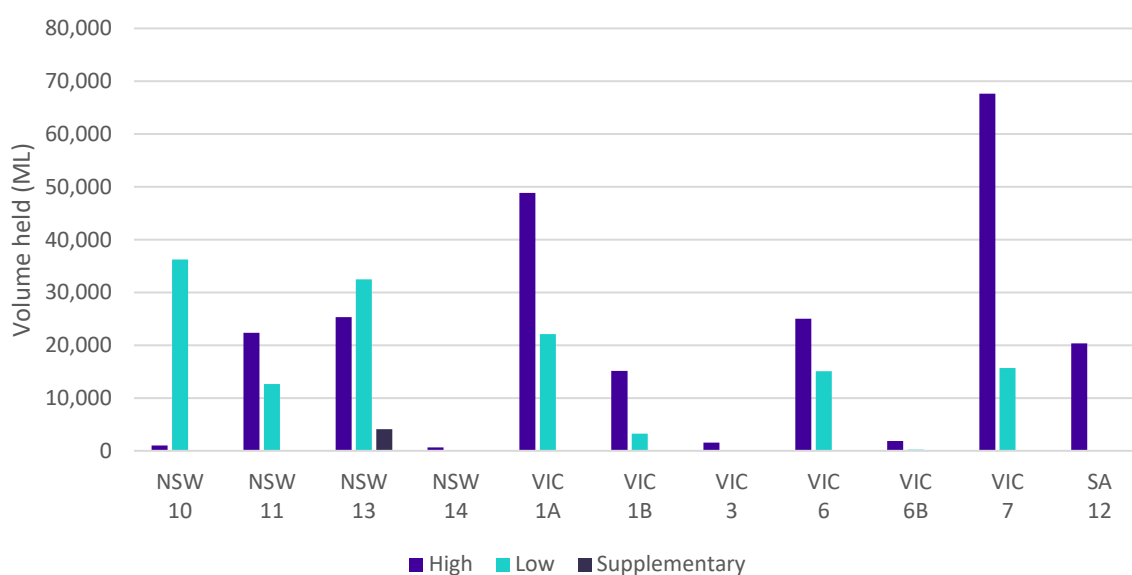
significantly increased, growing from around 22 GL in June 2016 to over 81 GL as of June 2019.

The four investors commenced their respective investments in the water markets at different times, with some commencing before 2013. The extent of each investor’s contribution to the aggregate entitlement holding growth shown in figure 5.1 varies.

5.5.4. Composition of investors’ water entitlement portfolios

The investor entitlement holdings are distributed across the Southern Connected Basin as set out in figure 5.2 below.

Figure 5.2: Investor entitlements by trading zones, 30 June 2019



Source: ACCC analysis based on s. 95ZK responses.

Collectively, the majority of investor-held Victorian high reliability entitlements are concentrated in two trading zones, the Greater Goulburn (zone 1A) and Victoria Murray Dart to Barmah (zone 7). New South Wales high security entitlements are spread fairly evenly between the New South Wales Murray below the Barmah Choke (zone 11) and the Murrumbidgee (zone 13).

Collectively, the four investors’ general security entitlements are concentrated in the New South Wales Murray above the Barmah Choke (zone 10) and Murrumbidgee (zone 13). They also hold between 15 to 22 GL of low reliability entitlements in the three major Victorian trading zones 1A, 6 and 7.²³⁶

The investors also hold a small volume of supplementary water access entitlements, which allow water to be extracted during announced periods when flows exceed those required to meet other licensed obligations and environmental needs.²³⁷

Figures 5.3 and 5.4 respectively set out the proportion of all high and low/general security entitlements held by the investors across the Southern Connected Basin as at 30 June 2019. The share of high security entitlements held by the investors in any particular zone is generally in the 7 to 8 per cent range. However, in Boort (zone 1B) and the New South

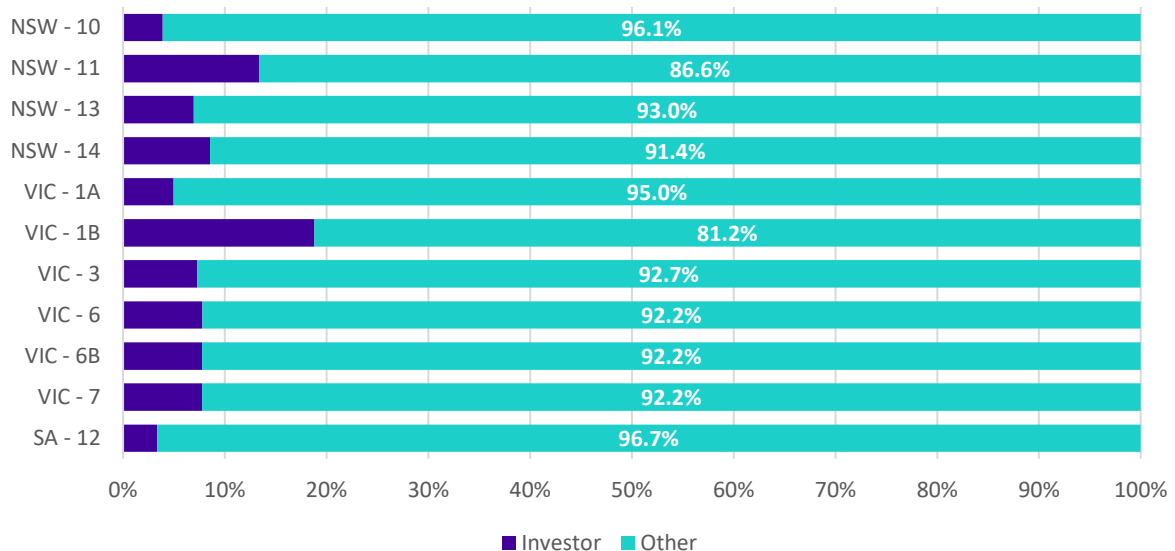
²³⁶ Based on information extracted from the Water New South Wales public Water Register.

²³⁷ For more information, visit the [Water NSW website](#).

Wales Murray below the Choke (zone 11) there is an increased concentration of investor holdings. Figure 5.4 indicates that low reliability investor entitlements are more concentrated in a number of zones in Victoria when compared to New South Wales general security entitlements.

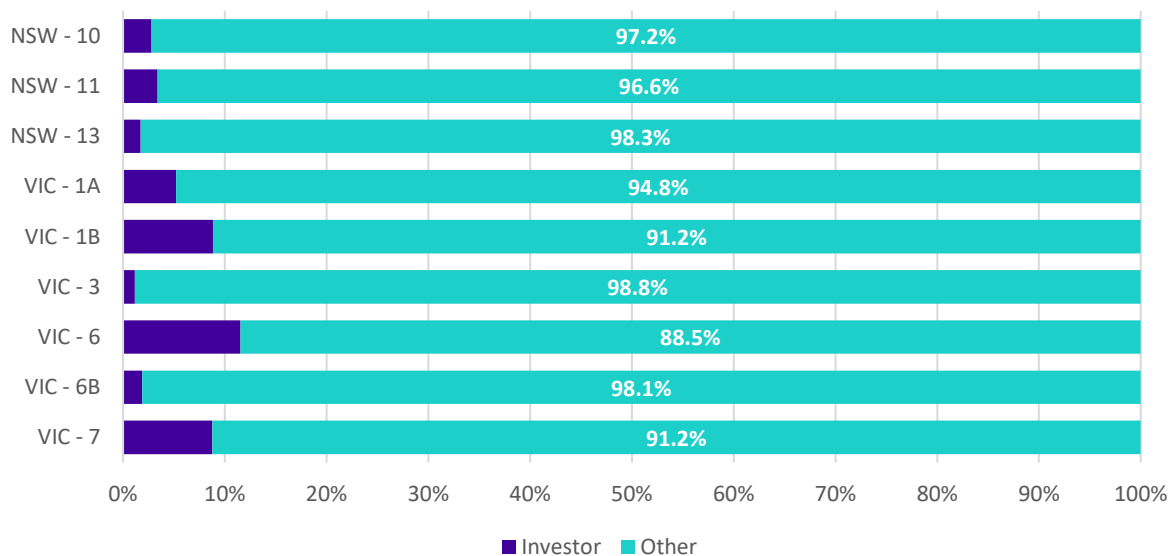
Figures 5.3 and 5.4 include environmental water holdings. The four investors' share of high security entitlements in the consumptive pool is higher than these figures would indicate.

Figure 5.3: Investor high security entitlements as a proportion of total entitlements on issue, by trading zone, 30 June 2019



Source: ACCC analysis of South Australian and Victorian Governments' responses to voluntary information requests, WaterNSW and s. 95ZK responses. Provisional estimates.

Figure 5.4: Investor low/general security entitlements as a proportion of total entitlements on issue, by trading zone, 30 June 2019

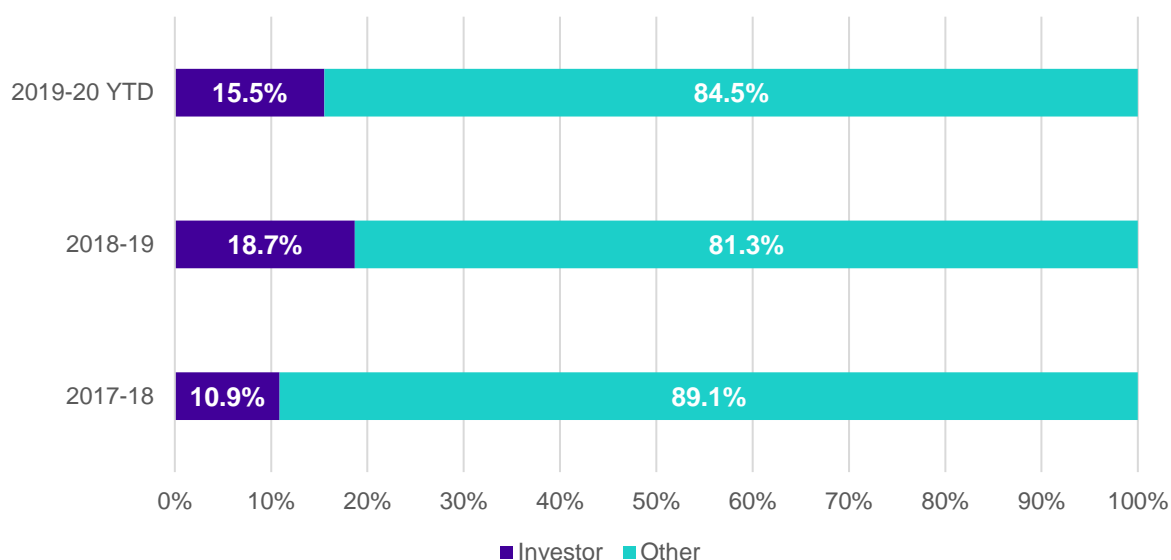


Source: ACCC analysis of South Australian and Victorian Governments' responses to voluntary information requests, WaterNSW and s. 95ZK responses. Provisional estimates.

Figures 5.5 and 5.6 present the four investors' shares of the volume of Southern Connected Basin allocation trade-out and trade-in respectively, excluding zero dollar trades. The ACCC has found that large water movements by environmental water holders and internal transfers between a party's own accounts are commonly recorded as zero dollar trades. By excluding zero dollar trades, the ACCC aims to exclude such transactions from the analysis and to better identify commercial trades between distinct buyers and sellers. However, the ACCC notes that this is still an imperfect measure of commercial allocation trading activity, and does not reliably distinguish between allocation sales, deliveries on lease and forward contracts, and deliveries for carryover parking purposes.

Figure 5.5 shows that the four investors collectively represented 11 per cent of non-zero dollar trade-out in 2017-18, 19 per cent in 2018-19 and 16 per cent in the first half of 2019-20. The extent of the investors' allocation trade-out in the Southern Connected Basin is significantly greater than their entitlement holdings would suggest. This is partly because, unlike investors, a large number of other entitlement holders do not frequently sell water allocations. This is also partly because some investors purchase allocations for resupply.

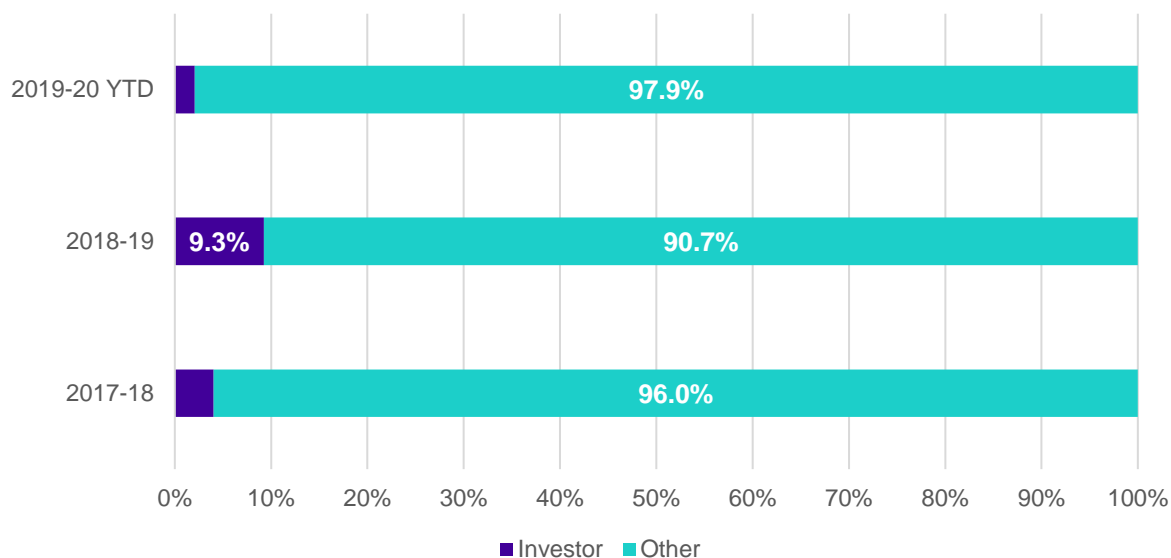
Figure 5.5: Investors' share of non-zero dollar allocation trade-out volume by year, Southern Connected Basin



Source: ACCC analysis based on South Australian, Victoria and New South Wales Governments' responses to voluntary information requests and s. 95ZK responses. Provisional estimates. YTD refers to July to November 2019. Excludes zero dollar trades.

Figure 5.6 shows that the four investors collectively represented 4 per cent of non-zero dollar trades-in in 2017-18, 9 per cent in 2018-19 and 2 per cent in the first half of 2019-20. The ACCC considers that the investors still comprised a significant proportion of allocation trade-in in 2018-19, when considering investors also had access to seasonal allocations assigned to their underlying entitlement holdings. However, there is considerable variance in the scale of allocation trade-in between different investors, with one of the investors accounting for the majority of investor allocation trade-in in each of the presented water years.

Figure 5.6: Investors' share of non-zero dollar trade-in volume by year, Southern Connected Basin



Source: ACCC analysis based on South Australian, Victoria and New South Wales Governments' responses to voluntary information requests and s. 95ZK responses. Provisional estimates. YTD refers to July to November 2019. Excludes zero dollar trades.

This analysis shows that the scale of allocation trading activity of particular investors is not necessarily linked to the size of their entitlement holdings, as some investors purchase (and then sell) more allocations than others.

The ACCC is examining the potential market power of the investors. However, the aggregate annual shares of allocation trade in the Southern Connected Basin do not provide a complete or sufficient picture of circumstances where opportunities to exercise market power might arise. To assess this issue, the ACCC is undertaking a more detailed analysis of the four investors' share of allocation trade at particular times and places. The ACCC will report its findings in the final report.

5.6. The inquiry has examined the strategies of four large investors

The four investors have adopted broadly similar investment and trading strategies, primarily deriving capital growth from investment in entitlements and deriving income by supplying water products.

5.6.1. Investors have similar buy-and-hold entitlement strategies

The investors principally pursue buy-and-hold entitlement investment strategies that aim to achieve long-term capital growth and yield. The investors hold greater volumes of high security entitlements than low reliability and general security entitlements, and high security entitlements provide the bulk of large investors' seasonal allocations. Some investors see high security entitlements as providing a superior combination of capital growth and yield, but some investors have also acquired low reliability entitlements for their ability to carry over water.

The investors consider a range of factors when deciding between entitlements to acquire, including:

- the concentrations and types of industries comprising the demand for allocations assigned to the entitlement and their capacity to pay for these allocations

- the transferability of allocations from the entitlement trading zone to other trading zones
- the expected income to be generated from the assigned allocations under the entitlement
- other structural factors, including the reliability of allocations under the entitlement, carryover flexibility and the prevalence of buyers and sellers for the entitlement.

They may adopt target portfolios of specific entitlements or entitlements defined by trading zone, type and/or security class that aim to deliver optimal long-term capital growth and yield.

Although the investors primarily adhere to long term buy-and-hold investment strategies, they would consider selling entitlements from time to time. For instance, some large investors have been able to extract a premium on large parcels of entitlements, and then sought to progressively reacquire the sold volume of entitlements from the market at a cheaper overall price. Some investors may also sell entitlements where they believe specific entitlements are overvalued, or to rebalance their entitlement portfolio against their target portfolio, or to generate cash to pay out redemptions from their clients.

5.6.2. Investors generate income from their entitlements by supplying water products

The investors generate income from their underlying entitlements by offering a range of water market products to irrigators. These products include entitlement leases, forward contracts, spot allocations and carryover parking.

Entitlement leases

Our inquiries have identified two broad forms of entitlement leases:

- A limited term transfer or term transfer lease involves the allocations and other rights of an entitlement, or parcel of entitlements, being directly assigned to the lessee's water accounts. The lessee receives all the benefits and rights of the entitlement and is also liable for its associated costs (like storage fees) during the term of the lease. Such a lease is registered on a state register.
- An allocation transfer lease or entitlement supply agreement which requires the lessor to deliver the seasonal allocation volumes attached to a specified volume of entitlements to the lessee during the term of the lease. Such leases are not registered on a state register. They can reduce counterparty risk for the lessor, as allocation transfers may be withheld until lease payments are received.

Entitlement leasing is a key income stream for investors as it provides a predictable source of medium to long-term income. Some investors target an annual lease fee based on a percentage of entitlement value. Investors commonly offer three to five-year lease terms exclusive of renewal options.

As at 1 July 2019, the investors had between 40 and 80 per cent of the volume of their high reliability entitlements committed to leases for the 2019–20 water year. Some investors have significantly increased their lease commitments compared to previous water years.

With entitlement leases the investor (as the lessor) does not bear the effects of seasonal allocation variability (allocation risk) as the lease is not tied to a specific volume of water. Instead, the lessee bears allocation risk under a lease.

Forward contracts

In contrast to entitlement leases, forward contracts shift allocation risk to the selling party. Investors can supply water under a forward contract from allocations assigned under their own entitlements and/or by purchasing water allocations. Investors supplying under forward contracts are exposed to the risk of seasonal allocations being below expectations. Investors can also be exposed to an associated price risk if they need to purchase water to meet forward contract commitments, as allocation prices could have increased by the time the water is to be supplied.

Some investors mitigate their allocation and price risks by carrying over allocations or by purchasing allocations beforehand to service forward contract commitments.

Investors charge forward prices at a premium to the prevailing spot price at the time of agreement. In the case of multi-year forward contracts, some investors also require a sufficient premium to the prevailing lease rate, and at times require a premium to annual forward contracts.

Spot allocation sales

The investors adopt different spot allocation selling strategies with respect to the timing of sales. Some adopt a more passive approach of selling down their expected annual allocations in a linear manner, with roughly equal volumes of monthly spot allocation sales during the water year. Some investors time the market in a general sense by targeting their allocation sales to times of high seasonal demand. In timing the market, some investors specifically account for the seasonal water usage profiles of regional agricultural industries. Some investors have occasionally suspended spot allocation sales on the basis that spot allocation prices were likely to increase in the short-term, or to retain flexibility to capitalise on sudden increases in allocation prices. Some investors adopt price and/or volume targets to direct their allocation trade.

In addition, the investors internally transfer allocations between their water accounts to move some allocations to the trading zones with a higher price prior to sale. This can involve moving water between different trading zones separated by the Barmah Choke or the Murrumbidgee and Goulburn inter-valley trade restrictions.

Carryover parking

Carryover parking involves the renting of carryover capacity to a counterparty. In practice, this involves receiving a volume of allocations from the counterparty prior to the end of a water year and returning the net allocations to the counterparty after the start of the next water year.²³⁸ The provider of carryover capacity receives a fee for this service. Carryover renting fees commonly represent less than 5 per cent of net annual income for some large investors.

Carryover parking activities are distinct from the carryover strategies of the investors. As a result, the data on large investors' use of carryover capacity can overstate their use of carryover to accumulate allocations as it does not distinguish where carryover capacity is used to provide carryover parking services.

²³⁸ In Victoria, 5 per cent of the volume carried over is forfeited to account for evaporation losses. New South Wales and South Australia's carryover rules do not provide for a similar adjustment of carryover volumes and the transferor will take back the full volume of water transferred to the investor. See section 12.4 and 13.3 for more detail on carryover arrangements.

5.6.3. The investors have different approaches to purchasing allocations

The investors adopt very different strategies regarding allocation purchases.

As indicated above, some of the investors purchase allocations to meet their forward contract commitments, either to cover unplanned shortfalls in allocation holdings or as part of a deliberate forward contract strategy. Some will also purchase allocations in wet years to carry over into future dry years for sale.

Other investors actively purchase and sell allocations on the spot market as part of an active trading strategy. This may involve the buying and selling of allocations to capitalise on opportunities in the fragmented water markets. It may also involve the purchasing and holding of allocations before reselling in periods of expected short-term higher demand to derive profit. One investor has been a particularly active purchaser of allocations, especially in 2018–19, as set out in the analysis below.

5.7. The ACCC is examining the temporary water allocation trading activities of the four investors

The ACCC is currently undertaking a review of the allocation trading activities of the four investors for the 2017–18, 2018–19 and 2019–20 (year-to-date) water years. Over the past three years, all of the investors have engaged in temporary allocation trading to some degree.

5.7.1. The highly fragmented nature of trading information in the Murray–Darling Basin makes effective market oversight difficult

Information on trading activity in the Murray–Darling Basin is highly fragmented. Each of the Basin States maintain their own registers of water trading activity. Furthermore, trades with an IIO network do not disclose the identity of the counterparty and trades within an IIO network do not appear on the state registers at all. This creates potentially significant data gaps when water moves from one system to another. Similarly, it is not always possible to identify the counterparty to interstate trades from one state's register.

To review the trading activities of the investors in the Southern Connected Basin, the ACCC compiled state registry data provided by the New South Wales, Victorian and South Australian state governments, data obtained from IIOs and further information obtained compulsorily from the investors.

Based on the ACCC's experience in the inquiry, it is not possible to ascertain with certainty the conduct or trading patterns of market participants from a single source of information.

The state registers do not distinguish between the various sub-categories of trade, such as sales and purchases of allocation, trades under a lease or forward agreement, and trades under a carryover parking arrangement, which can distort interpretation of transaction prices. It also makes it difficult to clearly identify spot market activities and therefore analyse the conduct of market participants. To address this issue, the ACCC has obtained additional information from the investors in order to identify the different sub-categories of trade.

Furthermore, while the state registers provide an accurate record of account and trade volumes, they do not necessarily reflect the actual price paid. This may be a result of diverging data collection approaches between the various states²³⁹ and different practices towards reporting the prices of various types of trades by market participants.²⁴⁰ As discussed in section 10.3.1, the ACCC considers there are a number of legitimate reasons for zero dollar trades, such as where a water holder is moving water between zones (either on its own accounts or through a broker's) or where allocation is traded under a 'wet' entitlement sale. The ACCC has observed a large number of trades of temporary allocations with a reported price of zero dollars, or an uncommercial value in the State Registry data. The four investors, for example, trade large volumes of water between their accounts, or via a broker, for zero dollar prices.

The current information and data collection arrangements make analysis of market participants' trading behaviour difficult, time consuming and resource intensive. Better data collection and coordination across Basin States would be central to effective market oversight.

5.7.2. The ACCC has examined the trading activities of the investors in Victoria in the 2018–19 water year

The ACCC has observed that since 1 July 2017, the investors have conducted the majority of their water allocation trading activities in Victoria. Significant trading activity took place in the 2018–19 water year and many concerns raised by stakeholders related to trading activity in that year. For these reasons, the ACCC has focused its initial review on trading activities in Victoria in 2018–19 for the interim report. However, the ACCC notes that the 2018–19 water year is not necessarily representative of past and future seasons.

The ACCC intends to conduct an in-depth analysis of New South Wales and South Australian trading activity (including trades within IIO networks) for the final report.

Methodology

In conducting this initial review the ACCC has analysed the water allocations held by the investors in their Victorian Allocation Bank Accounts (ABAs) for the purpose of trading water market products.²⁴¹ Trading activity recorded on the register has been combined with investors' internal trading records to allow the ACCC to more accurately classify the various types of trades. The figures aggregate the trading data of the four investors.

The ACCC has excluded internal transfers between an investor's own Victorian accounts and \$0 trades with water brokers for the purposes of trading water between zones in Victoria from the figures below. These have been excluded on the basis that they do not represent a disposal or acquisition of water because ownership of the allocation remains with the investor, and would misrepresent the volume of water actually traded by investors in Victoria.

²³⁹ The Victorian and South Australian Registers record price on the basis of the total transaction value divided by the quantity traded; the New South Wales Register records price on a per ML basis.

- Vic: Form 39
- NSW: Form 71 for surface water assignment
- SA: Form A1

²⁴⁰ Market participants have indicated that they report the value of certain trade differently to the Register, in particular regarding leases and forwards.

²⁴¹ Water acquired for agricultural purposes is excluded from the analysis.

The ACCC has classified the various types of activities in the investors' Victorian ABAs as follows:

- seasonal allocation: temporary allocation received through an investor's entitlement holdings
- allocation sale/purchase: a trade of temporary allocation to or from a third party for consideration
- trade under a lease: a trade pursuant to an arrangement under which the investor passes any water received against its leased entitlements to the lessee
- forward water: a trade pursuant to an arrangement under which the investor supplies an agreed volume of temporary allocation to the buyer on an agreed date
- interstate transfers: a trade between an investor's account in one state to a different account owned by the same investor in another state
- carryover parking: temporary allocation transferred to an investor at the end of a water year to be stored against the investor's entitlements, which is then returned to the client after the beginning of the following water year
- carryover: unused temporary allocation stored for trade in the following season(s). Note that the carryover volume includes both the investors' own water as well as water held under a carryover parking arrangement
- settlement allocation: temporary allocation associated with the sale or purchase of a 'wet' entitlement (an entitlement purchases or sold with its allocation for that water year).

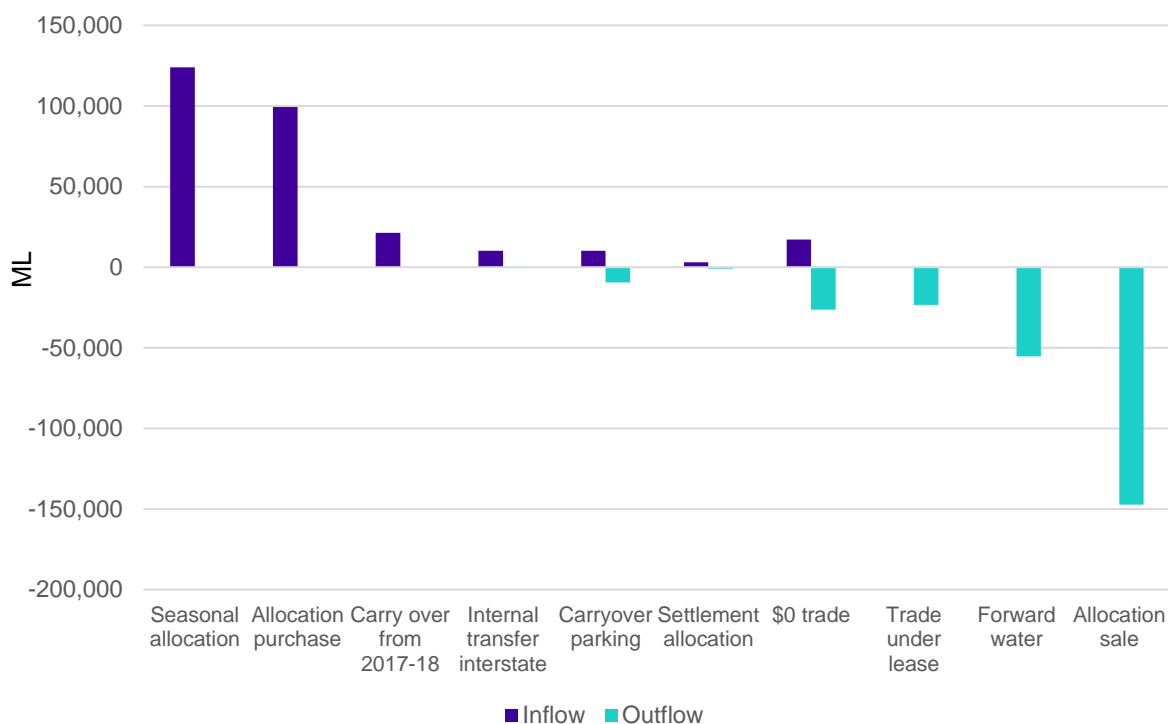
The analysis includes a category called '\$0 trade'. This category includes water donations and a range of transactions that the ACCC has been unable to classify at this stage. Those transactions broadly relate to interstate trades with IIOs, trades to other entities within the investor's group and trades with third parties for a reported price of zero dollars. Some of these trades may relate to leases or settlement allocations. The ACCC will seek to identify the nature of the transactions for the final report.

The analysis in this section of the report is primarily concerned with allocation trading activity. Certain types of trading activity, such as Limited Term Transfers or Term Transfers under which the lessee obtains possession of the underlying entitlement, do not involve a trade of allocation and are not represented in the following analysis.

Investor trades in Victoria for 2018–19 water year

Figure 5.7 shows the seasonal allocation, carryover and different types of trading activities in the investors' trading accounts in 2018–19.

Figure 5.7: Seasonal allocations, carryover and types of trading activity undertaken by the investors, Victoria, 2018–19

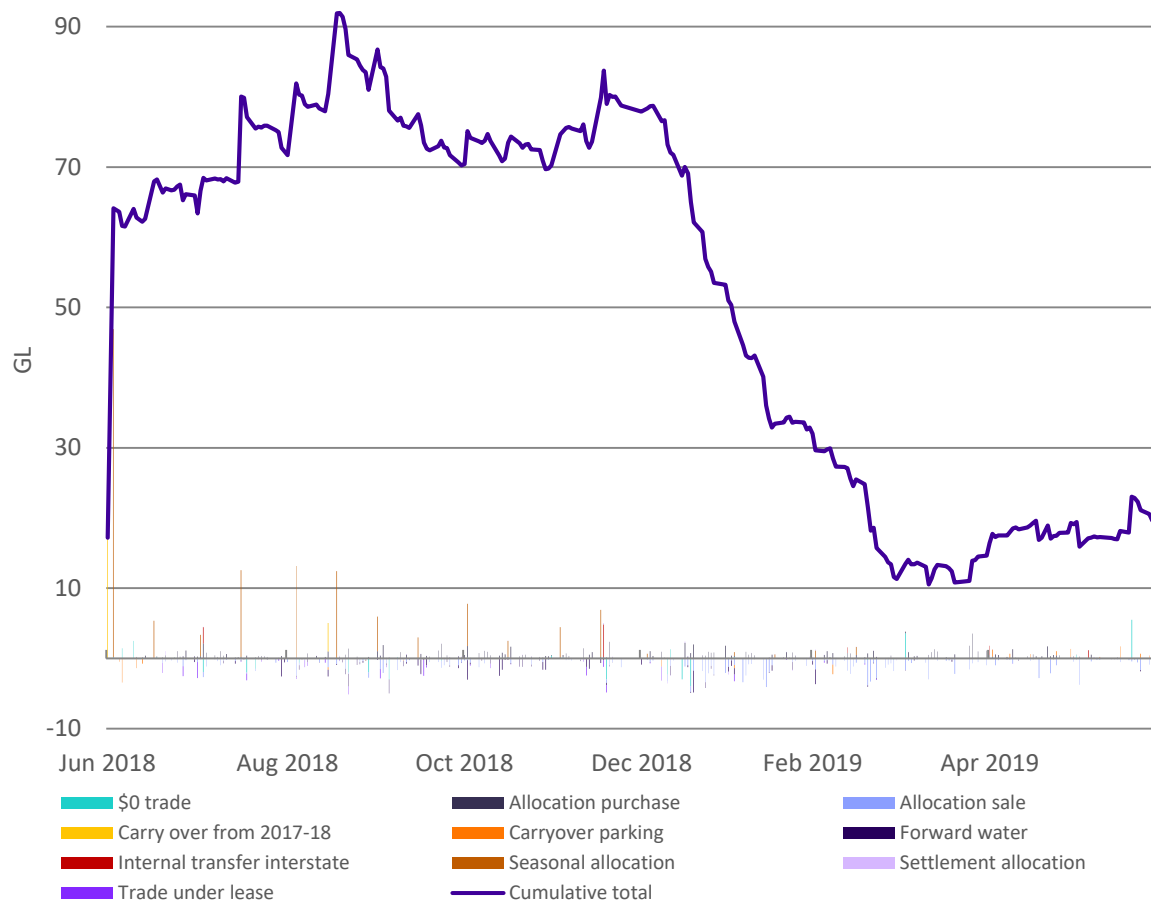


Source: ACCC analysis of Victorian Government’s response to a voluntary information request and s. 95ZK responses.

The data confirms that the investors offer a range of water products to the market. In 2018–19, the investors sold approximately 147 GL of water on the spot market and traded approximately 79 GL for the purpose of fulfilling a lease or forward water agreement. The investors returned approximately 9.5 GL to irrigators for carryover parking from the 2017–18 water year (shown as the carryover parking outflow above), and received 10.1 GL from irrigators to carry over into the 2019–20 water year (shown as the carryover parking inflow above). The ACCC estimates that approximately 44 per cent of the volume of water carried over by the investors into the 2019–20 water year was for the purpose of providing these carryover parking services to irrigators.

Figure 5.8 shows the cumulative water allocations held by the investors in Victoria over the course of the 2018–19 water year.

Figure 5.8: Investors' cumulative volume of water allocation held, Victoria, 2018–19



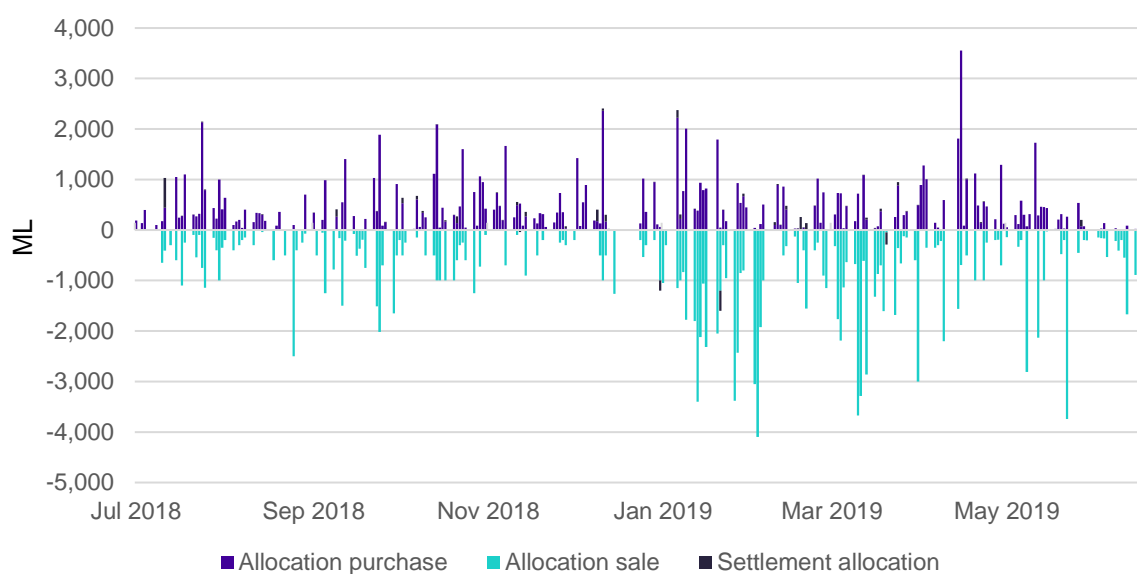
Source: ACCC analysis of Victorian Government's response to a voluntary information request and s. 95ZK responses.

Figure 5.8 shows that the investors received a significant portion of their water through seasonal allocations at the start of the water year. The ACCC has observed that in 2018–19, some investors began to reduce their overall water allocation holdings in Victoria from September-October 2018, while others began to substantially reduce their overall Victorian water allocation holdings from January 2019.

Approximately 87 per cent of the volume of all investor spot allocation purchases and 66 per cent of the volume of all investor spot allocation sales are attributed to one investor. The ACCC has observed that this investor was a very active participant in the water market in Victoria in the 2018–19 water year. It purchased a significant number of small parcels of water through a range of different platforms on a continuous basis and sold water back into the market in larger parcels. This investor's temporary allocation trading activity is unlike the other three investors. Its trading activity meant that it sharply increased the water allocations held in its Victorian accounts in the first half of the 2018–19 water year. The ACCC has observed that in the first half of the 2019–20 water year, this investor has not been as active in trading temporary allocation water as it was in the prior water year.

Figure 5.9 shows the purchases and sales by the investors in the 2018–19 water year for Victoria. The chart further illustrates continual purchasing activity throughout the year with increased sales activity in the summer months.

Figure 5.9: Investors' purchases and sales, Victoria, 2018–19



Source: ACCC analysis of Victorian Government's response to a voluntary information request and s. 95ZK responses. Based on daily trade volumes.

Although internal transfers between the investors' ABAs have been excluded from these figures, the volume of trade between the investors' accounts was significant. In 2018–19, the investors moved approximately 70 GL between their trading ABAs, either directly, or with the assistance of a broker. Of that, the investors transferred approximately 52 GL of their water to Zone 7 (Victoria Murray–Barmah Choke to South Australia Border).

The data indicates that the investors have also conducted water allocation trading in New South Wales and to IIO networks. The four investors have collectively undertaken limited trading activity on their accounts in South Australia. For the final report, the ACCC intends to further examine water allocation trading in New South Wales and the trade of irrigation rights by the investors.

The ACCC is continuing to investigate the specific allegations it has received about investors' conduct and any impact of their trading activities on market prices and the efficiency of the market. The ACCC will report on its findings in the final report.

Questions for stakeholders

- What types of water investors participate in Murray-Darling Basin water markets?
- What are the investment objectives and strategies of small water investors?
- What are the investment objectives and strategies of water investors that participate in the water market by buying and selling water allocations but do not own entitlements?
- What are the investment objectives and strategies of irrigators that buy and sell water allocations for profit, alongside their farming operations?
- What are the investment strategies adopted by retired irrigators who have retained their water access entitlements?

6. Water broker roles, practices and conduct

Key Points

- Brokers play an important role in water markets and provide a diverse range of services.
- Broker's roles are often unclear as contracts will often not set out the obligations brokers owe to their clients and it is uncommon for fiduciary duties to arise within this relationship.
- The interests of a broker can diverge from those of its client, including when brokers provide services to both parties in a trade or take a personal position in a trade.
- The ACCC's preliminary view is that a robust regulatory framework is required to establish protections for brokers and their clients, in the form of statutory trust accounts and an obligation that broker's hold professional indemnity insurance.
- Brokers have an advantage in water trading and information asymmetries exist between brokers and water market participants.
- Some market participants rely on brokers for market information and advice and there is the opportunity and incentive for brokers to provide incomplete or misleading information to increase the price or volume of a trade, and to increase the market price of a water right.
- Some brokers are developing strategies for inter-valley trades (IVTs) that may raise transparency, equality of access and competition issues.
- The ACCC's preliminary view is that substantial additional broker regulation is required.

6.1. Introduction

The ACCC has received feedback from market participants raising concerns about broker conduct and calling for increased regulation of water brokers, including from brokers themselves. The ACCC is of the view that there is a strong basis for these concerns due to the lack of obligations brokers owe to their clients and inadequate regulatory oversight of broker practices in a variety of contexts. Without appropriate regulatory safeguards which apply to intermediaries in other markets such as real estate agents, stock brokers and stock and station agents²⁴², there are opportunities and incentives for brokers to exploit the market with no consequences. These concerns undermine confidence and trust in brokers and the practices they engage in, which reduces confidence in the market and perceptions of market integrity and fairness, inhibiting full participation by parties that would otherwise have had incentives to engage in trade. If trades that would benefit buyers and sellers of water rights do not occur due to a lack of confidence in intermediaries then water rights are not traded to their highest value use. In these circumstances incentives for investment to be directed to the most productive industries are distorted and efficient economic outcomes in the water and related markets are not achieved. As a result, Australians fail to realise the welfare benefits of water resources being used to achieve their highest value.

²⁴² *The Property and Stock Agents Act 2002* (NSW) refers to 'stock and station agents' and this phrase will be used throughout this chapter. Terminology differs across states. For example, in Victoria these agents are referred to as 'livestock agents'.

6.1.1. Brokers play an important role in water markets

The ACCC is using the term ‘water broker’ to refer to a water market intermediary who, for a commission or fee or other form of remuneration or payment, offers one or more of the following services:²⁴³

- providing advice to clients regarding the trading of water rights
- trading tradeable water rights on behalf of another person
- investigating tradeable water right trading possibilities on behalf of another person
- preparing and submitting documents necessary for the trade of a tradeable water right on behalf of another person.

Brokers assist potential buyers and sellers to assess the market, form price expectations, and make decisions in the market. As discussed in section 8.3.1, brokers provide this advice to their clients based on their access to information and ongoing analysis of water markets. Water market participants can trade independently of brokers, for example with their neighbours or through another organisation acting as an intermediary, including exchanges and online trading platforms.²⁴⁴ While brokers investigate trading options for their clients, water exchanges operate as a trading platform matching buyers and sellers through an automated process or bulletin board. Water exchanges can also offer similar services to brokers such as organising and submitting the necessary paperwork to the relevant trade approval authority. In some cases, an entity will offer both brokerage and exchange services. While this chapter briefly discusses exchanges, chapter 8 and appendix B explore the roles and functions of exchanges in more depth.

By bringing together multiple potential traders including irrigators, intermediaries can contribute to increased market liquidity and depth, reduce searching costs, improve information availability and otherwise reduce transaction costs associated with water trade. In short, competitive and competent water market intermediaries can make a substantial contribution to the development of efficient water markets.²⁴⁵

Given that the ACCC has been advised by market participants that brokered trades are less common in the Northern Murray–Darling Basin (Northern Basin)²⁴⁶, this chapter largely refers to brokers who trade in the Southern Murray–Darling Basin (Southern Basin).

6.1.2. Brokers offer a diverse range of services

As the market for water brokerage services has matured, brokers have diversified their service offerings and perform some or all of the services outlined above.

The diversity in brokerage services is also reflected in the ways brokers charge clients for their services. Refer to appendix C for further details regarding broker and exchange fees. Brokers charge parties to the trade (in some instances the broker will charge the buyer and seller) by a percentage commission based on the total value of a trade or a flat fee per megalitre (ML), or a combination of these, and these charges vary according to a range of factors. Brokerage firms may, for example, provide their brokers (employees and

²⁴³ This definition of ‘water broker’ aligns with sub-clauses a to c of the definition of ‘water market intermediary’ in the Basin Plan 2012, s. 1.07.

²⁴⁴ Some of the larger exchanges include H2OX, Waterpool and Waterexchange.

²⁴⁵ ACCC, *Water market intermediaries: industry developments and practices*, December 2010, Canberra, p. 2, at: www.accc.gov.au/system/files/Water%20market%20intermediaries%20-%20industry%20developments%20and%20practices_0.pdf, viewed 26 June 2020.

²⁴⁶ The ACCC was informed by stakeholders at the ACCC Murray–Darling Basin inquiry, St George public forum that there are proportionately less brokered trades in the Northern Basin than the Southern Basin. At the ACCC Murray–Darling Basin inquiry, Narrabri public forum stakeholders noted that there were just a few brokers that provided brokerage services in that area. However, the ACCC will seek to verify these claims independently.

contractors) with guidance as to the percentage of commission they can charge their clients (setting a maximum and minimum charge) for temporary and permanent trades.²⁴⁷

Commission can be tailored depending on the volume of the trade; whether the client is a buyer or seller, and the product and region in which the trade is located. When considering offering a commission outside the standard rate, brokers have regard to the competitive context, the complexity of the trade, the relationships involved and the uniqueness of the trade. Some brokers offer clients a tiered commission rate for large volumes of trade.

Some intermediaries have acknowledged there is potential for a circumstance to arise where their interests are incompatible with that of their clients, where commissions are related to the price of the water right, and have taken steps to shift away from this model towards a flat fee (for example, \$2/ML excl. GST).²⁴⁸

With the exception of trades of irrigation rights and water delivery rights that are internal to an irrigation infrastructure operator's (IIO's) irrigation networks (which require IIO approval), all trades of tradeable water rights require approval (and/or registration) by state government approval authorities.²⁴⁹ Therefore, while an intermediary will match buyers and sellers and provide services for some aspects of the settlement process (for example, submitting trade application forms to the relevant approval authority and arranging payments), a trade will still be subject to obtaining the appropriate approvals. Some IIOs also provide brokerage services or operate online exchanges or trading platforms. Concerns that have been raised about IIOs operating trading platforms or offering brokerage services, while acting as an approval authority are discussed at section 6.10 of this chapter.

6.1.3. Brokers compete strongly for clients

It is difficult to establish the exact number of water brokers currently operating in the market as there is no formal registration process, and some water brokers provide water brokerage services as a sideline to other activities, such as real estate. The ACCC has identified approximately 80 brokerage firms that operate in the Murray–Darling Basin (Basin) with some firms having multiple employees and/or contractors engaged in brokerage services.²⁵⁰

It is unclear exactly what proportion of trades conducted in the Basin are facilitated in some way by a broker. A 2009 ACCC report noted that, 'it has been estimated that between 80 to 90 per cent of trades are facilitated by intermediaries, but this figure can be expected to vary throughout the MDB.'²⁵¹ Data from 2015 indicates that approximately 82 per cent of irrigators within the Basin used an intermediary to facilitate the trade of a water right.²⁵² The ACCC also understands that in 2018–19 around 76 per cent of trades in Northern Victoria were lodged through the Victorian online Broker Portal.²⁵³ What is clear is that the use of intermediaries across the Southern Basin is widespread. Currently, some of the larger water brokers operating within the Basin include Elders, Ruralco Water Brokers, Waterfind, Wilks Water, National Water Brokers and Integra Water Services. Table 6.1 shows the share of the top 5 brokers and exchanges in Victoria in 2018–19 (by number of allocation trades).

²⁴⁷ For example, for temporary trades there can be a high rate (per cent commission or \$/ML (whichever is greater), a standard rate and a low rate.

²⁴⁸ H2OX 2018, New Exchange Fee, H2OX Australia, at <https://h2ox.com/new-exchange-fee/>, viewed 6 May 2020.

²⁴⁹ Internal trades of irrigation rights and water delivery rights require the approval of the relevant IIO, and trades of water access rights to or from an IIO's entitlement require the approval of both the relevant IIO and the relevant Basin State approval authorities.

²⁵⁰ This number does not include exchanges, or government agencies, such as Environmental Water Holders.

²⁵¹ ACCC, *Water Trading Rules*, issues paper, Canberra, 2009 p. 60, at www.accc.gov.au/system/files/Water%20trading%20rules%20issues%20paper.pdf, viewed 12 June 2020.

²⁵² S Wheeler and others, *Water market literature review and empirical analysis*, Consultant report prepared for the ACCC Water Market inquiry, 2020, p 116. The data is drawn from table 6.12 of the draft report and is based on the Centre for Global Food and Resources, University of Adelaide, survey data from 2015. However, note that this refers to intermediaries and therefore includes exchanges.

²⁵³ Victorian Government, Submission to the Murray–Darling Basin inquiry, February 2020, p. 3.

Table 6.1: Derived market share of Victorian total allocation trade, 2018–19 (by number of trades)

Broker or Exchange	Derived market share of Victorian total allocation trade, 2018–19 (by No. trades)
A	28.8%
B	10.1%
C	6.8%
D	6.1%
E	4.9%
Total	56.7%

Source: ACCC analysis on Victoria response to voluntary information request.

While there appears to be a moderate level of concentration in the market for brokerage services in Victoria, the ACCC has observed water brokers engaging in highly competitive strategies across the Basin and understands that brokers' shares of trades in water markets varies between regions and products.²⁵⁴ For example, brokerage firms regularly examine aspects of their businesses to assess their ongoing competitiveness including ongoing analysis of competitors' pricing strategies and structures to further develop their own strategies and prices. Additionally, broker's employ a range of direct sales methods to seek to win clients, including strategies that involve regular contacts to market participants. The ACCC has also found evidence that brokers compete very strongly for large clients in their marketing and pricing strategies.

6.2. Brokers are subject to limited regulation

Brokers are subject to few specific legislative obligations.

Like other businesses, water brokers, must comply with the *Competition and Consumer Act 2010* (the CCA), which incorporates the Australian Consumer Law (ACL).²⁵⁵ Businesses, including water brokers, are prohibited by the ACL from:

- engaging in misleading or deceptive conduct, or conduct that is likely to mislead or deceive²⁵⁶
- making particular kinds of false or misleading representations in connection with the supply or acquisition of services, including making false or misleading representations about the quality, value or price of services²⁵⁷

²⁵⁴ There may be certain geographic areas or systems where competition is lower (for example, groundwater systems generally, or surface water systems in the Northern Basin).

²⁵⁵ The Australian Consumer Law (ACL) consists of Schedule 2 of the CCA and regulations under s. 139G of the CCA. The ACL applies as a law of the Commonwealth, and as a law of each State or Territory by separate jurisdictional application acts. The provisions of the ACL most relevant to Water Brokers are discussed in ACCC, *Water trading—a guide to your fair trading rights when using brokers and exchanges*, Canberra, 2011, at <https://www.accc.gov.au/system/files/Water%20trading%20-%20a%20guide%20to%20your%20rights.pdf>, viewed 12 June 2020.

²⁵⁶ s. 18 of the ACL.

²⁵⁷ s. 29 of the ACL.

- accepting payment for services where they do not intend to supply the services, intend to supply materially different services or are aware of reasonable grounds for believing that they will not be able to supply the services within the relevant time²⁵⁸
- engaging in conduct in relation to the supply or acquisition of services that is, in all the circumstances, unconscionable²⁵⁹
- using physical force or undue harassment or coercion in connection with the supply of services or the payment for services.²⁶⁰

Under the ACL, a term of a standard form 'small business contract' is void if the term is 'unfair', within the meaning of the ACL.²⁶¹

Services supplied to consumers are also subject to the statutory guarantees set out in the ACL, including that the services will be provided with due care and skill.²⁶² A person (including a corporation) who pays less than \$40 000 for the services will be a 'consumer' in this context.²⁶³

The CCA prohibits anti-competitive conduct, such as contracts, arrangements, understandings or concerted practices that have the purpose, effect or likely effect of substantially lessening competition in a market²⁶⁴, cartel behaviour²⁶⁵, and the misuse of market power.²⁶⁶

Although the ACCC recognises that the ACL, and the CCA more broadly, includes provisions that can be applied to regulate some broker conduct, most of the concerns raised in stakeholders' submissions to the inquiry relate to broader issues that are not covered by these provisions. This chapter focuses on broader concerns surrounding broker roles and conduct, the absence of clear, positive obligations regarding the provision of brokerage services and the lack of oversight of broker conduct.

The ACCC has in recent years received two complaints alleging a broker has engaged in forgery and fraudulent practices. The issue of theft and fraud has also been raised in a 2010 ACCC report regarding the water market intermediaries. This report noted that while the criminal law should deter these practices, further measures could be taken to reduce the opportunity for brokers to engage in such practices and to protect their clients, including the introduction of an industry-wide fidelity fund, a requirement for brokers to use audited trust accounts, and to have professional indemnity insurance.²⁶⁷ A subsequent report identified that fraud and theft by water brokers should be safeguarded against by the introduction of an industry-led regulation scheme or, where this did not develop, 'the Australian Government should regulate water market intermediaries. State referrals would be necessary to give effect to Basin-wide or national regulation.'²⁶⁸ While theft and fraud are regulated by the

²⁵⁸ s. 36 of the ACL.

²⁵⁹ ss. 21–22 of the ACL.

²⁶⁰ s. 50 of the ACL.

²⁶¹ s. 23 of the ACL. A 'small business contract' for this purpose is a contract where if one party employs fewer than 20 persons and either (i) the upfront price does not exceed \$300 000, or (ii) the contract duration is more than 12 months and the price does not exceed \$1 million.

²⁶² s. 50 of the ACL.

²⁶³ s. 3 of the ACL.

²⁶⁴ s. 45 of the CCA.

²⁶⁵ Relevant sections regarding cartel conduct are 45AA; 45AF; s45AG; s45AJ and s. 45AK of the CCA.

²⁶⁶ s. 46 of the CCA prohibits the misuse of market power and provides that a business with a substantial degree of power in a market is not allowed to engage in conduct that has the purpose, effect or likely effect of substantially lessening competition in a market.

²⁶⁷ ACCC, 2010, op. cit., pp. 31–37.

²⁶⁸ Commonwealth of Australia, 2014 *Report of the Independent Review of the Water Act 2007*, Commonwealth of Australia, Canberra, November, p. 54, at <https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/water/independent-review-water-act-2007.pdf>, viewed 26 June 2020.

criminal law, the issues set out in this chapter coupled with those set out in section 10.2.3, regarding transparency and market integrity and section 11.1 regarding the need to improve regulatory oversight, highlight that without clear obligations on brokers towards their clients, enforcement of those obligations and greater transparency across the water market, there will be opportunity for brokers to engage in fraud and related practices. Regulatory measures regarding management of client funds to address fraudulent conduct and related misconduct are discussed in section 6.6 of this chapter.

Brokers who offer products or services that are financial products or services, such as advice on water derivatives, have additional obligations under the *Australian Securities and Investments Commission Act 2001* (Cth) (the ASIC Act) and the *Corporations Act 2001* (Cth) (the Corporations Act). This is discussed further in chapter 7.

6.2.1. The Australian Water Brokers Association's voluntary code of conduct

The Australian Water Brokers Association (AWBA) is the industry association that represents water brokers. Members agree to comply with the voluntary industry AWBA code of conduct which seeks to regulate the conduct of brokers and intermediaries. The code does address some of the client-facing conduct discussed in this chapter, such as the broker's obligation to disclose a conflict of interest or that a broker's promotional material must not contain false or misleading statements.²⁶⁹ However, its capacity to achieve compliance across the industry is limited given it has only been voluntarily adopted by 29 full members and 10 provisional members.²⁷⁰ Concerns have also been raised by water market intermediaries that there is no confidence in the voluntary code and the AWBA.²⁷¹ It is clear from the concern expressed to the ACCC at public forums²⁷² and in submissions that the industry is not satisfied the voluntary code has capacity to effectively regulate broker conduct.

The AWBA's own submission highlighted the limitations of the code. It stated, '...we are acutely aware that not all entities who act as water market intermediaries are members of the AWBA. As such the AWBA would welcome government regulation that applies to any entity that lodge water trades on behalf of clients.' The AWBA's submission notes their preferred model of regulation is a licencing and registration system for water market intermediaries, administered by the states. Each licenced entity would register their employee and contracted brokers, who must adhere to an industry wide code of conduct. The AWBA further propose that if Victoria, New South Wales and South Australia agreed to participate in a common broker portal, mirroring the current Victorian Broker Portal, the licencing and registration of brokers would be administered by that entity.²⁷³

6.2.2. Market participants call for broker regulation

A significant number of market participants, including intermediaries, have called for further regulation of brokers. At the ACCC Murray–Darling Basin inquiry, Renmark public forum stakeholders argued mandatory broker registration or licencing that implemented standards of professionalism and ethics is needed to increase confidence in broker conduct and water markets more generally. A brokerage firm has argued that, 'Registration of brokers with state

²⁶⁹ Australian Water Brokers Association, Submission to the ACCC Murray–Darling Basin inquiry, January 2020.

²⁷⁰ Provisional AWBA members are in training to become water brokers and do not have AWBA voting rights. Of the individual AWBA members, some are employed by brokerage firms who employ multiple brokers and/or engage contractors. Although the AWBA's constitution does not at the time of writing enable it to offer company-level membership, companies are offered affiliate membership and there are currently five affiliate members. Therefore, AWBA members reflect a small percentage of individual brokers who operate in the market.

²⁷¹ H2OX, Submission to the Murray–Darling Basin inquiry, February 2020, p. 6, 9; Goulburn Murray Irrigation District Water Leadership, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2.

²⁷² This issue was raised at the Murray–Darling Basin inquiry, Deniliquin public forum.

²⁷³ Australian Water Broker's Association, Submission to the Murray–Darling Basin inquiry, January 2020, p. 5.

authorities seems the simplest and cheapest solution, despite possible duplication.²⁷⁴ Another brokerage firm has called for, 'A single national exchange that is a centralised water market platform, providing a licencing and regulatory framework for market participants.'²⁷⁵

6.3. Significant concerns have been raised about broker conduct

Stakeholders have raised issues of concern relating to the role, practices and conduct of water brokers that are capable of impeding the efficient operation of water markets. The ACCC is continuing to analyse the issues discussed in this chapter and invites feedback on the questions raised throughout this chapter.

6.3.1. The majority of issues raised are not covered under existing laws

The ACCC, as part of its ongoing functions, monitors complaints against brokers and other water market intermediaries.²⁷⁶ In recent years, the ACCC has only received a small number of complaints concerning brokers and other water market intermediaries. However, the majority of concerns the ACCC has received about brokers since that time and throughout the inquiry relate to broader conduct issues, rather than potential breaches of the CCA.

6.3.2. Allegations made about brokers

The concerns raised by stakeholders in response to the inquiry can be grouped into (a) concerns between a broker and their client, such as misleading conduct and perceived or real conflicts of interest (client facing issues); and (b) concerns which extend beyond client-facing issues to impact competition in the market more broadly (market-facing issues). While the ACCC acknowledges some of the issues raised as client-facing issues also arise in some of the market-facing issues, these categories are designed to describe the overarching nature of the conduct. A table setting out the key issues raised with the ACCC is below and these issues are discussed this chapter.

²⁷⁴ Key Water, Submission to the Murray–Darling Basin inquiry, January 2020, p. 5.

²⁷⁵ Waterfind, Submission to the Murray–Darling Basin inquiry, January 2020, p. 3.

²⁷⁶ As part of this role, the ACCC published the following guides to explain the rights and obligations of intermediaries and their clients under the ACL and similar state and territory fair trading legislation: ACCC, *Water trading – a guide to your fair trading rights when using brokers and exchanges*, Canberra, 2011, at www.accc.gov.au/system/files/Water%20trading%20-%20a%20guide%20to%20your%20rights.pdf, viewed 12 June 2020; ACCC, *Water trading – an overview*, Canberra, 2011, at www.accc.gov.au/publications/water-trading-an-overview, viewed 12 June 2020; ACCC, *Water broker and exchanges – your fair trading obligations*, Canberra, 2011, at www.accc.gov.au/system/files/Water%20brokers%20and%20exchanges%20-%20your%20fair%20trading%20obligations.pdf, viewed 12 June 2020.

Table 6.2: Table of client-facing and market-facing issues discussed in chapter 6.

Part	Issues	Description
Client-facing issues		
6.4	Unclear role	There is a lack of clarity about the role that brokers play in water transactions and misunderstanding about the obligations they owe to their clients.
6.5	Incompatible interests	Some brokers do not disclose matters that their clients perceive as a conflict of interest, nor seek their client's consent to proceed with the trade. For example, when brokers act for both buyers and sellers, or act as a principal in a trade.
6.6	Client funds are not subject to management obligations	There is currently no regulatory framework to require brokers to establish statutory trust accounts, fidelity or assurance funds or require brokers to obtain professional indemnity insurance, as is the case in other intermediary markets.
6.7	Information asymmetries exist between broker and client	Brokers could use their access to information, their ability to analyse that information, and the reliance on information provided by brokers, to misrepresent the market to their clients to maintain or increase the price and volume of water rights traded.
Market-facing issues		
6.8	Incomplete or misleading information to state registries	Brokers are able to influence the 'market price' of a water right by misrepresenting the price on trade approval applications to signal to the market (via the state register) that the price of a water right is higher than is actually the case.
6.9	Inter-valley trade strategies	<p>Some brokers use strategies when transferring water through inter-valley trade which have raised equality of access and transparency concerns, including:</p> <ul style="list-style-type: none"> • aggregating clients' water rights onto broker held accounts for transfer in one large trade, which closes inter-valley trade openings prematurely in the view of some stakeholders • IT strategies for submitting approval applications to improve the likelihood a trade will be approved. <p>It is also alleged that price differentials between the valleys can be maintained by brokers who use their accounts for inter-valley trading.</p>
6.10	IIO perceived conflicts	Concerns regarding the potential conflict of interest where an IIO has a dual role in providing brokerage services and approving trades.

6.4. Broker's obligations to their clients are generally unclear

Market participants have raised substantial concerns with the ACCC regarding a lack of clarity about the role that brokers play in water transactions and misunderstanding about the obligations they owe to their clients.²⁷⁷

The obligations owed by a broker to their client depend primarily on the terms of their contract, and potentially a range of other circumstances surrounding their dealings. There are no standardised contracts for water brokerage services. It follows that the specific obligations of a broker to their client vary substantially from case to case, causing significant misunderstanding and potential financial detriment to the client where these obligations are not set out in the contract.

Stakeholders have called for brokers to be required to comply with clearly articulated obligations regarding their relationship with their clients.²⁷⁸ This should include the requirement for brokers to set out the obligations they owe to the parties in each transaction. Further details regarding such options are set out in chapter 7.

6.4.1. Establishing a fiduciary relationship

In general terms, a fiduciary relationship is one where one of the parties stands in a position of trust and confidence in relation to the other such that the fiduciary is bound to place the other's interests ahead of his or her own personal interests.

The relationship between agent and principal is often regarded as a fiduciary relationship. However, as set out in the following paragraphs, the existence or otherwise of a fiduciary relationship depends on the circumstances of each case. Despite what market participants might generally assume, it appears that the incidence of a fiduciary relationship arising between a water broker and its client are rare.

While there is no single test to identify a relationship as fiduciary, at its simplest, a fiduciary relationship exists where the circumstances establish that a person has undertaken to act for or in the interests of another person, and not in his or her own, or a third party's interest. Standard categories of relationship have been recognised as fiduciary relationships, including lawyer/client and doctor/patient.

A fiduciary has duties they owe to the other person. A fiduciary may not enter an engagement in which it has or could have a personal interest conflicting with that of his or her principal, nor may a fiduciary gain a profit for him or herself or a third person, without the informed consent of the principal.

The law of fiduciary relationships has developed over time through the courts rather than by legislation. However, most intermediary relationships are subject to industry-specific state and Commonwealth laws²⁷⁹, imposing obligations akin to the obligations of a fiduciary.

²⁷⁷ Australian Water Broker's Association, Submission to the Murray–Darling Basin inquiry, January 2020, p. 6; H2OX, Submission to the Murray–Darling Basin inquiry, February 2020, p. 10.

²⁷⁸ Waterfind, Submission to the Murray–Darling Basin inquiry, January 2020, p. 4. Waterfind supports the introduction of regulation or other obligations that would require brokers to enter into clear, written terms that are agreed with their customers that set out the relationship with the intermediary.

²⁷⁹ For example, the *Property and Stock Agents Act 2002* (NSW) regulates real estate agents, stock and station agents and strata managing agents. Stock brokers are regulated by the *Corporations Act 2001* (Cth) and the ASIC Market Integrity Rules for security markets and futures markets.

There is no such regulation for water brokers.²⁸⁰ Water brokers' obligations to their clients will generally be established in their contracts and from the conduct of the parties and will vary from case to case. For example, a broker's authority to act may be enduring, or it may be confined to a specific timeframe or volume and will be established in their contract. Without more, these cases are likely to be insufficient to establish the requisite intention to create a fiduciary relationship.

It is foreseeable that in these circumstances, the client could have an expectation that the contract establishes a fiduciary duty between themselves and their broker, and that the broker is acting as their agent and in their best interests, when this is not the case. The ACCC has received a complaint that highlights the confusion and mistrust that can arise when a broker's obligations to the parties engaged in a trade are not clearly set out in the contract and incorrect assumptions are made. Typically the contracts seen by the ACCC do not clearly disclose the existence of a fiduciary relationship.

6.4.2. Some water brokers hold multiple roles

The client's understanding of the obligations owed to them by a water broker in any particular trade are further complicated by the fact that the water broker could also be their solicitor, stock and station agent or real estate agent. The solicitor, stock and station agent or real estate agent will often owe specific statutory obligations to their clients when performing those roles, which in many cases will not apply when they engage with the same client as a water broker. For example, a client may not appreciate that the obligations their stock and station agent owes them when acting in that capacity, can differ from the obligations that same individual owes them when acting as a water broker.

To address these uncertainties, clear uniform obligations should be established to clarify the relationship between water brokers and their clients.

6.5. Some broker's interests are incompatible with their client's

The interests of a broker and their client can be incompatible where:

- the broker provides brokerage services, that includes advice regarding price or volume of water rights, for both the buyer and the seller²⁸¹, or
- brokers take a position as a principal in a trade, while providing brokerage services to the other party to that trade.²⁸² For example, a broker may engage in a trade as a principal on their own personal account, or on their firm's account, while providing brokerage services (beyond any administrative services they provide) to another party to the trade.

6.5.1. Some brokers provide services to, and receive payment from, both parties in a trade

In some instances, there is a lack of clarity and misunderstanding about the services brokers provide to parties involved in a trade of water rights and to whom they are providing those services. The ACCC is aware that some brokers act, or appear to act to some degree, for both parties to a trade and the services being provided involve some level of broker discretion (beyond administrative services). Where a broker has been engaged to negotiate or provide advice regarding price by both parties, each party to the transaction will have opposing interests (the seller wants the highest price, and the buyer wants the lowest price).

²⁸⁰ While a broker's failure to disclose a contrary interest may have the effect of misleading or deceiving a customer, and may be a breach of the ACL, there are no industry-specific rules requiring water brokers to disclose where their interests are contrary to their client's interests; ACCC, *Water market intermediaries: industry developments and practices*, December 2010, Canberra, p. 40.

²⁸¹ Select Harvest, Submission to the Murray–Darling Basin inquiry, April 2020, p. 4.

²⁸² Australian Water Broker's Association, Submission to the Murray–Darling Basin inquiry, January 2020, p. 6.

The ACCC considers this is problematic, as, in such circumstances, a broker cannot act in the best interests of clients that have competing interests.

Some brokers have sought to address this issue through disclosure to the parties engaging in the trade in their standard form documentation, such as by disclosing they may act for both buyer and seller and may receive a commission from both. However, stakeholders have identified that where brokers charge commissions to both buyer and seller, it is difficult to discern who is the broker's client and primary interest.²⁸³

The following case study illustrates how these issues were addressed by the Royal Commission into Misconduct into the Banking, Superannuation and Financial Services Industry.

Box 6.1: Case study

Mortgage brokers and the Royal Commission

The Royal Commission into Misconduct into the Banking, Superannuation and Financial Services Industry (the Royal Commission) highlighted concerns regarding conflicts of interest in the relationship between mortgage brokers and borrowers, due to brokers receiving payments from lenders.

The Royal Commission reiterated from its Interim Report, 'how difficult it may be to decide for whom intermediaries act and to whom a particular intermediary may owe duties and responsibilities.'²⁸⁴ The Royal Commission then noted, 'the general rule that should apply throughout the financial services industry is that an intermediary who is paid to act as intermediary:

- acts for the person who pays the intermediary
- owes the person who pays a duty to act only the interests of that person, and
- ordinarily owed the person who pays a duty to act in the best interests of that person.'²⁸⁵

The Royal Commission then went on to find that:

- 'Value-based commissions paid by lenders to mortgage brokers are a form of conflicted remuneration. That is, value-based commissions are a form of remuneration that can reasonably be expected to influence the choice of mortgage, the amount to be borrowed, and the terms on which the amount is borrowed'²⁸⁶
- 'trail commissions have the effect of aligning the broker's interests with those of the lender, rather than those of the borrower'²⁸⁷
- 'The law should be amended to provide that, when acting in connection with home lending, mortgage brokers must act in the best interests of the intending borrower'²⁸⁸
- '...the best interest's obligations should be enforceable by civil penalty.'²⁸⁹

The ACCC acknowledges the differences in scale and degree of harm between the issues

²⁸³ Select Harvest, Submission to the Murray–Darling Basin inquiry, April 2020, p. 4.

²⁸⁴ The Treasury (Cth), *Final Report of the Royal Commission into Misconduct in the banking, Superannuation and Financial services Industry*, Report (2019) p. 14.

²⁸⁵ *ibid.*

²⁸⁶ *ibid.*, p. 67.

²⁸⁷ *ibid.*, p. 71.

²⁸⁸ *ibid.*, p. 72.

²⁸⁹ *ibid.*, p. 73.

dealt with by the Royal Commission set out above, and the issues addressed in this chapter. However, the ACCC considers there are clear parallels in the nature of the harms that arise.

The ACCC is less concerned where intermediaries are engaged by both parties (and receive a commission from both parties) only to match the parties, complete the paperwork and lodge the trade with the approval authority, such as exchanges do. However, even when only one party to the trade, most commonly the seller, is paying the commission or fees for the brokerage services, there are instances where the nature of the obligations owed and the services provided by the broker may be misunderstood.

The ACCC acknowledges that such potential conflicts exist for intermediaries across a range of markets. However, in other markets for intermediary services, such as real estate or financial services, a comprehensive regulatory framework exists to establish clear obligations on the intermediary and to manage any conflicts.

A lack of clarity or non-disclosure by a broker regarding who they are providing services to or the nature of those services and the lack of uniform obligations a broker owes to those parties, undermines proper trading practices that are consistent with achieving market integrity and reduces confidence in the water market as noted above at section 6.1 of this chapter.

6.5.2. Some brokers and brokerage firms engage in water trading as a principal, for profit

Brokers benefit from some information asymmetries and other advantages in the market for trading water rights, and have significant opportunities and incentives to engage in water trading for profit beyond the fees and commissions they receive from their clients.

Stakeholders have raised concerns when brokers or a related party to the broker or brokerage firm, act as a principal (a buyer or seller) in a trade where that broker is also providing intermediary services to the other party to the trade. This is problematic, as the interests of the broker and the client can directly conflict, and this leads to mistrust in brokers. For example, this occurs where brokers are perceived to be trading their own water rights as a principal without disclosing their personal interest in the trade. Some brokerage firms disclose to their clients that they may trade using their own water holding accounts or licences, although not necessarily in respect of any particular trade. It has also been alleged that brokers buy water rights as a principal and park those water rights using their accounts in a season when prices are low and then sell those water rights as a principal in a subsequent season when prices are high.²⁹⁰

There are some circumstances in which an individual broker will interact with the market as a principal when they are not trading water rights for profit, including to buy a water right for consumptive use (for irrigation purposes) or to sell water rights that are in excess of their irrigation requirements.

6.5.3. Brokers' use of their own accounts to facilitate trade reduces transparency

In the 2018–19 water year, 12 per cent of all allocation trades in the Southern Connected Basin listed a broker or exchange as a principal in the trade.²⁹¹ A broker's use of their personal account or their firm's account reduces transparency as:

- the price the seller receives for the water rights is unclear to the buyer

²⁹⁰ Robinvale Table Grape Growers Advocacy Group, Submission to the Murray–Darling Basin inquiry, January 2020, p. 6.

²⁹¹ ACCC analysis on New South Wales, South Australia and Victoria responses to voluntary information request.

- the price the buyer pays for the water rights is unclear to the seller²⁹²
- the buyer and seller are not identified to each other when water rights are transferred through the broker's water account, and
- clients are unable to distinguish broker facilitated trades from those trades where the broker, or a related party, is the counterparty in the trade.²⁹³

Box 6.2: Case study

Is the broker the principal in the trade?

The ACCC received an allegation that a broker offered a parcel of water rights for sale on its website, and engaged in negotiations with the prospective buyer without disclosing that it was a principal in the trade.

A broker is currently able to hold water on their own accounts, either to provide a service to their clients or to undertake their own trades. They may provide this service to their client for a range of reasons including privacy or to aggregate small parcels of water rights from a number of clients and sell as a larger parcel. The practice of brokers' facilitating trade through their own accounts means that when water rights are transferred off the broker's water account to the buyer's account, this could mean that the broker is the seller (and a principal in the trade) or the broker has been holding the water rights on their account on behalf of a client or number of clients.

This lack of transparency makes it easier for a broker to take a position as a principal (and possibly profit from the trade in excess of their fees or commissions) without the buyer knowing.

There are a range of circumstances in which brokers offer the use their firm's water accounts to facilitate their client's trade (rather than to act as a principal in a trade) including:

- aggregating small parcels of their client's water rights to reduce transaction costs including interstate fees and to meet large buy orders. This can include the movement of temporary allocation through inter-valley trades (IVTs).²⁹⁴ The issue of brokers using their accounts to facilitate IVTs is discussed more broadly at section 6.9.4 of this chapter
- facilitating the transfer of their client's water rights to regions where clients do not hold accounts, and
- enabling their clients to trade with privacy.

It is not always necessary for the parties to the transaction to have visibility over all of the details of a trade. However, the list above highlights the reduced transparency that arises from trading water rights held on a broker's water account, even when it's held for a client. As clients are unable to determine the actual price in a transaction and/or to whom they are trading, there is also an opportunity for brokers to profit from price differentials (a low sell price or a high buy price) by transacting with each party separately on the broker's own or the firm's account.²⁹⁵

²⁹² H2OX, Submission to the Murray–Darling Basin inquiry, February 2020, p. 10. This submission notes vendors would be unable to determine the price received for their water right if it was sold off the broker's account.

²⁹³ Fruit Growers Victoria Ltd, Submission to the Murray–Darling Basin inquiry, February 2020, p. 2. This submission notes that brokers should disclose if they or a related party are the counterparty to any trade they facilitate.

²⁹⁴ H2OX, Submission to the Murray–Darling Basin inquiry, February 2020, pp. 9–10.

²⁹⁵ Citrus Australia, Submission to the Murray–Darling Basin inquiry, January 2020, p. 14.

An additional concern has been expressed by stakeholders as to the lack of clarity about legal ownership of the water right when brokers transfer clients' water rights on to their accounts.²⁹⁶ Stakeholders have called for improvement of visibility of brokers' trades²⁹⁷ and some support an AWBA policy initiative calling for auditing of brokers' water accounts.²⁹⁸ This policy did not form part of the AWBA code at the time of writing. The ACCC's view is that the lack of transparency that arises from brokers' using their own water accounts is problematic, as brokers can take a position in the trade without the other party knowing. This creates mistrust between brokers and irrigators, and reduces the quality of information that irrigators have when making buying decisions. To address this concern, brokers could be required to keep written records of detailed client instructions when using their own water accounts or alternatively a trust account framework for water rights could be established to manage the way in which clients' water rights are held in broker water accounts.

6.5.4. Broker representations to clients about potential conflicts

Some brokers make a range of disclosures to their clients regarding their firm's approach to managing these issues, including:

- their obligations under the AWBA code to disclose any conflict of interest²⁹⁹
- their obligations under their firm's conflict of interest policy (that is unrelated to the AWBA code) that precludes individual brokers engaging in a trade as a principal but permits brokers to use the firm's water holding accounts to provide a service to their clients
- a statement in the firm's policy that it does not have any water rights or water accounts, but related parties (including individuals or subsidiary companies) and staff are permitted to own water rights and water holding accounts and engage in trade in their own right
- a statement in the firm's standard form agreement that the firm owns water accounts and may choose to trade using these accounts.

However, as noted above, there are only 29 AWBA full members and there is no compliance mechanism to ensure the individual members, or their firms, comply with the obligations set out in the voluntary code. Further, there is no express regulatory requirement on brokers to disclose a practice that is incompatible with their client's interests. As noted above at section 6.4.1 of this chapter, the circumstances of each broker-client relationship will determine whether the broker stands in the position of a fiduciary, and therefore has a duty to act in their client's interests ahead of their own. It is currently unclear which individual relationships would be found to have this character, although it seems likely that these would be few in number. The ACCC's view is that positive obligations on brokers to manage conflicts are required.

²⁹⁶ H2OX, Submission to the Murray–Darling Basin inquiry, February 2020, p. 10.

²⁹⁷ Kilter Rural, Submission to the Murray–Darling Basin inquiry, March 2020, p. 10. This submission noted that an area for improvement includes better visibility of all brokers' trades.

²⁹⁸ AWBA, Submission to the Murray–Darling Basin inquiry, January 2020, Appendix 3.

²⁹⁹ AWBA, Submission to the Murray–Darling Basin inquiry, 4 December 2019, p. 6. The AWBA's submission also noted they have sought to address this issue in the conflict of interest policy within their updated voluntary code of conduct.

Questions for stakeholders

- Should a broker or brokerage firm be permitted to provide brokerage services to both parties to a trade?
- Should a broker that is providing intermediary services in a trade, be permitted to have an interest as a principal in that trade?
- In what circumstances should individual brokers or brokerage firms be permitted to have water accounts?
- Should individual brokers be permitted to only trade in water markets for personal irrigation purposes and in that case, always through an unrelated broker (in an unrelated firm)?

6.6. Client funds are not subject to management obligations

Brokers hold a significant percentage of the total value of the trade in escrow until settlement.³⁰⁰ The establishment of a robust industry wide legal framework for brokers and their clients, in the form of statutory trust accounts and an obligation that broker's hold professional indemnity insurance, would foster greater trust and confidence between these parties. The ACCC has received submissions proposing audited statutory trust accounts³⁰¹, fidelity or assurance funds³⁰² and professional indemnity insurance³⁰³ for brokers. These issues have also been raised by water market participants in previous reports regarding water market intermediaries in the Basin.³⁰⁴

6.6.1. Statutory trust accounts

It is the ACCC's view that legislation requiring water brokers to establish audited statutory trust accounts would address stakeholder concerns about current broker management of client funds.³⁰⁵ A trust account is a bank account in which the account holder retains funds on behalf of another person such as a client. The legal frameworks governing certain professions, including solicitors, accountants and real estate agents, require members to establish trust accounts and comply with particular auditing and reporting obligations.³⁰⁶

This use of a trust account lessens the risk that client funds will be dispersed to creditors in the event of broker insolvency or bankruptcy.³⁰⁷ A trust account also increases transparency

³⁰⁰ National Water Commission (NWC), 2011, *Strengthening Australia's water markets*, NWC, Canberra, June, p. 123, at https://web.archive.org/awa/20140801095110mp/http://archive.nwc.gov.au/data/assets/pdf_file/0008/11240/StrengtheningAustraliasWaterMarketsReport.pdf, viewed 26 June 2020.

³⁰¹ AWBA, Submission to the Murray–Darling Basin inquiry, January 2020, p. 5; H2OX, Submission to the Murray–Darling Basin inquiry, February 2020, pp. 5–6; Waterfind, Submission to the Murray–Darling Basin inquiry, January 2020, p. 5; Goulburn Murray Irrigation District Water Leadership, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2.

³⁰² AWBA, Submission to the Murray–Darling Basin inquiry, January 2020, p. 5.

³⁰³ Goulburn Murray Irrigation District Water Leadership, Submission to Murray–Darling Basin inquiry, January 2020, p. 2.

³⁰⁴ Commonwealth of Australia, 2014, loc. cit.; National Water Commission, loc. cit.; ACCC, 2010, op. cit., pp. 31–37.

³⁰⁵ Kilter Rural, Submission to the Murray–Darling Basin inquiry, March 2020, p. 10; H2OX, Submission to the ACCC Murray–Darling Basin inquiry, February 2020 at p. 6.

³⁰⁶ Examples of other industries where trust accounts are required by legislation: Lawyers (s. 136 of Schedule 1 of the *Legal Professional Uniform Law Application Act 2014* (VIC)); Conveyancers (*Conveyancers Act 2006* (Vic) s 66); Money paid to a financial services licensee (*Corporations Act 2001*, Volume 4 (Cth) s 981B).

³⁰⁷ Department of Sustainability, Environment, Water Population and Communities, 2013, *Regulation of Water Market Intermediaries—Draft COAG Regulation Impact Statement for consultation*, April, p. 11, at <https://ris.pmc.gov.au/sites/default/files/posts/2013/04/03-Water-Market-Intermediaries.pdf>. The Draft COAG RIS for regulating water intermediaries (brokers) did not proceed to final. There was an independent review in 2014 of the Water Act 2007 which received submissions and made a recommendation (no.9) on an industry led approach to broker regulation.

with regard to management of client funds and reduces the opportunity for fraud or misuse of client funds.³⁰⁸

Some brokers have established bank accounts to hold client funds. However, the use of the words ‘trust account’ by brokers to describe some of these accounts is likely to mislead or confuse some clients who assume the broker is under the same obligations as professionals subject to statutory trust accounting obligations.

Where a firm’s business engages in both water brokerage services and, say, real estate, the funds relating to water trading are likely to be held in a real estate statutory trust. Market participants have raised with the ACCC whether funds held in statutory trust accounts must relate to funds from the provision of the related industry’s services, for example, the sale of property, and whether funds relating to the sale of water rights may not be protected in the same way. The ACCC notes that issues ‘related to the use of real estate trust accounts for non-real-estate funds will differ between jurisdictions.’³⁰⁹ In any case, the option to use a statutory trust account is only open to those businesses who are members of the relevant profession, and while some overlap of these services and water brokerage services has been identified, most of the larger brokerage firms solely provide services associated with the water market.

The AWBA’s submission advocates that audited statutory trust accounts should be coupled with the establishment of an assurance fund, administered by the government that could mirror those that have been established in other intermediary industries.³¹⁰ While the ACCC has not identified widespread support for such a fund at this time, the ACCC is of the view that regulation to introduce a statutory trust accounting framework is required.

6.6.2. Professional indemnity insurance is not mandatory

A submission has been received calling for regulation requiring brokers to hold professional indemnity insurance.³¹¹ Professional indemnity insurance would provide water brokers with some protection in providing advice to their clients that incur financial or other losses. It would also offer some protection against broker insolvency or bankruptcy that can otherwise occur when compensation must be paid. In turn, this insurance can protect the funds of other clients, held by the broker, from being distributed among creditors.³¹²

It is the ACCC’s view that, given that solicitors, conveyancers and financial planners must obtain professional indemnity insurance³¹³, water brokers and their clients require the same level of protection. While it has been noted in previous reports that professional indemnity insurance has to date been difficult for water market intermediaries to obtain, this has in part been due to a lack of targeted regulation that establishes clear standards and obligations. Regulation that provides greater clarity around the role of brokers, the services they provide and the nature of the risks to be insured, would enable the development of appropriate insurance products for water brokers.³¹⁴

³⁰⁸ *ibid.*, p. 12.

³⁰⁹ National Water Commission, *loc. cit.*

³¹⁰ Australian Water Broker’s Association, Submission to the Murray–Darling Basin inquiry, January 2020, p. 5. An example of an assurance fund that has been established for clients of Real estate agents is established by ss. 79 and 80 of the *Estate Agents Act 1980* (VIC).

³¹¹ *ibid.*

³¹² For example, solicitors in Victoria are regulated by sections 211 and 212 of Schedule 1 of the *Legal Profession Uniform Law Application Act 2014* (Vic); Conveyancers are regulated by section 41 of the *Conveyancers Act 2006* (Vic); financial planners are regulated by section 912B of the *Corporations Act 2001* (Cth); Department of Sustainability, Environment, Water Population and Communities, *op. cit.*, p. 12.

³¹³ ACCC, 2010, *op. cit.*, p. 33.

³¹⁴ ACCC, 2010, *op. cit.*, p. 33; National Water Commission, *loc. cit.*

Questions for stakeholders

- What is your experience of brokers holding client funds? Should a broker or brokerage firm have statutory obligations in respect of holding client funds?
- If statutory trust accounts were mandatory for brokers, should any interest on client funds be directed to an assurance or fidelity fund?
- Should brokers be required to hold professional indemnity insurance?

6.7. Information asymmetries exist between brokers and clients

6.7.1. Irrigators rely on brokers for market information

As discussed at section 6.1.3 of this chapter, the majority of Southern Basin trades are conducted using a broker. Irrigators and other market participants are heavily reliant on the information that brokers provide.

An information asymmetry is a market failure that occurs when one side of the transaction has less information about relevant market factors than the other. The presence of information asymmetries can reduce market efficiency, because parties with less information are unable to make fully informed decisions.

Brokers have an information advantage over almost all water market participants. This is due to the complexity of water trading rules, along with the ability of brokers to devote significant time, resources, and technology to analysing market activities. Brokers benefit from information asymmetries in their ability to access information which is not accessible to their clients. For example, brokers have access to the cumulative data of their previous and existing client's water use, trading history and proprietary holdings.³¹⁵

While information is available across different channels (that is, Waterflow, state registries), a number of participants have highlighted that there is insufficient timely, reliable and objective market price information and stressed their reliance on broker-provided information. For instance, WaterNSW's submission to the inquiry stated that while more sophisticated market participants are able to understand the complex water market, smaller parties are reliant on third-party information.³¹⁶

It has also been alleged that buyers and sellers of water rights often simultaneously list their parcels of water rights with multiple intermediaries, making it more difficult for participants to gauge the price and availability of water rights.³¹⁷ A submission to the inquiry, summarising stakeholder concerns regarding the opaqueness of the Southern Basin water market, stated that because there are so many exchanges, participants are left overly reliant on brokers who have a better understanding of true market value, which in turn can be inconsistent with transactions recorded on the three state registers.³¹⁸

Feedback to date suggests that Basin State registry data is not timely, and provides an insufficient level of detail, to meet the information needs of market participants. Accordingly, information provided by brokers cannot always be compared to information on state registries. There are often significant time delays between when an agreement to trade is struck, when trade applications are submitted, when trade approvals are finalised, and when the transaction information is released on the public state register, as well as integrity issues

³¹⁵ Civic Ledger, Submission to the Murray–Darling Basin inquiry, January 2020, p. 1. This submission notes that water broker's access to proprietary information via their water trading activities causes 'information asymmetry' in the market.

³¹⁶ WaterNSW, Submission to the Murray–Darling Basin inquiry, February 2020, p. 13.

³¹⁷ H2OX, Submission to the Murray–Darling Basin inquiry, February 2020, p. 5.

³¹⁸ Ricegrowers' Association of Australia's, Submission to the Murray–Darling Basin inquiry, January 2020, p. 5.

between different registers and different values in pricing for transactions made on the same day.³¹⁹ These trade processing delays are examined further in section 9.3 of the report and price reporting is examined further in sections 8.5 and 10.4 of the report.

6.7.2. Brokers provide information in a variety of forms

Brokers communicate information to clients directly or present information to the wider market on their websites. Brokers engage in vigorous marketing strategies to promote their services to prospective and current clients. This includes sending regular SMS messages, email messages or making phone calls offering regional specific information and water strategies along with their proposed rates. Some brokers target these messages to potential and existing clients based on their licence volume and value, to assess the potential value of trade each client will engage in. The brokerage firm will then engage with each client based on their assessment as to their likely value of trade.

Individual brokers within some firms are required to meet key performance indicators based on the number of calls made to current or prospective clients, orders placed, number of client's served, client feedback and commission targets. These pricing and marketing strategies are competitive strategies to encourage clients to engage the broker.

Brokers and exchanges often list recent trades on their websites. Some brokers also list buy and sell offers on their websites (while exchanges provide a platform to match buy and sell offers). Water market participants rely on this pricing and market depth information to make trade decisions.

6.7.3. Some irrigators do not trust the information provided by brokers

Brokers play an important role in providing information to the market and aid in the distribution of a scarce resource to the highest value use.³²⁰ However, it has been alleged that some brokers make misrepresentations about the price and availability of water rights, or give misleading advice about predictions or trends, to encourage market participants to pay higher prices and trade higher volumes than they otherwise would.³²¹ This has led to mistrust in brokers.³²²

Stakeholders at forums and in submissions alleged that some brokers make unfounded statements in emails to their clients about the rising price and decreasing availability of a water right in a particular location, to induce clients to enter into a trade.³²³ Even so, some market participants consider that the information provided by brokers is the most accessible and trusted information available.³²⁴

Brokers commonly charge a commission to facilitate the trade of a water right based on the total value of the trade. Under such arrangements, brokers are incentivised to raise water prices, as that will increase the commission they receive. However, charging commission is also common in other commodity markets, such as by stock and station agents. The ACCC is aware of intermediaries that have moved away from a commission model towards charging their clients a flat fee (per ML) to avoid any conflict of interest or perceived conflict

³¹⁹ Commonwealth Environmental Water Holder, Submission to the Murray–Darling Basin inquiry, February 2020, p. 6.

³²⁰ This issue was raised at Murray–Darling Basin inquiry, Mildura, Kerang and Murray Bridge public forums.

³²¹ The Robinvale Table Grape Growers Advocacy Group, Submission to the Murray–Darling Basin inquiry, January 2020, p. 5.

³²² Almond Board of Australia, Submission to the Murray–Darling Basin inquiry, March 2020, p. 16.

³²³ Ricegrowers' Association of Australia, Submission to the Murray–Darling Basin inquiry, 30 January 2020, p. 3; Barossa Infrastructure Limited, Submission to the Murray–Darling Basin inquiry, January 2020, p. 3; The Robinvale Table Grape Growers Advocacy Group, Submission to the Murray–Darling Basin inquiry, January 2020, p. 5; Almond Board of Australia, Submission to the Murray–Darling Basin inquiry, March 2020, p. 7.

³²⁴ For example, at the Murray–Darling Basin inquiry, Murray Bridge public forum, an irrigator said they got a weekly email from Ruralco and seemed happy to rely on that.

of interest related to the price.³²⁵ However, a flat fee will still be affected by the volume of the trade.

It is the ACCC's preliminary view that the absence of targeted regulatory oversight creates an environment in which some brokers are incentivised to engage in conduct that can inflate the market price for water rights, and in turn their commissions. The Almond Board of Australia's submission stated that, 'Many growers rely on water broker pricing information that is not comprehensive and could be seen to be selective in nature for the purpose of sustaining high prices.'³²⁶ The opportunity exists for some brokers to take advantage of the lack of oversight by not listing particular offers or recent trades on their websites that are below the current market price to sustain a perception that water rights are being offered or traded at a higher price than they actually are.

6.7.4. Buy and sell-offers on broker websites

Brokers can facilitate trades that are conducted directly between the relevant parties. These opportunities for buying and selling are not always listed on brokers' websites as buy and sell offers. This can be offered as a service to clients, and can be a pro-competitive. However, it allows brokers to be selective with the offers they list and makes it more difficult for participants to ascertain the actual price and availability of that water right. For example, brokers could decide to exclude a sell offer on their website which is lower than the other offers, to sustain a perception to market participants viewing that website that the water right is trading at a higher price than would otherwise be the case.

These trades occur where buyers and sellers have been matched without the use of a platform, and therefore trade application forms are lodged directly to the relevant trade approval authority without appearing available for sale or purchase on an exchange or broker website.

This practice is not unique to water markets, and occurs in other markets including the stock market (a transaction for shares might be settled by two parties without involving a stock market). Additionally, market participants have provided the ACCC with some legitimate reasons for trading in this way. Although the ACCC notes that market participants often refer to these trades as 'off-market' or 'off-exchange' trades (including in the submissions cited below), the ACCC notes trades do not occur 'off-market' per se as there is no central exchange through which all trades are conducted in the Basin water markets.

One exchange stated that for reasons including an ageing demographic, lack of access to reliable internet or lack of available time, orders are regularly matched over the phone or in person but are subsequently matched on the exchange without exception to ensure visibility. One submission claimed that most trades in the Southern Basin occur 'off exchanges' via brokers and are therefore not reflected accurately to the wider market. A broker's submission to the inquiry suggested that large allocation buyers insist on negotiating 'off-market' offers which inhibit transparency.³²⁷ On the other end of the spectrum, another submission to the inquiry argued that there are no market participants large enough to genuinely manipulate the water market.³²⁸

6.7.5. List of recent trades on broker websites

Brokers often present a list of recent trades on their websites. There are concerns that brokers are selective with the trades they display, which provides an incomplete picture of

³²⁵ H2OX 2020, Australia, at <https://h2ox.com/new-exchange-fee/>, viewed 1 April 2020. H2OX moved to a flat fee of \$2.10 per ML on 1 July 2019.

³²⁶ Almond Board of Australia, Submission to the Murray–Darling Basin inquiry, March 2020, p. 7.

³²⁷ WEX Water, Submission to the Murray–Darling Basin inquiry, February 2020, p. 6.

³²⁸ Key Water, Submission to the Murray–Darling Basin inquiry, January 2020, p. 6.

the trades that brokers has conducted. This can give a misleading impression of prevailing market prices and result in incorrect average price derivations. It is the ACCC's preliminary view that reliance on information provided by brokers, means that brokers are well placed to misuse their unique position in the market to keep water right prices and their commissions higher than they otherwise would be, by not reporting lower priced trades on their websites. Market participants could draw a conclusion when viewing broker websites that they have a full understanding of prevailing prices and market depth when that is not the case.

Without complete and timely information on the Basin State registries, the lists of recent trades cannot be compared against registry data. A submission by Waterexchange suggests regulation to require brokers using the Victorian Broker Portal to publish the details of their trades on their website, which is audited against the trades submitted through the Portal, in order to eliminate broker misrepresentations to customers in respect of prices achieved and market activity.³²⁹

6.7.6. Improved transparency and market oversight would increase confidence in the market

While the ACCC's analysis is ongoing, at this stage the ACCC does not have specific evidence of brokers deliberately providing misleading price or other market information to their clients. Generally, it is difficult for market participants or regulators to verify the accuracy of statements or information provided by brokers, because the relevant information is only held by the broker.

However, the information asymmetry between brokers and irrigators and the complexity of trading rules creates opportunities for brokers to present market information that aligns with their incentive to maximise trade volumes and prices. This has led to mistrust in brokers, reducing overall confidence in the market.

As detailed in chapter 10 at box 10.1, the ACCC considers that the availability of more timely and accurate market information would increase transparency, and improve the efficiency of water markets. The presence of this information would reduce the reliance on brokers for market information, and this would, to an extent, limit the impact of the information asymmetries that exist between brokers and their clients. Imposing continuous disclosure requirements on brokers and exchanges to publish all buy and sell offers and recent trade data in a consistent, accurate and timely way would increase confidence in the information provided by brokers. This solution is considered in section 11.2.2.

Further, the lack of oversight and verifiability of the market information provided by brokers undermines perceptions of market integrity. This is harmful to the market, because it can restrict a party's willingness to engage in the market or reduce their ability to make accurate decisions. Due to the critical role that is played by brokers in facilitating the efficient operation of water markets, the ACCC considers that further oversight is required, to build confidence in the information that is supplied to market participants.

Questions for stakeholders

- Have you been provided with misleading information by a broker? Provide details.
- If clear, reliable and timely information about the market was more easily available, would this prevent brokers from providing misinformation to clients?

³²⁹ WEX Water, Submission to the Murray–Darling Basin inquiry, February 2020, p. 11 (contained in submission to the Victorian Department of Environment, Land, Water and Planning (DELWP) re: Water Market Transparency, 6 November 2019).

6.8. Accuracy, completeness and timeliness of reporting

Although there is no single exchange providing a centralised price index, state registries provide a weighted average price of approved trades. Water market participants rely on this pricing information to make trade decisions.

There is no central regulatory authority that monitors price reporting, so it is difficult to ascertain whether brokers are accurately reporting the price of trades. It has been alleged that brokers seek to influence the price of water rights by inaccurately recording prices on trade approval applications (incorrectly reporting to the state register some of the lower priced water rights traded in the market), including the inappropriate recording of zero dollar trades.

Citrus Australia's submission to the inquiry raises this issue:

*Brokers putting through \$0 trades when selling water at a lower price, so as not to negatively influence the market. Only declaring accurate trade when selling for higher than market price, so as to push the overall market up.*³³⁰

We also note the following comments in the Murray–Darling Basin Authority's (MDBA) 2018 media release on this issue:

*Access to accurate price information is fundamental to a competitive water market, and under the Basin Plan Water Trading Rules, water trade prices must be made available to authorities, yet a large number of trades are reported at zero value. Some of this is legitimate, but we'll be undertaking an audit of this issue, to increase accurate price disclosure by water brokers and sellers.*³³¹

Part of the MDBA's audit of water trade price reporting for the 2017–18 water year focussed on water traders' and brokers' compliance with the requirement to report prices.³³² The audit identified a range of issues including confusion about the requirement to report price, inconsistent approaches to reporting price by different traders and brokers, and not being able to verify price on nearly half of all (sampled) transactions. Deloitte, who conducted this part of the audit, determined it was not able to obtain enough evidence to form a conclusive opinion on the extent to which water traders and brokers are complying with their reporting requirements. Deloitte noted this was largely due to the inability to contact some of the selected traders or brokers and a lack of adequate supporting evidence for selected transactions.

The ACCC notes that while it is the role of the MDBA to monitor compliance of the price reporting obligations through such audit processes, it is the Basin State agencies that are responsible for enforcement of price reporting requirements under their legislation. On the issue of enforcement, the MDBA's audit found that, 'Mandatory price reporting across all Basin States is a relatively new requirement brought under the Basin Plan in 2014, and as a consequence compliance and enforcement was found to be sporadic.'³³³

³³⁰ Citrus Australia, Submission to the Murray–Darling Basin inquiry, January 2020, p. 17.

³³¹ Murray–Darling Basin Authority, 5 June 2018, Compliance spotlight on water brokers, unauthorised take and metering, at www.mdba.gov.au/media/mr/compliance-spotlight-water-brokers-unauthorised-take-metering, viewed 31 March 2020.

³³² Murray–Darling Basin Authority, 29 May 2019, Water Trade Price Reporting Audit, at www.mdba.gov.au/sites/default/files/pubs/water-trade-price-audit-process_0.pdf, viewed 5 June 2020.

³³³ Water Trade Price Reporting under the Basin Plan, Murray–Darling Basin Authority Canberra, 2019. CC BY 4.0, p. 2, at <https://www.mdba.gov.au/sites/default/files/pubs/part-1-audit-basin-state-process.pdf>, viewed 8 June 2020.

Brokers are capable of misreporting trades to increase the market price of water rights and in turn their commissions. Current regulations would not constrain this conduct, and despite measures in place to curtail inaccurate price recording, it is apparent there is still:

- a lack of clarity regarding brokers obligations and price recording
- a lack of confidence in broker conduct and adherence with price recording requirements; and/or
- a lack of enforcement of existing price recording requirements.

Price reporting and zero dollar trades are discussed in detail at section 10.3.1, and are only briefly discussed in this section in relation to broker conduct.

The ACCC notes that 66 per cent of the volume of approved water allocation trades in the Southern Connected Basin had a reported price of \$0 in 2018–19.³³⁴ Based on Victorian data, 45 per cent of the volume of all trades lodged through the Victorian Broker Portal in 2018–19 were reported as zero dollar trades.³³⁵ These statistics are 28 per cent³³⁶ and 14 per cent³³⁷ respectively if viewed from the percentage of the number of approved water allocation trades (rather than percentage by volume) for 2018–19.

Currently, brokers are not required to give reasons for zero dollar trades, and the New South Wales and South Australia registries do not capture data on who lodges trades. In these states, brokers that inaccurately submit zero dollar trades with the aim of influencing the registry price would not be easy to identify. Sustained inaccurate price reporting can distort perceptions of the price of water rights, and brokers are well placed to influence the price of water rights in this way. The impact of this practice is exacerbated because of the inefficiencies in price reporting requirements, which increases overall mistrust in the market.

The ACCC is aware of a range of inefficiencies in the trade approval process. For example, when trades are recorded on the Victorian Water Register, there is no requirement to record the type of trade made (for instance, whether a trade is an allocation trade or a forward lease), making it easier for brokers to record prices that do not represent the current market price. Furthermore, trades within IIOs are not reported to state-based water registers and this is discussed in chapter 8.

In addition, the ACCC is not aware of any industry-wide obligations on brokers or exchanges, including within IIOs, which would require them to keep or provide data to the state registries. In the absence of clear recording-keeping obligations, it is not clear whether the information provided to state registries is complete and accurate. The MDBA audit undertaken by Deloitte (discussed above) noted a lack of supporting evidence to be able to verify transactions. Similarly, the introduction of continuous disclosure rules for brokers and exchanges that would require intermediaries to publish their buy and sell offers as well as their recent trades in a consistent, standardised and timely manner would go a long way to ensuring information provided to state registries is timely, complete and accurate. Further discussion regarding the need for record-keeping obligations on brokers and exchanges is discussed in section 10.4.

These examples indicate broader transparency and integrity issues which exist in the water market, and the lack of appropriate trade data captured by state registries. They also highlight the opportunity for brokers to take advantage of the current trade approval process and the information which is published on state registers. Chapter 11 provides the ACCC's preliminary view that a suite of options would help to address these issues.

³³⁴ ACCC analysis on New South Wales, South Australia and Victoria response to voluntary information request.

³³⁵ ACCC analysis on Victoria response to voluntary information request.

³³⁶ ACCC analysis on New South Wales, South Australia and Victoria response to voluntary information request.

³³⁷ ACCC analysis on Victoria response to voluntary information request.

Questions for stakeholders

- Should brokers be required to give reasons for zero dollar trades?

6.9. Brokers use a range of strategies to facilitate inter-valley trades/transfers

Inter-valley trade/transfer (IVT) openings offer an opportunity for water market participants to take advantage of price differentials between the origin valley and the destination valley (arbitrage). These opportunities are often heavily contested and when price differentials are significant, trade approval applications must be rapidly submitted to approval authorities before the IVT limit is reached and the trading opportunity closes. IVT processes are discussed in detail in section 12.5.

The ACCC is aware of concerns by market participants about a lack of equal opportunity to participate in IVTs. Equality of access concerns can impact perceptions of market integrity, result in a lack of confidence in the market and inhibit participation in inter-valley trading, leading to inefficient outcomes. Stakeholders have noted concerns about high levels of complexity of IVTs.³³⁸ As discussed above at section 6.7.1 of this chapter, brokers benefit from information asymmetries and have an advantage in IVTs because of their experience and time to devote to assessing trade rules, trade balances, and anticipating openings. A small number of brokers have recently consistently traded large volumes of water rights between valleys in the Southern Connected Basin, particularly with respect to Murrumbidgee IVTs.

The ACCC is examining how market participants access IVT opportunities, and some of the behaviour and strategies of brokers with respect to inter-valley trading, including aggregation of water rights on brokers accounts prior to an IVT opening, IT and automation for faster submission of trade applications and how the use of brokers' accounts could affect price differentials between valleys.

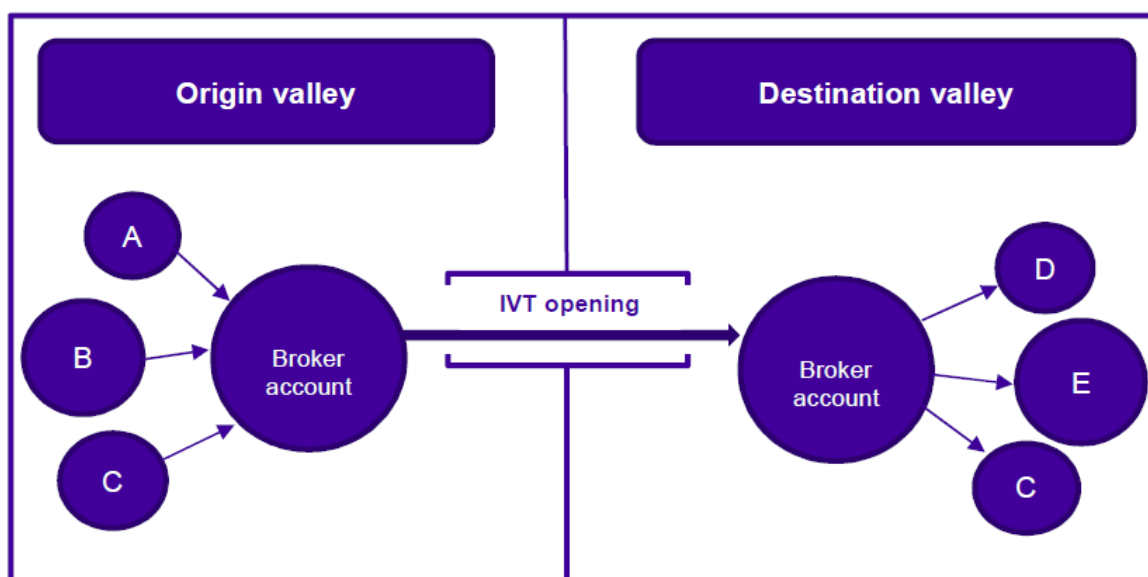
6.9.1. Brokers aggregate multiple parcels of water rights onto brokerage firms' accounts in anticipation of an IVT opening

As part of their service to facilitate the trade of water rights between valleys for clients, some brokers aggregate large parcels of their client's water rights onto their firm's water accounts (in the origin valley) in anticipation of an IVT opening. As discussed in section 6.5.3 of this chapter, brokers offer the use of their firm's water accounts to minimise transaction costs for clients or where facilitating transfers to regions where clients do not hold an account. Additionally, brokers are aggregating parcels on their own accounts before an inter-valley trade opening to increase the likelihood of a higher percentage of their clients' trades being approved, before the trade limit is reached.

Commonly, the aggregated parcel of water rights is transferred from a brokerage firm's account in the origin valley, to the brokerage firm's account in the destination valley and recorded on state registers as a zero dollar trade.

³³⁸ Key Water, Submission to the Murray–Darling Basin inquiry, January 2020, p. 5.

Figure 6.1: Example of the process of aggregation of water rights from clients A, B and C for transfer through an inter-valley trade opening to clients D, E and C.



Brokers aggregate parcels of water from clients who wish to transfer their water for use in another valley (for example, client C in the figure above), and from clients who wish to trade their water in another valley and take advantage of the arbitrage opportunity due to the price differential between the valleys (for example, clients A and B above). Brokers have in some instances also offered lower-price water rights to clients in the destination valley (such as clients D and E), subject to a successful trade approval.

Stakeholders have raised the concern that transfers of large parcels of aggregated water rights between valleys by a small number of brokers can result in rapidly ending the trading opportunity (when the trade limit is reached).³³⁹ The aggregation of parcels of water rights by brokers provides a valuable service to clients who cannot themselves submit a trade for approval during an IVT opening, or for those who consider that using a broker will result in a higher likelihood of a successful transfer. However, when trading opportunities close rapidly, it limits the ability of other market participants to transfer water between valleys and stakeholders have raised concerns about a lack of equal opportunity to participate in IVTs. While the ACCC is aware that brokers are aggregating parcels on to their own accounts as an IVT strategy, significant adoption of this practice is not yet reflected in the data for Murrumbidgee inter-valley trades.³⁴⁰ The ACCC will examine whether aggregation practices are increasing for the final report.

6.9.2. Brokers are developing strategies to get their IVT applications approved

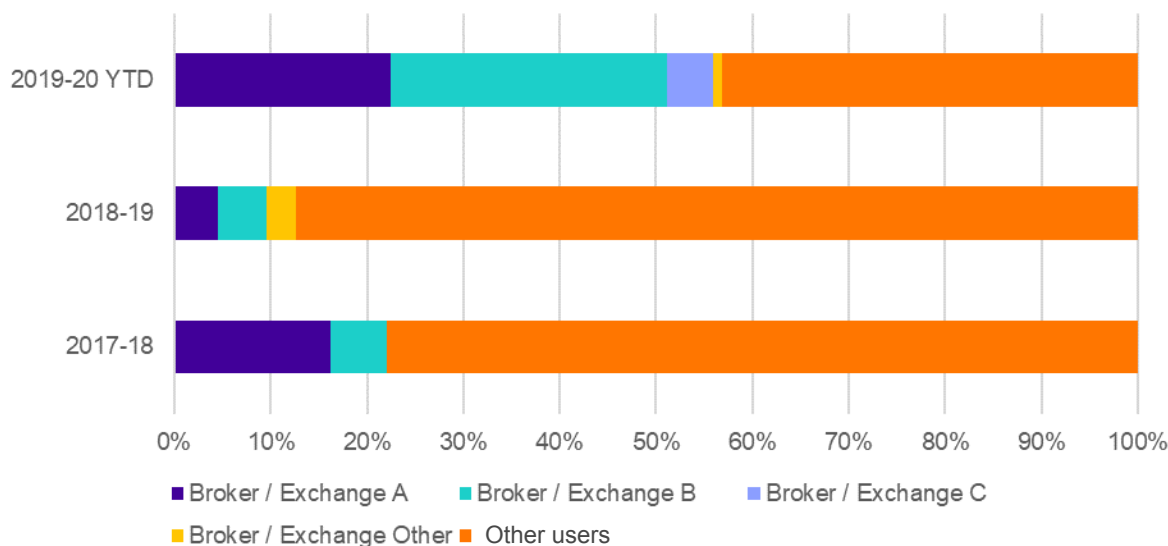
Some brokers have developed trading strategies to improve the likelihood of approval of their trade applications, through faster submission of their trade applications. Some of these strategies have given rise to concerns about the equality of access to IVTs, transparency of trade approval processes and the design of inter-valley trade rules. Additionally, given there are a small number of brokers who have consistently had large volume IVTs approved

³³⁹ H2OX, Submission to the Murray–Darling Basin inquiry, February 2020, p. 10.

³⁴⁰ In the 2019–20 year to date period (to 30 November 2019), while brokers' accounts were the recipients of 57 per cent of the volume transferred out of Murrumbidgee, only 20.6 per cent of the volume transferred out of the Murrumbidgee in the same period was transferred off brokers' accounts. Source: ACCC analysis on New South Wales, South Australia and Victoria response to voluntary information request.

recently, some market participants consider they must use those brokers to successfully transfer or trade water between valleys.

Figure 6.2: Recipients of trades (per cent by volume) out of Murrumbidgee since 2017–2018.



Source: ACCC analysis on New South Wales, South Australia and Victoria response to voluntary information request.

The above figure demonstrates that two brokers have received the majority of the share of volume out of Murrumbidgee in the 2019–20 year to date period.³⁴¹

Victoria and New South Wales have different systems for the lodgement and approval of trades, as discussed in section 8.6.2. Market participants are critical of the system for applications for trade approvals in New South Wales that requires applications to be made by email or fax, suggesting that it is low-tech, flawed, and difficult for irrigators to use in competition with brokers during an IVT opening.

The ACCC is aware that some brokers have developed IT strategies for faster lodgement of applications for inter-valley trade approvals to take advantage of the New South Wales approvals system. The ACCC is also aware that patterns in trades submitted to the Victorian Broker Portal show increasing use of automation to rapidly submit trades when an IVT opportunity arises.

The development of IVT approval strategies further signifies that the market for water brokerage services in the Southern Basin is highly competitive. Brokers are developing trade approvals strategies that make the most out of the existing approvals system, to the benefit of their clients. Such competition driven innovation is positive for markets, provided that the market structure itself does not unfairly exclude some participants from using similar innovations. Increased investment in IT and automation will affect the range of parties that are successful with their IVT approval applications. Competitive pressures and arbitrage opportunities could result in more brokers and other market participants developing their own strategies for trade approvals over time. While smaller irrigators will not have the capacity to invest in automation technologies themselves, they could engage a broker who does.

The existence of IVT limits means that IVT opportunities will likely remain highly contested when price differentials are significant. The ACCC is continuing to examine the practices of aggregation and IVT approval strategies, and will also consider whether aspects of market

³⁴¹ The 2019–20 figures are year to date figures to 30 November 2019.

design, like IVT limits, can be improved. Market architecture considerations for IVTs is discussed in section 13.4.

6.9.3. Concerns brokers affect price differentials between valleys

A concern has been raised that price differentials between the valleys can be maintained by brokers who use their own water accounts for IVTs. It is alleged that the practice of brokers using their accounts to transfer water rights between valleys prevents prices in the valleys from responding quickly or equalising when the constraint is removed.³⁴² It has been raised that prices would more rapidly respond, or equalise, if water could only be moved directly from a seller's account to a buyer's account or between an individual irrigator's accounts and that IVT opportunities would remain open for longer.³⁴³

The prices recorded when the water rights are aggregated in the origin valley in some instances are not the same as the prices recorded when the water rights are transferred off the brokers account in the destination valley. For example, the prices will not 'match' because a buyer has not been found prior to the IVT opening (when the parcel is aggregated). The use of brokers' water accounts to facilitate trade also limits transparency, which is discussed above at section 6.5.3 of this chapter.

A stakeholder has raised further concern that, following the approval of an IVT, a brokers can slowly sell water rights off their account into the destination market, to maintain the price differential between the valleys.³⁴⁴ Brokers can hold parcels of water rights on their accounts in order to maximise their clients' gain from selling their water rights in the destination valley. Strategies to maximise the return on sellers' water assets is in line with the efficient functioning of markets.

Concerns arise with the presence of market power. Some brokers are successfully transferring large amounts of water between valleys, and have demonstrated their ability to capture most or all of the trade limit in one application. This can often be a significant volume of water³⁴⁵ which in some instances has the potential to equalise prices between the valleys when the constraint is removed.

The ACCC is continuing to examine patterns of inter-valley trading and the use of brokers' water accounts in IVTs and is considering implications for market integrity, transparency, competition and market design.

6.9.4. Brokerage firms taking a personal position in IVTs

The ACCC is also aware of the potential for brokers or brokerage firms to take a position in an IVT through the widespread use of the firm's own water accounts to facilitate the movement of water rights through an inter-valley trade opening. The allegation of brokers or brokerage firms taking a position as a principal in a trade is explored above at section 6.5.2 of this chapter.

³⁴² H2OX, Submission to the Murray–Darling Basin inquiry, February 2020, p. 10.

³⁴³ *ibid.*

³⁴⁴ *ibid.*

³⁴⁵ Section 13.4 of this interim report assesses the opening, closing and account balances of IVT limits and the Barmah Choke trade restriction.

Questions for stakeholders

- Do you consider you are able to effectively access inter-valley trade opportunities when they arise? Why/why not?
- For holders of water rights who have traded water into another valley during an inter-valley trade opening, did you use a broker to facilitate the trade? Why/why not? If yes,
- Does the broker aggregate your water rights on to their water account before an opening? How far in advance of the anticipated inter-valley trade opening do you transfer your water rights on to the broker's water account?
- When is the price for the water rights agreed on? When do you receive payment for the transfer of your water rights? (Before or after the inter-valley trade is approved?)
- Is there a delay in transferring the water rights off the broker's account in the destination valley? If so, is this because you don't have a water account in that valley, and you require the broker to hold the water rights on their account until you can find a buyer? Or do the water rights remain in the broker's account until they can find a buyer?
- Are you aware/are you able to see the price the buyer pays to the broker for the purchase of your water rights?
- Are you aware of brokers taking a personal position in inter-valley trades? Is this disclosed to the other party to the trade?

6.10. IIOs which operate trading platforms or offer brokerage services are capable of preferencing IIO facilitated trades for approval

Market participants have raised concerns with the ACCC about IIOs operating trading platforms or offering brokerage services, while acting as an approval authority. A previous report³⁴⁶ and ACCC advice³⁴⁷ have considered the potential for conflicts of interest to arise and made recommendations to address such conflict.

IIOs are capable of prioritising the approval of trades facilitated by their own brokers or trading platforms over other trade approval requests. A financial incentive could exist for the organisation to bundle water delivery services with the intermediary service in such a way that it limits clients' choice of independent intermediary. To the extent that this occurs, it would result in reduced competition in the market for intermediary services, and result in higher costs to water traders.

Financial gain from acting inappropriately can result directly from the revenue from the exchange, or from acting in a way that financially benefits the operator's clients or members at the expense of third parties. The ACCC will continue to analyse this issue ahead of the release of the final report.

³⁴⁶ ACCC, 2010, op. cit., pp. 39–45.

³⁴⁷ ACCC, 2010, Water trading rules, final advice, Canberra, March.

Questions for stakeholders

- Are you aware of instances where an IIO has prioritised the approval of a trade facilitated by their own brokers or trading platform over other approval requests? If so, provide details
- Are you aware of instances where an IIO has limited a client's choice of independent intermediary by bundling water delivery services with their own intermediary service? If so, provide details.

6.11. The ACCC's preliminary view is that substantial additional broker regulation is required

6.11.1. Intermediaries are regulated across most markets

This chapter has highlighted that brokers play an important role in the water market. It is therefore crucial that brokers are subject to and comply with obligations that are appropriate for a market intermediary and that market participants are clear about what these obligations are, including how they apply within an IIO. In particular, it is imperative that where there is a real or perceived conflict of interest between a broker and their client, these circumstances are clearly disclosed to the client. The client must understand what the broker's obligations are and that they typically do not extend to acting in the client's best interests.

Similarly, brokers must not have an unchecked opportunity to use their position in the market to mislead clients or to influence the market price in ways described in this chapter. The chapter also identifies the need for the introduction of a water broker industry client fund management framework to protect the interests of brokers and their clients. Intermediaries across a range of other industries, including real estate agents and stock brokers are regulated specifically to address the risk of similar conduct. It is the ACCC's preliminary view that there is merit in likewise addressing these risks in the water market context.

6.11.2. The ACCC is considering options to enhance market integrity

As noted in the chapter, the ACCC is still considering allegations raised, and will undertake further analysis before the release of the final report. However, the ACCC's preliminary view is that additional broker regulation is required to address the lack of clarity in the role and obligations of brokers, the potential for perceived or real conflicts of interests, and scope for brokers to influence markets without oversight. This regulation would increase the integrity and transparency of water markets, improving their operation for all market participants. The form of any such regulation is considered under the proposed options in chapters 7 and 11.

7. Regulatory settings and solutions

Key Points

- Regulatory settings in the Murray–Darling Basin water markets are complex and fragmented within and between the participating jurisdictions.
- The Basin Plan water trading rules underpin market regulation. The Basin States each have water trading rules for their jurisdictions. The financial regulation framework applies to water products that are financial products.
- The lack of appropriate compliance and enforcement activity means the existing regulation is often ineffectual.
- Notwithstanding the amount of regulation, there is a lack of a cohesive regulatory framework for the Basin water markets such as exists for other markets.
- The ACCC considers that there is a case for improved regulation of the Murray–Darling Basin water market.
- Some aspects of the financial regulation framework provide useful precedents for consideration in the context of Basin water markets.
- The ACCC seeks feedback on a range of regulatory options, including: 1) a licensing scheme, 2) extending the financial regulation framework to all water products, and 3) an independent whole-of-market regulator for the Basin.

7.1. Overview of chapter

In this chapter, the ACCC examines the effectiveness of the regulatory environment for Murray–Darling Basin water markets. The chapter then considers regulatory options to address the problems and harms the ACCC has identified.

Unlike many other markets, Murray–Darling Basin water markets were created entirely by regulation and have evolved over several decades³⁴⁸, as an adjunct to broader water management reforms for the Basin river system.³⁴⁹ Chapter 2 sets out more detail about why we have water markets and how they operate.

There are signs that the Murray–Darling Basin water markets are delivering some good outcomes. Trade in Basin water rights, encompassing ‘permanent’ and ‘temporary rights’, now averages about \$1.5 billion a year in real terms.³⁵⁰ However, many market objectives have not been met. Trade in the Basin has increased significantly in the past 30 years and the market is showing signs that it has outgrown its original design and regulatory settings. Despite the existing regulation, there isn’t a sense of a cohesive regulatory framework for the water markets such as exists for other markets like the financial services market. There are a number of issues emerging that need to be addressed to maximise the productive use of a critical and scarce resource.

The ACCC has found that many market participants lack confidence in Basin water markets.³⁵¹ There is a deep mistrust of some participants, particularly some intermediaries and investors. There is also mistrust of some key institutions across the Basin responsible

³⁴⁸ National Water Commission (NWC), *Water markets in Australia: a short history*, Canberra, December 2011, p. 3.

³⁴⁹ Council of Australian Governments (COAG), *The 1994 strategic framework for the efficient and sustainable reform of the Australian water industry*, 1994; and the COAG, *2004 Intergovernmental Agreement on a National Water Initiative*, 25 June 2004.

³⁵⁰ Bureau of Meteorology, *Allocation and entitlement trade data*, www.bom.gov.au/water/market/, viewed 22 June 2020.

³⁵¹ ACCC Murray–Darling Basin inquiry, Renmark public forum.

for managing important aspects of the market.³⁵² There is frustration about fragmented rules within and between jurisdictions, and differences between approaches to compliance and enforcement.³⁵³ In some cases these concerns have led to calls to go back to the old system, where water was tied to land, perhaps with some limited trade only between water users.³⁵⁴

Trust and confidence in the market are critically important for achieving optimal market outcomes. The ACCC has identified a need to increase confidence by enhancing the integrity protections afforded by water market regulation. The ACCC considers that the regulatory framework for financial services and markets includes some useful examples of legislative measures that could be modified and tailored so as to be fit-for-purpose for Basin water markets. They could be included in any of the three regulatory options explored in this chapter. The ACCC is seeking feedback from market participants on the three options identified in this chapter.

7.2. Stakeholders are confused by regulations that are fragmented and inconsistent across jurisdictions

Central to the regulatory settings for the water markets in the Murray–Darling Basin is the water trading rules in chapter 12 of the Murray–Darling Basin Plan.³⁵⁵ These rules were developed to contribute to achieving the Basin water market and trading principles set out in Schedule 3 to the *Water Act 2007*. The Basin Plan trading rules apply to the Commonwealth, the Basin States, irrigation infrastructure operators and individual market participants.

The inclusion of trading rules in the Basin Plan was intended to provide a common framework for the trading of water rights across the Basin.³⁵⁶ Many of the requirements in the Basin Plan trading rules are achieved through Basin State rules and administrative arrangements, which operate alongside the Basin Plan.

The Basin Plan trading rules aim to ensure free trade in surface water, except where there are defined allowable restrictions.³⁵⁷ The rules define the types of trade restrictions that are and are not permissible in the Basin. For example:

- a person may trade a water access right free of any restriction on the trade that relates to the person being a member of a particular ‘class of persons’ (such as environmental water holders or irrigators) or to the ‘purpose’ for which the water will be used³⁵⁸
- free trade of surface water is required within and between regulated systems, and within unregulated systems, except where a restriction meets certain criteria (for example, a physical constraint, lack of connectivity, or the need to protect the environment)³⁵⁹

³⁵² ACCC Murray–Darling Basin inquiry, Renmark public forum.

³⁵³ ACCC Murray–Darling Basin inquiry, Deniliquin public forum.

³⁵⁴ A view expressed at several of the ACCC’s public forums.

³⁵⁵ Murray–Darling Basin Authority, Canberra, 30 May 2019, www.mdba.gov.au/managing-water/water-markets-trade/basin-plan-water-trading-rules, viewed 22 June 2020.

³⁵⁶ Explanatory Statement for the *Basin Plan 2012*, extracted from the Federal Register of Legislation.

³⁵⁷ *ibid.* para. 687, p. 122.

³⁵⁸ Sections 12.07 to 12.08 of the *Basin Plan 2012*.

³⁵⁹ Sections 12.16 to 12.18 of the *Basin Plan 2012*.

The Basin Plan trading rules also aim to increase the level of information available in the market, as access to information facilitates transparency and increases confidence, allowing participants to make informed decisions.³⁶⁰

For example:

- a person (generally a Basin State or Commonwealth agency) who makes a water announcement³⁶¹ (such as an upcoming seasonal allocation announcement or a carryover announcement) must ensure it is made generally available³⁶²
- a person who is aware of a water announcement that could have a material effect on the price of a trade must not enter into the trade informed by that information until the information is communicated to the market through being made 'generally available'³⁶³
- the agreed price of each trade of a water access right must be reported to the relevant approval authority by the seller of the water access right, either before, or at, the time the approval or registration is sought.³⁶⁴

The Basin Plan trading rules are intended to provide a level of consistency in the rules governing trade in the Basin to ensure that all market participants can be confident of their rights regardless of where they are trading within the Basin.³⁶⁵ However, the Basin Plan trading rules do not cover all of the rules that govern the trading or transfer of tradeable water rights in the Basin. Many other trading rules that apply at a state or local level operate concurrently with the Basin Plan trading rules.³⁶⁶ Stakeholders have expressed concerns that these rules often differ across catchments and between jurisdictions.³⁶⁷ For example, some market participants consider that an opportunity has been created for market participants to manipulate the market by, 'exploiting differences in carryover rules and inter valley trade rules'.³⁶⁸

7.3. The objectives of the water trading rules cannot be achieved if compliance and enforcement activity continues to fall short

The *Water Act 2007* and the *Basin Plan 2012* give the MDBA powers to enforce compliance with the Basin Plan Water Trading Rules.³⁶⁹ Basin States are responsible for regulating water users within their jurisdictions, and enforcing compliance with their rules.³⁷⁰

Although the MDBA has statutory enforcement powers under the *Water Act 2007*³⁷¹, it has considered water compliance and enforcement to be largely a matter for the Basin States:

The MDBA's role in compliance allegations concerning individual water users is limited. Such a role was never contemplated for the Authority, and it is not resourced

³⁶⁰ Explanatory Statement for the *Basin Plan 2012*, para. 687, p 122; and Murray-Darling Basin Authority, *Guidelines for Water Trading Rules*, February 2016, www.mdba.gov.au/publications/policies-guidelines/guidelines-water-trading-rules, viewed 22 June 2020.

³⁶¹ See definition of 'water announcement' at s. 12.49(2) of the *Basin Plan 2012*.

³⁶² Section 12.50 of the *Basin Plan 2012*.

³⁶³ Sections 12.49 to 12.52 of the *Basin Plan 2012*.

³⁶⁴ Section 12.48 of the *Basin Plan 2012*.

³⁶⁵ Explanatory Statement for the *Basin Plan 2012*, para 688, p. 122.

³⁶⁶ *ibid.* para 689, p. 122.

³⁶⁷ ACCC Murray-Darling Basin inquiry, Griffith public forum.

³⁶⁸ ACCC Murray-Darling Basin inquiry, Murray-Bridge public forum.

³⁶⁹ Murray-Darling Basin Authority, *Complying with the Basin Plan*, www.mdba.gov.au, 2019; and Part 8 of the *Water Act 2007*.

³⁷⁰ *ibid.*

³⁷¹ Part 8 of the *Water Act 2007*.

*to perform this intensive role across the Basin. Rather, it has been assumed that Basin States are enforcing their own laws diligently.*³⁷²

However, in the course of the 2017 *Murray–Darling Basin Water Compliance Review*, it was made very clear that ‘the community does not accept this arrangement’.³⁷³ There remains concern that certain Basin Plan trading rules are not being adequately enforced.

For example, in relation to section 12.51 (‘Person not to trade if aware of water announcement before it is generally available’), claims have been made to the ACCC that some market participants have access to allocation information, and inter-valley trade opportunities, before they are made generally available, allowing those participants to make trade decisions based on information unavailable to other market participants.³⁷⁴ Claims have also been made that important information, such as allocation policies, are inadequately communicated to the irrigators and traders who rely on these to make business decisions. In relation to market transparency, there is evidence to suggest that price reporting rules are inadequately enforced.³⁷⁵

7.3.1. Zero dollar trades and unverified price reporting continue to be an issue with price reporting rules not operating as intended

The ACCC is aware that price reporting requirements have been approached in different and seemingly arbitrary ways by those affected by the rules. For example, some water market participants designate a \$0/ML on application forms when reporting the price of forward contracts, in an effort not to skew public data. Other market participants report the price under the forward contract that has been contractually agreed to with the counterparty. There is also trade between related parties, where no monetary consideration is paid. For example, moving water between licences in a water portfolio. Such transfers are not differentiated from trade in terms of regulatory treatment for price reporting and are often reported as zero dollar trades.

In its 2019 Audit of Compliance with s12.48 (‘Price of trade to be reported’) of the Basin Plan, Deloitte found that misreporting of water trade prices in the Murray Darling Basin is pervasive. Deloitte uncovered a number of reasons for the pervasive misreporting of prices:

*Reasons include a lack of understanding about the requirement to report trade prices, poor reporting systems that do little to encourage accurate price reporting, and little or no validation of the price data provided. Overall, Deloitte found that no relevant government had fully effective controls in place to ensure complete and accurate price reporting.*³⁷⁶

Deloitte’s overarching recommendation was that the MDBA, Basin States and BoM work together to build a more effective governance framework that can prevent and detect poor price reporting. Deloitte’s recommendations include:

- Price reporting should be mandatory across all Basin States to ensure compliance.
- More effort be made to inform, support and engage with brokers and traders about their price reporting obligations.

³⁷² Senate Committee Report, *The integrity of the water market in the Murray–Darling Basin*, Commonwealth of Australia, 29 November 2018, www.aph.gov.au/Parliamentary_Business/Committees/Senate/Rural_and_Regional_Affairs_and_Transport/MurrayDarlingPlan/Report, viewed 22 June 2020, p. 70.

³⁷³ Murray–Darling Basin Authority and the Independent Review Panel, *The Murray–Darling Basin Water Compliance Review*, November 2017, www.mdba.gov.au/publications/mdba-reports/murray-darling-basin-water-compliance-review, viewed 22 June 2020.

³⁷⁴ ACCC Murray–Darling Basin inquiry, Kerang public forum.

³⁷⁵ Deloitte, ‘Reasonable Assurance Audit—Trade Price Audit’, prepared for MDBA, 29 May 2019.

³⁷⁶ *ibid.*

- Options be explored to make price reporting easier and more accurate, including online portals.
- Justification for zero dollar trades be made mandatory on all trade registrations.
- Trade forms and registers be updated to better accommodate the diversity of trade products and types.

The ACCC supports these recommendations. However, if commitments and work plans do not result in proportionate and visible enforcement actions that are harmonised across Basin States, then the objectives of the trading rules cannot be met. This means that market transparency is not being achieved. Transparency is critical for increasing the efficiency of markets and reducing information asymmetries.

The ACCC considers that there are several options for improving price reporting, noting that systemic misreporting of prices leads to a lack of confidence in the integrity of the market and may amount to price manipulation. The options include regulatory solutions, for example, a clearer price reporting rule so that market participants know what is required in what situation, including for forward contracts and carryover parking. The options also include improved registration form design and administrative solutions relating to registers and exchanges, which are discussed further in chapters 10 and 11 of this interim report. For example, the Victorian broker portal already has de facto enforcement powers that people acknowledge when they use the system. To access the Broker Portal, water brokers have to commit to the Victorian Water Register Interface Access Agreement and the Victorian Water Register Interface Common Rules.³⁷⁷

7.4. If jurisdictional commitments do not result in proportionate enforcement actions that are harmonised across Basin States, then the objectives of the trading rules cannot be met

More broadly, Basin Plan compliance and enforcement has received considerable attention in recent years. In 2017, the Australian Government requested the MDBA and an Independent Panel conduct the *Murray–Darling Basin Water Compliance Review* following allegations of water theft in the Basin.³⁷⁸ The review included the following comments about the Basin Plan trading rules:

*The MDBA regards the successful implementation of water trading rules as a high priority and acknowledges that lack of compliance can compromise both entitlement holders' and traders' confidence to invest in water access rights. Priorities for enforcing trade rules are outlined in the MDBA Strategic priorities for Basin Plan Water Trading Rules.*³⁷⁹

*As part of the annual statement of assurance process, the MDBA asks Basin States to provide information about how they have managed market sensitive information and how Basin States are meeting relevant obligations under the Basin Plan.*³⁸⁰

³⁷⁷ Victorian Water Register, Water Brokers accessing the online Broker Portal, 13 May 2020, <https://waterregister.vic.gov.au/about/news/313-water-brokers-accessing-the-online-broker-portal>, viewed 22 June 2020.

³⁷⁸ Murray–Darling Basin Authority, *The Murray–Darling Basin Water Compliance Review*, Part A, 2017, www.mdba.gov.au/publications/mdba-reports/murray-darling-basin-water-compliance-review, viewed 22 June 2020.

³⁷⁹ Murray–Darling Basin Authority, *Strategic Priorities Basin Plan Water Trading Rules*, www.mdba.gov.au/sites/default/files/pubs/Strategic-priorities-water-trading-rules.pdf, viewed 22 June 2020.

³⁸⁰ Murray–Darling Basin Authority, *The Murray–Darling Basin Water Compliance Review*, Part A, 2017, www.mdba.gov.au/publications/mdba-reports/murray-darling-basin-water-compliance-review, p. 59, viewed 22 June 2020.

The MDBA *Strategic priorities for the Basin Plan water trading rules* states:

*The rules require the price of a trade to be reported (s. 12.48). This obligation rests with the seller, not the approval authority. There are two elements associated with compliance with this rule; firstly that a price is provided, and secondly that the provided price accurately reflects the agreed price for the trade. The MDBA considers that the consequence of any individual not reporting their trade price is minimal. However, it is possible that in a thin market, where trade volumes are large, or the price varies significantly, not reporting a single transaction may have an effect. Furthermore, if there is systemic misreporting or price manipulation then this may represent collusion, or misleading or deceptive conduct. Should the MDBA become aware of individual traders who regularly fail to fulfil their obligations, increased intervention in these cases may be considered. The MDBA intends to work with Basin States to improve our knowledge of current reporting practices.*³⁸¹

Following the 2017 review, the MDBA has established an Office of Compliance, and revised its Compliance and Enforcement Policy, amongst other actions.³⁸² In December 2018, the Commonwealth, New South Wales, Victoria, Queensland, South Australia and the Australian Capital Territory agreed to the 'MDB Compliance Compact'. The Compact is a collaborative, joint commitment to 'restore public confidence in water resource management in the Basin by providing transparency and accountability of surface and groundwater management and regulation, and a consistent approach to compliance and enforcement practices by governments across the Basin'.³⁸³ The Compact sets priorities for action, and commits the Australian Government and Basin States to work plans that will be reported on regularly and publicly. The Compact commits the states to publish a work program to improve transparency and for the program to be implemented by 2025. The MDBA must also prepare annual reports to COAG and the MDB Ministerial Council on the progress of Compact commitments.³⁸⁴

The Productivity Commission conducts five yearly audits of Basin Plan implementation. In 2018, the PC found that more should have been done since 2014 by the MDBA and Basin States to review restrictions on trade and resolve compliance matters.³⁸⁵ In response, the MDBA made a commitment through its Compliance Priorities 2019–20 to prioritise the assessment of trade restrictions using its Water Trade Restriction Assessment Framework. The MDBA has identified over 1500 surface water trade restrictions for review.³⁸⁶ The MDBA has also published its *Compliance and Enforcement Policy 2018–2021*. It sets out information about how the MDBA will work with Basin State governments, including the MDBA's approach for compliance with the Basin Plan's water trading rules.³⁸⁷

Again, while the ACCC supports these policies and commitments, in the absence of actual and proportionate compliance and enforcement actions in response to non-compliance, the objectives of the Basin Plan trading rules cannot be met.

In July 2019, the Senate Select Committee on the Multi-Jurisdictional Management and Execution of the Murray Darling Basin Plan was established to inquire into the management

³⁸¹ Murray–Darling Basin Authority, *Strategic Priorities Basin Plan Water Trading Rules*, www.mdba.gov.au/sites/default/files/pubs/Strategic-priorities-water-trading-rules.pdf, viewed 22 June 2020.

³⁸² Murray–Darling Basin Authority, Action on Compliance Review, December 2019, www.mdba.gov.au/basin-plan-roll-out/compliance-enforcement/action-compliance-review, viewed 22 June 2020.

³⁸³ Basin States, Compliance Compact, <https://www.mdba.gov.au/sites/default/files/pubs/Basin-Compliance-Compact-12-December-2018.pdf> p. 1, viewed 22 June 2020.

³⁸⁴ *ibid.*

³⁸⁵ Productivity Commission *Murray–Darling Basin Plan: 5 year assessment*, Inquiry Report No. 90, 19 December 2018.

³⁸⁶ Murray–Darling Basin Authority, Compliance Priorities 2019–2020 www.mdba.gov.au/basin-plan-roll-out/compliance-enforcement/compliance-priorities, 26 June 2019, viewed 22 June 2020.

³⁸⁷ Murray–Darling Basin Authority, Compliance and Enforcement Policy, June 2018, www.mdba.gov.au/sites/default/files/pubs/MDBA-Compliance-and-enforcement-policy-2018.pdf, viewed 22 June 2020.

and execution of the Murray Darling Basin Plan by 1 November 2020.³⁸⁸ From October 2019, Mick Keelty, AO, Interim Inspector-General of Murray-Darling Basin Water Resources, has been appointed to help deliver the Basin Plan and improve transparency, accountability and community confidence.

7.5. There is a need to address regulatory gaps to create a fair and efficient water market characterised by integrity and transparency

In addition to the need for improved compliance and enforcement activity by the Basin States and the MDBA, the ACCC is also exploring new regulatory options to address regulatory gaps that have been identified during the inquiry. While the existing framework provides some key parameters for the water market, it does not represent a comprehensive market regulation framework as exists for other markets, such as the financial services, energy, and real estate markets. For example, there are regulatory gaps in water market regulation in terms of rules prohibiting harmful conduct, such as market manipulation.

Similarly, the existing governance arrangements for Basin water markets are out-of-step with those in place for other markets. For example, ASIC is the independent whole-of-market supervisor for financial services and markets across Australia. It was considered that having a whole-of-market supervisor for that sector would streamline supervision and enforcement, and enhance confidence in the integrity of the market, thereby increasing stability in the market.³⁸⁹ Under the Corporations Act, AFSL holders are subject to surveillance checks by ASIC and to criminal sanctions for committing offences and civil penalties for contravening certain provisions.³⁹⁰ These penalties were recently strengthened by the *Treasury Laws Amendment (Strengthening Corporate and Financial Sector Penalties) Act 2019*, following the Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry.

Similarly, in the energy market, the Australian Energy Regulator has this role. The ACCC is continuing to consider the issue of governance in Basin water markets alongside the issues of compliance and enforcement and regulatory reform (see chapter 15).

7.5.1. Stakeholders are confused by fragmentation and overlap of roles between different regulators

As noted above, the MDBA is responsible for enforcement of the Basin Plan, in conjunction with the Basin States. Each of the five Basin States maintains responsibility for legislative and administrative arrangements for water rights (water resource management) and water trading in their jurisdictions. These rules must be consistent with the Basin Plan. Each Basin State is responsible for enforcing their own trading rules in their jurisdictions.

The ACCC advises the MDBA on the development of water trading rules under the *Water Act 2007*³⁹¹, and advises the Commonwealth minister responsible for water on development of water market rules and water charge rules.³⁹² The ACCC also monitors compliance³⁹³ and enforces the water market rules and water charge rules.

³⁸⁸ Senate Committee Inquiry, Multi-Jurisdictional Management and Execution of the Murray–Darling Basin Plan, www.aph.gov.au/Parliamentary_Business/Committees/Senate/Management_and_Execution_of_the_Murray_Darling_Basin_Plan/MurrayDarlingBasinPlan/Terms_of_Reference, viewed 22 June 2020.

³⁸⁹ Federal Register of Legislation, EM for the Corporations Amendment (Financial Market Supervision) Bill 2010 www.legislation.gov.au/Details/C2010B00010/Explanatory%20Memorandum/Text, viewed 22 June 2020.

³⁹⁰ Section 912E Corporations Act.

³⁹¹ Subsection 42(2) of the *Water Act 2007*.

³⁹² Section 93 of the *Water Act 2007*.

³⁹³ Section 94 of the *Water Act 2007*.

The ACCC is the competition and fair trading regulator for water products and trade, under the CCA, including the Australian Consumer Law (ACL). Australia has a single law, multi-regulator approach to consumer protection law. The ACL is legislated at the Commonwealth, state and territory levels. It is enforced by the ACCC at the Commonwealth level and by the state and territory Offices of Fair Trading at the state and territory level. Water market participants, including brokers and water exchanges, are subject to the ACL, including prohibitions against misleading or deceptive conduct and unconscionable conduct, and the consumer guarantees protections.³⁹⁴ Further detail about the ACL's application to intermediaries is contained in chapter 6.

The Australian Securities and Investments Commission (ASIC) regulates water market participants who deal in water products that are financial products, under the regulatory framework for financial services and markets. This includes obligations and licensing regimes for financial services and markets under Chapter 7 of the Corporations Act, and the unconscionable conduct and consumer protection provisions under the *Australian Securities and Investments Commission Act 2001* (ASIC Act).

Acquiring and disposing of water rights is also subject to general taxation laws administered by the ATO. Foreign acquisitions of water rights are subject to laws for foreign investment administered by the Treasurer, where the acquisition forms part of an agricultural land or agribusiness acquisition that meets the relevant monetary threshold. Foreign acquisitions of water rights must also be registered on the Register of Foreign Owned Water Entitlements, administered by the ATO. More about these arrangements is set out later in this chapter.

7.5.2. Stakeholders were unsure about which water products are financial products regulated by ASIC

Regulation of consumer protection in the financial services industry moved from the ACCC to ASIC in 2001. In 2010, supervisory function for Australia's domestic licensed financial markets was transferred from individual market operators to ASIC.

In these contexts, there was uncertainty as to whether tradeable water rights could be categorised as 'derivatives'³⁹⁵ and therefore be 'financial products' for the purposes of the ASIC Act and Corporations Act.³⁹⁶

As a result of this legal uncertainty, water brokers and exchanges were uncertain as to whether they were required to hold an AFSL or Australian market licence, and concerned about the validity of their transactions in the absence of holding such licences.³⁹⁷

³⁹⁴ However, some of the consumer protections are of limited application to water products. For example, under the consumer guarantees, businesses must guarantee products and services they sell, hire or lease for under \$40 000 for business use, and over \$40 000 that are normally bought for personal or household use.

³⁹⁵ Under subsection 761D(1) of the Corporations Act, a 'derivative' is an arrangement under which at some agreed future time a party to the arrangement must provide consideration of a particular kind to the other party. The amount of consideration must be derived from the value of something else, including for example, an asset, a commodity, an index, or a rate (for example, interest rate). The future time must not be less than 3 business days for a foreign exchange contract (reg 7.1.04(1)(a) of the *Corporations Regulations 2001*) and one business day for all other arrangements (reg 7.1.04(1)(b) of the *Corporations Regulations 2001*). The Corporations Act provides that certain arrangements are excluded from the meaning of derivative, such as the obligation to buy or sell tangible property: s. 761D(3)(a).

³⁹⁶ Water rights are unlikely to meet the general definition of a financial product under section 763A of the Corporations Act. However, paragraph 764A(1)(c) of the Corporations Act specifies that a 'derivative' is a financial product. It has been noted that, if not excluded from the definition of a derivative, tradeable water rights may be categorised as derivatives and included within the definition of financial product under paragraph 764A(1)(c): see Explanatory Statement at <https://treasury.gov.au/consultation/draft-amendments-on-regulation-of-water-market-trading>. A 'derivative' is one of a wider classes of things that fall within the legislative concept of a 'financial product' for the purposes of chapter 7 of the Corporations Act: see *Derivatives Report*, Corporations and Markets Advisory Committee. *Note:* If a product falls under the definition of both a security and a derivative, it will be regulated as a security: s. 761D(3)(c) of the Corporations Act.

³⁹⁷ Waterfind consultation submission on the Corporations Amendment (Water Trading Exemptions) Regulation 2014, treasury.gov.au/sites/default/files/2019-03/Waterfind.pdf, viewed 22 June 2020.

Some water market participants³⁹⁸ argued that water rights were akin to tangible property (such as real and personal property) and should be excluded under paragraph 761D(3)(a) of the Corporations Act. Paragraph 761D(3)(a) provides that 'tangible property' is excluded from the meaning of derivative. That approach was not adopted.

7.5.3. The 2014 'carve out' for basic tradeable water rights clarified this legal uncertainty

Regulations made under the Corporations Act and the ASIC Act can declare anything not to be a derivative.³⁹⁹ In 2014, the *Australian Securities and Investments Commission Regulations 2001* and the *Corporations Regulations 2001* were amended by the *Corporations Amendment (Water Trading Exemptions) Regulation 2014* to address the legal uncertainty as to whether tradeable water rights could fall within the definition of a derivative.

The *Corporations Amendment (Water Trading Exemptions) Regulation 2014* expressly excludes basic tradeable water rights, and certain arrangements to buy and sell them, from the definition of 'derivative' under the ASIC Act⁴⁰⁰, and Corporations Act.⁴⁰² This means that water entitlements, allocations, delivery rights, irrigation rights, forward contracts and leases are not financial products. As a consequence, the provisions in the Corporations Act and the ASIC Act relating to financial services, financial markets do not apply to these tradeable water rights.⁴⁰³ However, bona fide options and futures contracts in respect of tradeable water rights are not included in the carve out and are considered to be derivatives for the purposes of the Corporations Act and the ASIC Act.⁴⁰⁴

In its submission on the draft *Corporations Amendment (Water Trading Exemptions) Regulation 2013*, the Australian Water Brokers Association welcomed this reform, indicating the framework is unnecessarily onerous. In its submission, Clayton Utz argued that the regulations should go further and also clarify that financial investments in tradeable water rights do not amount to participation in a 'management investment scheme'.⁴⁰⁵ This suggestion was not implemented.

7.5.4. Some stakeholders are unaware of the implications for bona fide water options and futures under the financial regulation framework

As derivatives, water options and futures are subject to financial markets and services regulation under the *Corporations Act 2001* (Corporations Act)⁴⁰⁶, and the ASIC Act.⁴⁰⁷

³⁹⁸ *ibid.*

³⁹⁹ Paragraph 12BAA(8)(p) of the ASIC Act provides that the regulations may prescribe that a facility, interest or other thing is not a financial product for the purposes of Part 2, Division 2 of the ASIC Act. Under subsection 761D(2) of the Corporations Act, the regulations may declare anything to be a derivative. Under para 761D(3)(d) of the Corporations Act, the regulations may declare anything not to be a derivative.

⁴⁰⁰ Regulation 2BC of the *Australian Securities and Investments Commission Regulations 2001* and subregulation 7.1.04(8) of the *Corporations Regulations 2001*.

⁴⁰² Regulation 7.1.04(8) of the *Corporations Regulations 2001* provides that, for paragraph 761D(3)(d) of the Corporations Act, each of the following is declared not to be a derivative for chapter 7 of the Corporations Act:

(a) tradeable water rights; and (b) **an arrangement**: (i) under which a person (the seller) has, or may have, an obligation to sell tradeable water rights at a future date; and (ii) under which another person (the buyer) has, or may have, an obligation to buy the tradeable water rights, or replacement water rights, at a future date; and (iii) **that does not permit the seller's obligations to be wholly settled by cash, or by set off** between the seller and the buyer, **rather than by transfer of ownership of the tradeable water rights or replacement water rights**; and (iv) in relation to which neither usual market practice, nor the rules, allow the seller's obligations to be closed out by matching up the arrangement with another arrangement of the same kind under which the seller has offsetting obligations to buy the tradeable water rights or replacement water rights.

⁴⁰³ Explanatory Statement for the *Corporations Amendment (Water Trading Exemptions) Regulation 2013*.

⁴⁰⁴ Explanatory Statement for the *Corporations Amendment (Water Trading Exemptions) Regulation 2013*.

⁴⁰⁵ Clayton Utz, Submission to the Treasury *Consultation on draft amendments on regulation of water market trading*, [treasury.gov.au/consultation/draft-amendments-on-regulation-of-water-market-trading](https://www.treasury.gov.au/consultation/draft-amendments-on-regulation-of-water-market-trading), p. 2, viewed 22 June 2020.

⁴⁰⁶ Section 764A(1)(c) of the Corporations Act provides that a derivative is a 'financial product'.

Key aspects of financial markets and services regulation under the Corporations Act are:

- The licensing regimes for financial services⁴⁰⁸ and markets⁴⁰⁹ under the Corporations Act.
- The market integrity rules under Corporations Act: *ASIC Market Integrity Rules (Securities Markets) 2017* (Securities Markets rules) and the *ASIC Market Integrity Rules (Futures Markets) 2017* (Futures Markets rules).⁴¹⁰
- The obligations and requirements set out in Chapter 7 of the Corporations Act.⁴¹¹ For example, Part 7.10 of Chapter 7 of the Corporations Act deals with market misconduct relating to financial products and financial services.

This means that an entity providing a ‘financial service’ in relation to water options and futures may need to hold an AFSL under the *Corporations Act 2001*. A ‘financial service’ includes providing ‘financial product advice’, dealing in a ‘financial product’ or ‘making a market’ for a financial product. A person ‘makes a market’ for a financial product by regularly stating the price at which the person is willing to acquire or dispose of a financial product on the person’s own behalf, and where other persons have a reasonable expectation that they will be able to regularly buy and sell at those stated prices.

It is also possible that some water market participants are operating a ‘financial market’ and are therefore required to hold an ‘Australian market licence’ under section 791A of the Corporations Act. A person operates a ‘financial market’ if they operate a facility where the prices for a financial product are quoted on behalf of someone else, where buyers and sellers can establish contact, and through which offers to trade are made and accepted.

7.5.5. Are bona fide options and futures amongst the new trading products being developed?

As noted above, the regulation of bona fide options and futures is governed by the Corporations Act and the ASIC Act. The inquiry Direction requires the ACCC to consider the development of new trading products and whether these products could enhance water markets. The *Water Act 2007* (Cth) specifies that the objectives of the water market and trading arrangements for the Murray–Darling Basin include:

*to enable the appropriate mix of water products to develop based on water access entitlements which can be traded either in whole or in part, and either temporarily or permanently, or through lease arrangements or other trading options that may evolve over time.*⁴¹²

In theory, options and futures can be used by purchasers to hedge against supply risks and price increases. For example, an irrigator could enter into a contract for an option to buy a certain volume of allocation at a predetermined future time and price, to guard against potential low allocation announcements in the future, and spot price rises.

An option contract gives the buyer or holder of the option the right, but not the obligation, to buy or sell an asset in the future at an agreed price, in return for the payment of a

⁴⁰⁷ Section 12BAA(7) of the ASIC Act provides that a derivative is a ‘financial product’ for the purposes of Part 2, Div 2 of the ASIC Act (consumer protection provisions). For example, s12DA of the ASIC Act deals with misleading or deceptive conduct in relation to financial services. Section 131A of the *Competition and Consumer Act 2010* (CCA) excludes ‘financial products and services’ from the operation of the ACCC’s Australian Consumer Law (ACL).

⁴⁰⁸ Section 911A of the Corporations Act.

⁴⁰⁹ Section 791A of the Corporations Act.

⁴¹⁰ Part 7.2A of the Corporations Act enables ASIC to make market integrity rules dealing with the activities or conduct of: (a) licensed markets; (b) persons in relation to licensed markets; and (c) persons in relation to financial products traded on licensed markets.

⁴¹¹ The obligations for market operators are set out in Pts 7.2 and 7.2A of the Corporations Act.

⁴¹² Para 3(c) of Schedule 3 to the *Water Act 2007*—Basin water market and trading objectives.

premium.⁴¹³ H2OX has developed contracts and procedures to implement water call options in conjunction with potential suppliers and buyers of these products.⁴¹⁴ H2OX is not the supplier or buyer of call options. Rather, it brokers arrangements between counterparties, administers the collateral and manages the delivery of allocation at the exercise date.⁴¹⁵

The call options for water that H2OX has developed are physically settled and cannot be wholly cash-settled.⁴¹⁶ Subsection 761(3) of the Corporations Act and subregulation 7.1.04(8) of the *Corporations Regulations 2001* provide that an arrangement is not a derivative if it does not permit the seller's obligations to be wholly settled by cash, or by set off between the seller and the buyer, as an alternative to transfer of ownership of the tradeable water rights or replacement water rights.⁴¹⁷

The cash settlement method of settling derivatives does not involve the physical delivery of the asset under consideration. It instead involves the settlement of net cash on the settlement date. For cash settlement, the purchaser must pay the net cash amount on the settlement date. The net cash amount is generally the difference between the spot price and the futures price of the underlying asset (this could be a gain or a loss). In the case of water, the spread between the current spot value of the water asset and the price specified in the contract could in some cases be difficult to establish (in the absence of a price index). This could lead to disputes on the settlement payout on completion of the contract.

Some other water market participants have considered, or are considering, developing contracts for water options. At this stage, it seems very likely that these products will also be physically settled.

A futures contract is a contract to buy or sell a particular asset, currency or other index, for a specified price on a specified future date.⁴¹⁸ Futures are highly standardised and are often exchange traded, although they can also be traded over-the-counter.⁴¹⁹ Fully standardised futures contracts are typically traded through organised trading facilities where prices are publicly disclosed (on-exchange derivatives). Exchanges that trade futures have mechanisms for dealing with counter-party risk and secondary markets. The exchange becomes the central counterparty to the transaction—the buyer to every seller and the seller to every buyer.⁴²⁰ The exchange is a clearing house that collects collateral deposits from the counterparties and guarantees contract delivery in case of counterparty default.⁴²¹

ASX 24 is a futures exchange operating in Australia⁴²², and energy options and futures are traded through this platform. Water futures are not currently traded on this platform.

⁴¹³ Corporations and Markets Advisory Committee (CAMAC), Australian Government, *Derivatives Report*, December 2011, p. 7.

⁴¹⁴ H2OX, 2018, h2ox.com/water-products/options/, viewed 18 May 2020.

⁴¹⁵ H2OX, 2018, h2ox.com/water-products/options/, viewed 18 May 2020.

⁴¹⁶ H2OX, 2018, h2ox.com/water-products/options/, viewed 18 May 2020.

⁴¹⁷ Subregulation 7.1.04(8) of the *Corporations Regulations 2001* provides that, for paragraph 761D(3)(d) of the Corporations Act, each of the following is **declared not to be a derivative** for chapter 7 of the Corporations Act:

(a) tradeable water rights; and (b) **an arrangement**: (i) under which a person (the seller) has, or may have, an obligation to sell tradeable water rights at a future date; and (ii) under which another person (the buyer) has, or may have, an obligation to buy the tradeable water rights, or replacement water rights, at a future date; and (iii) **that does not permit the seller's obligations to be wholly settled by cash, or by set off** between the seller and the buyer, **rather than by transfer of ownership of the tradeable water rights or replacement water rights**; and (iv) in relation to which neither usual market practice, nor the rules, allow the seller's obligations to be closed out by matching up the arrangement with another arrangement of the same kind under which the seller has offsetting obligations to buy the tradeable water rights or replacement water rights.

⁴¹⁸ ASIC, Glossary, <https://moneysmart.gov.au/glossary>, viewed 23 June 2020.

⁴¹⁹ ASIC, *OTC Derivatives*, <https://asic.gov.au/regulatory-resources/markets/otc-derivatives/>, viewed 23 June 2020.

⁴²⁰ ASX Submission to the Council of Financial Regulators, *Review of Competition in Clearing Australian Cash Equities*, March 2015 https://treasury.gov.au/sites/default/files/2019-03/C2015-007_ASX.pdf, viewed 23 June 2020.

⁴²¹ *ibid.*

⁴²² ASIC, *Licensed domestic financial markets operating in Australia*, <https://asic.gov.au/regulatory-resources/markets/market-structure/licensed-and-exempt-markets/licensed-domestic-financial-markets-operating-in-australia/>, viewed 23 June 2020.

If ASX 24 decided to issue a water futures contract, ASX 24 would first have to develop operating rules with respect to this kind of product. Similarly, Chi X holds an Australian market licence that allows it to trade securities and derivatives.⁴²³ Water options and futures could not be immediately traded on Chi X, as it would need to develop market operating rules for these water products.⁴²⁴ NSXA and SSX do not currently hold licences for derivative trade.⁴²⁵ NSXA and SSX could not trade water derivatives unless they had their market licences amended to allow them to trade derivatives, and after that they would need then to make relevant rules for that market.⁴²⁶

Futures can also be traded over the counter (OTC). OTC futures are traded (and privately negotiated) directly between two parties, without going through a central exchange or other intermediary.⁴²⁷ Trades on OTC markets are facilitated by broker-dealers who provide bid and offer prices on financial products, effectively setting the price of a security.

The derivative transaction rules impose obligations on entities to report information about their transactions in OTC derivatives to a licensed Derivative Trade Repository, who then make information available about these transactions to regulators and the broader market. ASIC has responsibility for licensing and supervising the derivative trade repositories, the operation of which is authorised by an Australian derivative trade repository licence.⁴²⁸

OTC trade of water futures is an activity that a water broker could potentially engage in. Agricultural OTC futures have been traded previously. For example, Macquarie Bank Ltd used to run a market for OTC futures involving wool, a subsidiary called Macquarie Wool Futures. However, the ACCC is not aware of anyone currently dealing in OTC water futures in the Murray–Darling Basin. The 2009 *Survey of the OTC derivatives market in Australia* noted that participation in OTC markets is usually limited to more sophisticated counterparties, such as wholesale clients.⁴²⁹

In the context of this inquiry, a water market participant noted that there are several challenges to the emergence of water bona fide options and futures:

- The depth of any market is limited on account of their specific regional locations (there are many markets).
- There is a massive bid/offer spread which makes it difficult and costly to price the risk of dynamically hedging a derivatives position as a potential market maker (for example, seller of call or put options).
- Water allocation pricing is not normally distributed and has incredible ‘tail risk’. Water is not substitutable at any price; fresh water in a particular location cannot be purchased if there is none available.
- The fulfilment of derivative contracts cannot simply be cash settled when the market will be conducted with irrigators who will ordinarily require water, not cash. At expiry, there are likely to be large disputes on the settlement rates when bid/offer spreads in adverse events might be hundreds of dollars per megalitre apart.

⁴²³ *ibid.*

⁴²⁴ Some products that are called ‘options’ are actually securities rather than derivatives because, if a product falls under the definition of both a security and a derivate, it will be regulated as a security under section 761D(3)(c) of the Corporations Act.

⁴²⁵ ASIC, *Licensed domestic financial markets operating in Australia*, <https://asic.gov.au/regulatory-resources/markets/market-structure/licensed-and-exempt-markets/licensed-domestic-financial-markets-operating-in-australia/>, viewed 23 June 2020.

⁴²⁶ Under s. 795B of the Corporations Act, a person applying for an Australian market licence will only be granted the licence if the person has adequate operating rules in place to trade the kinds of financial products they propose to trade.

⁴²⁷ Corporations and Markets Advisory Committee (CAMAC), Australian Government, *Derivatives Report*, December 2011.

⁴²⁸ ASIC, Regulatory Guide 252, ‘Derivative transaction reporting’.

⁴²⁹ A joint report by the Australian Prudential Regulation Authority, Australian Securities and Investments Commission and Reserve Bank of Australia, *Survey of the OTC derivatives market in Australia*, May 2009 https://download.asic.gov.au/media/1343174/REP158_SurveyOfTheDerivatives.pdf, viewed 23 June 2020.

As noted above, subsection 761(3) of the Corporations Act and subregulation 7.1.04(8) of the *Corporations Regulations 2001* provide that an arrangement is not a derivative if it does not permit the seller's obligations to be wholly settled by cash, or by set off between the seller and the buyer, as an alternative to transfer of ownership of the tradeable water rights or replacement water rights. Cash settlement is problematic for water products because the spread between the current spot value of the water asset and the price specified in the contract could in some cases be difficult to establish (in the absence of a price index).

While there is some interest in the use of physically-settled call options, the information gathered by the ACCC to date suggests the majority of water market participants in the Murray–Darling Basin have established alternative water ownership and trading strategies to secure water for production, such as using their own carryover, using the carryover of other participants through carryover parking, trading spot allocation and forwards, and lease back arrangements. However, the ACCC is interested in stakeholders' views on the potential for water options and futures to develop in the future.

Questions for stakeholders

- Do you consider that there is a place for bona fide water options and futures in the water market?
- Would you buy or sell water futures on-exchange or over-the-counter, if they were available?

7.6. The Basin water markets don't have rules governing trading behaviour and transparency comparable to those in place for other markets.

The ACCC considers that the regulatory framework for financial services and markets provides a useful example of how a market can be reformed to create specific obligations to enhance market integrity and to protect against consumer harms. The below case study outlines key aspects of the financial market regulatory framework.

Box 7.1: Case study

Key aspects of the financial regulation framework

Chapter 7 of the Corporations Act regulates the financial services industry.

Part 7.6 of the Corporations Act requires that a person who carries on a financial services business must hold an AFSL covering the provision of the financial services. Section 766A of the Corporations Act provides that certain dealings in a 'financial product', 'financial product advice' and 'market making' in relation to financial products will be a financial service. This includes trading financial products on one's own behalf.

Part 7.2 of the Corporations Act provides for a licensing regime in relation to financial markets. Section 767A defines a 'financial market' with reference to offers or invitations to acquire or dispose of 'financial products'. That is, a person trading financial products on behalf of others must hold an Australian Market licence.

Part 7.3 of the Corporations Act provides for the licensing of clearing and settlement facilities. Section 768A defines a 'clearing and settlement facility' with reference to transactions relating to financial products.

Part 7.2A of the Corporations Act enables ASIC to make market integrity rules dealing with activities and conduct in relation to licensed financial markets, including the conduct of market participants.

7.6.1. Australian Financial Service Licence

Under the Corporations Act, people providing a 'financial services business'⁴³⁰ for 'financial products' are required to hold an AFSL. A 'financial service' includes providing advice on a 'financial product', dealing in a 'financial product', or 'making a market' for a 'financial product'.⁴³¹

A person 'makes a market' for a financial product by regularly stating the price at which the person is willing to acquire or dispose of a financial product on the person's own behalf, and where other persons have a reasonable expectation that they will be able to regularly buy and sell at those stated prices.⁴³² ASIC regulates the conduct of AFSL holders.

7.6.2. What are the general obligations under an AFSL licence?

Chapter 7 of the Corporations Act regulates the financial services industry in Australia. An AFS licensee has general obligations under s. 912A(1) of the Corporations Act to:

- do all things necessary to ensure that the financial services covered by your licence are provided efficiently, honestly and fairly (s. 912A(1)(a))⁴³³

⁴³⁰ ASIC, Regulatory Guide 36 *Licensing: Financial product advice and dealing*, Issued June 2016, p. 26: 'The business test is satisfied where a person provides financial services with system, repetition and continuity'.

⁴³¹ Section 766A of the Corporations Act.

⁴³² ASIC, Regulatory Guide 121: *Doing financial services business in Australia*, issued 30 July 2013, p. 10: There is a distinction between 'making a market for a financial product' and 'operating a financial market'. The general test is whether the person operates a facility where the prices for a financial product are quoted on behalf of other persons (operating a financial market), or solely on their own behalf (making a market).

⁴³³ ASIC Regulatory Guide 175 *Licensing: Financial product advisers—Conduct and disclosure*, issued 14 November 2017, and ASIC Regulatory Guide 104 *AFS licensing: Meeting the general obligations*, issued 1 April 2020: the requirement to provide financial services 'efficiently, honestly and fairly' will be breached where a financial adviser fails to comply with their common law obligations.

- have adequate arrangements in place to manage conflicts of interest, including disclosing, controlling and avoiding (s. 912A(1)(aa))
- comply with licence conditions (s. 912A(1)(b))
- comply with laws for financial services (s. 912A(1)(c))
- take reasonable steps to ensure that your representatives comply with the financial services laws (s. 912A(1)(ca))
- have adequate financial, technological and human resources to provide the financial services covered by your licence and to carry out supervisory arrangements (s. 912A(1)(d))
- maintain the competence to provide the financial services covered by your licence (s. 912A(1)(e))
- ensure that your representatives are adequately trained and competent to provide those financial services (s. 912A(1)(f))
- if you provide financial services to retail clients, have a dispute resolution system (s. 912A(1)(g)), and
- establish and maintain adequate risk management systems (s. 912A(1)(h)).

AFS licensee may need to comply with various conduct obligations in Parts 7.6, 7.8 and 7.10, including:

- complying with certain procedures when dealing with clients' money and other property, and
- keeping financial records and preparing and lodging financial statements.

Under the Corporations Act, AFSL holders are subject to surveillance checks⁴³⁴ by ASIC and to criminal sanctions for committing offences and civil penalties for contravening certain provisions. These penalties were recently strengthened by the *Treasury Laws Amendment (Strengthening Corporate and Financial Sector Penalties) Act 2019*, following the Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry.

7.6.3. Australian market licence

Under the Corporations Act, a person operating a 'financial market' in Australia is required to hold an Australian market licence⁴³⁵, and must comply with the statutory requirements for market licences. A person operates a 'financial market' if they operate a facility where the prices for a financial product are quoted on behalf of someone else, where buyers and sellers can establish contact, and through which offers to trade are made and accepted.

7.6.4. Market Integrity rules

ASIC has made market integrity rules under the Corporations Act for securities markets and for futures markets. The rules apply to market operators and participants.

The *ASIC Market Integrity Rules (Securities Markets) 2017* (Securities Markets rules) set out obligations and prohibitions applying to activities and conduct on the ASX, Chi-X, NSXA, SSX, IR Plus securities markets as well as competition between securities markets.

⁴³⁴ Section 912E Corporations Act.

⁴³⁵ Section 791A of the Corporations Act.

The *ASIC Market Integrity Rules (Futures Markets) 2017* (Futures Markets rules) apply to activities and conduct on the ASX 24 and FEX futures markets.

Some key aspects of the Securities Market Rules include:

- pre-trade and post-trade transparency obligations (Parts 6.2–6.3)
- retail client adviser accreditation for options and futures trade (part 2.4)
- procedures for managing conflicts of interest
- best execution obligation (part 3.8)
- penalties for false or misleading appearance of active trading (part 5.7)
- requirements for fairness and transparency in allocating orders (part 6.1)
- trust accounts and records of all money received and paid (part 3.5)
- records of dealings on own account (part 4.1)
- records of client agreements and details (part 4.1)
- maintain professional indemnity insurance (part 2.2).

The requirements under the market integrity rules are in addition to those set out in the Corporations Act. Division 2 of Part 7.10 of Chapter 7 of the Corporations Act deals with market misconduct and other prohibited conduct relating to financial products and financial services. Most of these provisions are subject to criminal sanctions and civil penalties. The following kinds of conduct are prohibited:

- Market manipulation (s. 1041A).
- False trading and ‘market rigging’—creating a false or misleading appearance of active trading etc. (s.1 041B).
- False trading and ‘market rigging’—artificially maintaining etc. trading price (s. 1041C).
- Dissemination of information about illegal transactions (s. 1041D).
- False or misleading statements (s. 1041E).
- Inducing persons to deal (s. 1041F).
- Dishonest conduct (s. 1041G).
- Misleading or deceptive conduct (civil liability only) (s.1041H).

Division 3 of Part 7.10 of Chapter 7 of the Corporations Act deals with insider trading relating to financial products and services.

The ASX has a Code of Practice that sets out how ASX manages its cash equities clearing and settlement infrastructure on behalf of its diverse stakeholders. The Code makes commitments on transparent and non-discriminatory access to ASX’s services and provides full transparency on the performance and economics of clearing and settlement services.⁴³⁶

7.7. Stakeholders are concerned that gaps in regulation and a lack of oversight is creating opportunities for harmful behaviour

Participation in the market, and hence trading water to its highest value use, is inhibited if participants lack confidence in the market. Throughout this interim report, these issues are discussed in detail regarding broker roles, practices and conduct (chapter 6), investors

⁴³⁶ ASX Submission to the Council of Financial Regulators, *Review of Competition in Clearing Australian Cash Equities*, March 2015, https://treasury.gov.au/sites/default/files/2019-03/C2015-007_ASX.pdf, p. 3, viewed 23 June 2020.

(chapter 5) and transparency (chapter 10). The key known harms and potential harms relating to market integrity identified by the ACCC are set out below in table 7.1.

The ACCC has also heard that the trading rules themselves are viewed as giving rise to opportunities for market manipulation and for disadvantaging some kinds of traders.⁴⁴⁴ The complexity of the Basin State trading rules and lack of jurisdictional consistency is likely contributing to these concerns (see section 7.2.3 above).

Table 7.1: Market Integrity Harms

Potential harm	Relevant legislative measures from other markets
1. Brokers and exchanges do not have a transparent or robust framework for managing competing interests (chapter 6)	<p>'MIR' is an abbreviation for <i>ASIC Market Integrity Rules (Securities Markets) 2017</i></p> <p>s. 912A(1)(aa) of the Corporations Act: 'AFSL conflicts management obligation'</p> <p>Part 3.8 MIR: 'best execution obligation'</p> <p>Part 5.1 MIR: 'Client order priority'</p> <p>Part 6.2 MIR: 'Pre-trade transparency'</p>
2. Brokers are not subject to a regulatory framework to appropriately manage client's funds including requiring brokers to establish statutory trust accounts, fidelity or assurance funds, and to purchase professional indemnity insurance. (chapter 6)	<p>Part 3.5 MIR: trust accounts must be established when dealing with client money and property.</p> <p>s. 912A(1)(h) Corporations Act: requirement for AFSL holders to have adequate risk management systems, such as professional indemnity insurance.</p> <p>Part 7.8 of Chapter 7 of the Corporations Act: dealing with clients' money.</p> <p>s. 136 of Schedule 1 of the <i>Legal Professional Uniform Law Application Act 2014</i> (Victoria): requirement for statutory trust accounts.</p> <p>ss. 79 and 80 of the <i>Estate Agents Act 1980</i> (Victoria): Industry wide assurance fund.</p> <p><i>Legal Profession Uniform Law Application Act 2014</i> (Victoria): professional indemnity insurance for solicitors</p>
3. Some brokers use strategies when transferring water through inter-valley trade which have raised equality of access concerns. It is also alleged that price differentials between the valleys can be maintained by brokers who use their accounts for inter-valley trading. (chapter 6)	s. 1041C of the <i>Corporations Act</i> : Market manipulation.
4. The role and obligations of brokers in relation to their clients is often unclear (chapter 6)	<p>s. 912A(1)(a) of the Corporations Act: obligation to 'operate efficiently honestly and fairly'.</p> <p>s. 76B of the Corporations Act: provides a definition of 'advice' for AFSL holders.</p>
5. Brokers could use their access to information, their ability to analyse that information, and the reliance	ASIC and ACCC codes can address problematic behaviour arising from information asymmetries.

⁴⁴⁴ ACCC Murray–Darling Basin inquiry, Renmark public forum.

Potential harm	Relevant legislative measures from other markets <i>'MIR'</i> is an abbreviation for <i>ASIC Market Integrity Rules (Securities Markets) 2017</i>
by others on information provided by brokers, to misrepresent the market to their clients to maintain or increase the price and volume of water rights traded (chapter 6)	
6. Brokers are able to influence the 'market price' of a water right by misrepresenting the price on trade approval applications to signal to the market (via the state register) that the price of a water right is higher than is actually the case. (chapter 6)	s. 1041C of the Corporations Act: Market manipulation.
7. Investors withhold or hoard water until peak demand or until the following year through carryover, in order to raise (manipulate) water prices for personal gain (chapter 5)	
8. Investors conduct allocation trades to manipulate the water market (chapter 5)	s. 1041C of the Corporations Act: Market manipulation.
9. Investors distort market information to suit their interests (chapter 5)	s. 1041A of the Corporations Act: Market manipulation
10. Market operators—how and when they disclose sensitive market information such as allocations and IVT openings/closures. (chapter 5)	Parts 6.2 and 6.3 of MIR 'Pre-trade and post-trade transparency'
11. IIOs as platform operators prioritise the approval of trades from their own brokers (chapter 6).	Rule 3.8.1 of MIR 'best execution' obligation
12. Accuracy of trade price reporting is not effectively monitored (chapter 10).	Parts 6.2 and 6.3 of MIR 'Pre-trade and post-trade transparency'

7.8. The ACCC has identified potential for harmful behaviours in Basin water markets that are of a kind that is regulated in other markets, such as the financial services market

Trust and confidence in the market are critically important for achieving optimal market outcomes. The ACCC has identified a need to increase confidence in the Basin water markets by enhancing the integrity protections afforded by water market regulation. The ACCC has identified gaps in existing regulation, and considers that the regulatory framework for financial services and markets includes examples of legislative measures that could address these gaps.

Under its legislation, ASIC aims to promote a fair and efficient financial market characterised by integrity and transparency, and to support confident and informed participation by investors and consumers.⁴⁴⁵ Among other things, ASIC licenses and monitors financial services businesses and markets to ensure that they operate efficiently, honestly and fairly.⁴⁴⁶

Legislative measures from Chapter 7 of the Corporations Act could be used as precedents (or examples) that could be modified and tailored so as to be fit-for-purpose for water markets. They could be included in any of the three regulatory options explored in this chapter. New rules could also draw on aspects from the AWBA voluntary code and other regulatory frameworks such as those applicable for real estate, cattle markets, wool auctions and mediators (NMAAS).⁴⁴⁷

7.8.1. Conduct and disclosure obligations

Several of the statutory conduct and disclosure obligations that apply to holders of Australian financial services licences provide useful precedents for consideration in the context of the water market. This includes requirements to:

- have adequate risk management systems, such as professional indemnity insurance (s. 912A(1)(h))
- do all things necessary to ensure that the financial services covered by your licence are provided efficiently, honestly and fairly, such as documenting and implementing compliance measures and controls⁴⁴⁸ (s. 912A(1)(a))
- have adequate arrangements in place to manage conflicts of interest (s. 912A(1)(aa))
- maintain competence of staff (s. 912A(1)(g))
- have effective dispute resolution mechanisms in place (s. 912A(1)(i))
- comply with statutory obligations for dealing with clients' money, such as ensuring client money and assets are separated from the AFSL holder's money and assets⁴⁴⁹ (part 7.8, chapter 7).

These general obligations are principles-based and designed to apply in a flexible way.⁴⁵⁰ The advisory services that AFSL holder provide are defined and regulated under this regime. In contrast, the advisory services offered by water brokers are largely privately negotiated and sometimes unclear.

7.8.2. A conflicts management obligation could increase transparency and trust

A requirement such as the requirement in s. 912A(1)(aa) of the Corporations Act to have arrangements in place to manage conflicts of interest could be introduced for water intermediaries. As discussed in chapter 6 of this interim report, intermediaries who trade on their own accounts can have competing interests, such as when a broker acts for both the buyer and seller. ASIC notes that:

⁴⁴⁵ ASIC, Regulatory Guide 121: *Doing financial services business in Australia*, issued 30 July 2013, p. 7.

⁴⁴⁶ *ibid.*

⁴⁴⁷ The National Mediator Accreditation System regulates the standards that apply to a person seeking accreditation in relation to and conducting mediation processes. <https://msb.org.au/themes/msb/assets/documents/national-mediator-accreditation-system.pdf>.

⁴⁴⁸ ASIC, Regulatory Guide 104 *AFS licensing: Meeting the general obligations*, issued 1 April 2020, p. 14.

⁴⁴⁹ *ibid.*, p. 28.

⁴⁵⁰ *ibid.*, p. 6.

The conflicts management obligation in s. 912A(1)(aa) and the obligation to operate efficiently, honestly and fairly in s. 912A(1)(a) of the Corporations Act are interconnected. A licensee is unlikely to comply with the efficiently, honestly and fairly obligation if they do not have adequate conflict management procedures. Conflict management procedures can help licensees establish a reputation for integrity.⁴⁵¹

ASIC advises that:

The conflicts management obligation s. 912A(1)(aa) of the Corporations Act does not prohibit all conflicts of interest. It does not provide that an AFSL holder can never provide financial services if a conflict of interest exists. Rather, the conflicts management obligation requires that all conflicts of interest be adequately managed.⁴⁵² This includes actual, apparent and potential conflicts of interest.⁴⁵³

Regulations imposed by ASIC require that licensees use three mechanisms for managing conflicts: controlling, avoiding, disclosing.⁴⁵⁴ ASIC takes organisation capacities into account when assessing compliance with the conflicts management obligation.⁴⁵⁵ Where conflicts cannot be adequately managed through controls and disclosure, the licensee must avoid the conflict or refrain from providing the affected financial service.⁴⁵⁶

In its guidance material, ASIC states that the conflicts management obligation requires:

- Internal policies and procedures for preventing and addressing potential conflicts of interest that are robust and effective. Licensees should tailor their procedures and policies to their own circumstances and should monitor their own compliance with their procedures and policies.⁴⁵⁷
- Arrangements to be adequate and documented. Disclosure must be timely, prominent, specific and meaningful. ASIC advises that the use of generic ('boilerplate') disclosures is unlikely to satisfy the conflicts management obligation.⁴⁵⁸
- Records to be kept for 7 years, documenting written conflicts management policy and records of compliance monitoring.⁴⁵⁹ There is also a requirement to self-report breaches to ASIC under s. 912D of the Corporations Act.⁴⁶⁰

Under ss 963J to 963L of the Corporations Act, there is a presumption that volume-based benefits to AFSL holders from their employers or from the issuer of the financial product are presumed to be conflicted remuneration. ASIC advises that a benefit is volume-based if access to the benefit or the value of the benefit is wholly or partly dependent on the total number or value of financial products:

- recommended to clients by an AFS licensee or its representatives, or
- acquired by clients to whom a licensee or its representatives provide advice.⁴⁶¹

⁴⁵¹ ASIC, Regulatory Guide 181 *Licensing: Managing conflicts of interest*, issued 30 August 2004, p. 7.

⁴⁵² *ibid.*, p. 9.

⁴⁵³ *ibid.*, p. 5.

⁴⁵⁴ ASIC, Regulatory Guide 181 *Licensing: Managing conflicts of interest*, issued 30 August 2004, p. 7.

⁴⁵⁵ *ibid.*, p. 8.

⁴⁵⁶ *ibid.*, p. 13.

⁴⁵⁷ *ibid.*, p. 10.

⁴⁵⁸ *ibid.*, p. 16.

⁴⁵⁹ *ibid.*, p. 14.

⁴⁶⁰ ASIC, Regulatory Guide 104 *AFS licensing: Meeting the general obligations*, issued 1 April 2020, p. 10.

⁴⁶¹ ASIC, Regulatory Guide 246 *Conflicted and other banned remuneration*, issued 7 December 2017, p. 30.

For example, in the financial products market, Licensee A could have an interest in encouraging client B to invest in higher risk products that result in higher commissions, which is inconsistent with client B's personal desire to obtain a lower risk product.

Some intermediaries have acknowledged there is potential for some commission structures to be incompatible with client interests. For example, a commission on a lease or forward may be larger than a commission on a spot trade. Brokers have noted that in such situations, disclosure of the full range of products on offer can assist clients to make informed choices based on their particular needs. Some brokers noted that it would be to take a short term view of client relationships if they were to push clients to buy higher priced products that didn't match their needs—a practice they do not engage in. Under some commission structures, when water prices go up, broker commissions go up. Some intermediaries have taken steps to shift away from this commission structure towards a flat fee (for example, \$/ML).⁴⁶² A rule could be made to guard against conflicted remuneration for water intermediaries.

7.8.3. There is a need for open and fair trading—the outcome-based provisions for Australian Market licensees provide useful precedents

The obligations for licensed market operators are set out in Parts 7.2 and 7.2A of the Corporations Act 2001. In seeking to ensure financial market operators meet these statutory obligations, ASIC's regulatory focus is directed at market operators delivering the following outcomes:

- **Price formation:** Price formation on the market reflects genuine supply and demand. There is transparency to users about the consequences of trading decisions, including an indication of whether and at what price/volume trading may occur on the market as well as the reliable distribution of price-sensitive information.
- **Orderly functioning of the market:** The market is able to operate as intended with controls for undue aberrations or extreme volatility. The operation of the market is also supported by robust technology and operational risk resourcing and controls, enabling it to function reliably in all appropriate circumstances.
- **Fair access:** Access to facilities and services is provided in a fair, transparent and non-discriminatory manner, including as to commercial terms. This includes access to order types, products, data and other services. Fair access is provided to users and, where appropriate, other stakeholders.
- **Users are informed and receive fair treatment:** Sufficient information is available to enable informed use of the market, including about how the market operates. Where market operators provide information to market users, they do so in an efficient and effective way. The interests of different users are appropriately balanced, with like treatment for like circumstances and no market users are unduly favoured over others.
- **Admission:** Operators have rules and practices to ensure that admission of participants, users and products is designed to achieve high-quality outcomes, and apply appropriate ongoing expectations and transparency about when discipline, removal or suspension may occur.
- **Market integrity:** Operators have capacity and arrangements to administer and oversee the market so that market integrity outcomes are achieved.⁴⁶³

Existing water market regulation is intended to deliver some similar outcomes.⁴⁶⁴ However, water markets may benefit from adopting additional concepts from ASIC's regulatory framework.

⁴⁶² H2OX, *New Exchange Fee*, 1 July 2019, <https://h2ox.com/new-exchange-fee/>, viewed 23 June 2020.

⁴⁶³ ASIC, *Regulatory Guide 172: Financial markets: Domestic and overseas operators*, issued 4 May 2018.

7.8.4. What does integrity mean in the context of ASIC's market integrity rules?

In 2010, responsibility for supervising financial markets was transferred from market operators to ASIC.⁴⁶⁵ This change reflects the decision of the Australian Government to have ASIC take over responsibility for the supervision of domestic licensed financial markets.

This reform was designed to protect the integrity of financial markets by avoiding the inherent conflict of interest whereby financial markets supervised themselves⁴⁶⁶, and to ensure whole-of-market supervision that is transparent and independent.⁴⁶⁷ It was considered that having a whole-of-market supervisor would streamline supervision and enforcement, and enhance confidence in the integrity of the market, thereby increasing stability in the market.⁴⁶⁸

It was decided that:

- An entity under the jurisdiction of the Commonwealth Government is the most appropriate body to provide whole-of-market supervision... ASIC is the Government body most appropriate to take on responsibility for supervision of Australia's financial markets.⁴⁶⁹

Included in this reform was a power for ASIC to make market integrity rules.⁴⁷⁰ It was intended that these market integrity rules would be the primary determiners of behaviour on Australia's financial markets. Individual markets retained their ability to make operating rules. However, if an operating rule conflicts with a market integrity rule, the market integrity rule prevails:⁴⁷¹

- ASIC has phased out market-specific rules and replaced them with a common set of market integrity rules for securities markets and a common set of market integrity rules for futures markets: The *ASIC Market Integrity Rules (Securities Markets) 2017* (Securities Markets rules) set out obligations and prohibitions applying to activities and conduct on the ASX, Chi X, NSXA, SSX, IR Plus securities markets as well as competition between securities markets.⁴⁷²
- The *ASIC Market Integrity Rules (Futures Markets) 2017* (Futures Markets rules) apply to activities and conduct on the ASX 24 and FEX futures markets. These are the only two domestic licensed markets for futures products.⁴⁷³

ASIC's market integrity rules include examples of legislative measures that could be used as precedents that could be modified and tailored so as to be fit-for-purpose for the Basin water

⁴⁶⁴ Schedule 3 to the *Water Act 2007: Basin Plan water trading rules and Basin water market and trading objectives and principles*.

⁴⁶⁵ Explanatory Memorandum for the Corporations Amendment (Financial Market Supervision) Bill 2010 www.legislation.gov.au/Details/C2010B00010/Explanatory%20Memorandum/Text, viewed 23 June 2020.

⁴⁶⁶ Corporations Amendment (Financial Market Supervision) Bill 2010, Second reading speech, February 2010, <https://parlinfo.aph.gov.au/parlInfo/search/display/display.w3p;query=Id%3A%22chamber%2Fhansard%2F2010-02-10%2F0031%22>, viewed 23 June 2020.

⁴⁶⁷ Explanatory Memorandum for the Corporations Amendment (Financial Market Supervision) Bill 2010. www.legislation.gov.au/Details/C2010B00010/Explanatory%20Memorandum/Text, viewed 23 June 2020.

⁴⁶⁸ *ibid.*

⁴⁶⁹ *ibid.*

⁴⁷⁰ Subsection 798G(1) of the Corporations Act provides that ASIC may, by legislative instrument, make market integrity rules that deal with the activities and conduct of licensed markets, and of persons in relation to licensed markets and financial products traded on licensed markets.

⁴⁷¹ Explanatory Memorandum for the Corporations Amendment (Financial Market Supervision) Bill 2010. www.legislation.gov.au/Details/C2010B00010/Explanatory%20Memorandum/Text, viewed 23 June 2020.

⁴⁷² ASIC, *Market integrity rules*, updated 31/03/2020, <https://asic.gov.au/regulatory-resources/markets/market-integrity-rules/#futures-mirs>, viewed 23 June 2020.

⁴⁷³ *ibid.*

markets. They could be included in any of the three regulatory options explored in this chapter. Several relevant rules from the Securities Markets rules are explained below.

7.8.5. Options to enhance water market regulation—a ‘best execution’ obligation could be appropriate for water brokers and exchanges

Rule 3.8.1 of the *ASIC Market Integrity Rules (Securities Markets) 2017* imposes a ‘best execution obligation’ on market participants. When handling and executing an order for a client, a market participant must take reasonable steps to obtain the best outcome for their client. ASIC advises that:

*Order flow incentives, such as volume rebates or rebates for certain types of orders, can influence how and where market participants direct client orders for execution. Directing orders in return for some benefit would represent a conflict of interest if the market participant was placing its own interests ahead of its client’s interests and therefore not achieving best execution.*⁴⁷⁴

Introducing a ‘best execution’ obligation in the water markets context would help address perceived or actual conflicts of interest where an intermediary is lodging buy or sell offers, or submitting trade applications, on their own behalf as well as on behalf of clients.

7.8.6. A requirement to maintain client records and instructions could provide clarity around broker services

Part 4.1 of the *ASIC Market Integrity Rules (Securities Markets) 2017* requires market participants to:

- keep records of client instructions, agreements and details
- keep records of dealings on own account
- keep records of all money received and paid.

A requirement such as this would be particularly relevant to the water market. For example, the obligations brokers owe to their clients in a transaction are often unclear and there is no regulatory framework for the management of client funds.

The need for greater clarity regarding the rights and duties between a broker and their client could be addressed by the introduction of clear uniform obligations between water brokers and their clients, including a positive obligation on brokers to disclose the duties they owe to the parties in each transaction.

Brokers sometimes hold large sums of client funds in escrow until settlement. The introduction of an industry wide legal framework requiring brokers to establish audited statutory trust accounts would address stakeholder concerns about current management of these funds.

Some brokers use their own water accounts to aggregate parcels of client water rights in a number of circumstances, including to minimise transaction costs and as a strategy to transfer water rights between valleys.⁴⁷⁵ When water rights are transferred to the brokers’ accounts in this way, the ownership is also transferred. It is not clear to the ACCC on what basis the relevant brokers hold this water. For example, it could be the case that the water is held by the broker for the client without a written contract governing the arrangement, or held by the broker for the client without detailed written instructions. This means that legal

⁴⁷⁴ ASIC, Regulatory Guide 265: Guidance on ASIC market integrity rules for participants of securities markets, issued 4 May 2018, para 186.

⁴⁷⁵ ACCC Murray–Darling Basin inquiry, various public forums.

avenues for recourse for the client, should they wish to recover their water prior to the trade, are likely to be unclear and uncertain.

A requirement for brokers to keep written records of detailed client instructions could address this concern. Another option would be to require brokers to use water trust accounts when holding clients' water rights. The AWBA has developed a draft policy which would impose obligations on brokers who use their water accounts for facilitating trading, including that their water accounts are audited, and that no water allocation owned by the broker may be held in that account.⁴⁷⁶ An industry wide option would be to establish a legal framework for audited statutory water trust accounts when holding clients' water rights, with similar obligations to a statutory trust account for client funds.

7.8.7. Options to enhance transparency—stakeholders have expressed concerns about pre-trade transparency

Parts 6.2 and 6.3 of the *ASIC Market Integrity Rules (Securities Markets) 2017* deal with pre-trade and post-trade transparency. Pre-trade transparency refers to information on bids and offers being made available before transactions occur. Together with post-trade information, it is generally regarded as central to both the fairness and efficiency of a market, and in particular to its liquidity and quality of price formation.

Post trade transparency refers to the disclosure of volumes and prices about completed transactions. It contributes to price formation and also allows investors to assess execution quality and is an important component for transaction cost analysis.

Rule 5.1.3 of the *ASIC Market Integrity Rules (Securities Markets) 2017* requires fairness and priority in dealing. It requires that a market participant must deal fairly and in due turn with: a) clients' orders; and b) an order on its own account.

For example:

- orders that do not involve the exercise of discretion by the market participant in relation to the time or price or quantity of the order are entered in a trading platform in the sequence in which they are received, and otherwise as expeditiously as practicable⁴⁷⁷
- if the sequence of entry of orders into a trading platform is not clearly established by the time the orders were received, and one of the orders is for the market participant's own account, the market participant must give preference to the order of a client over any order for the market participant's own account.⁴⁷⁸

7.8.8. There is a need for regulation to prevent conduct that manipulates market prices—Part 7.10 of Chapter 7 of the Corporations Act provides useful examples

Part 7.10 of Chapter 7 of the Corporations Act includes prohibitions on harmful conduct, including:

- market manipulation (s. 1041A)
- creating a false or misleading appearance of active trading (s. 1041B)
- artificially maintaining etc. trading price (s. 1041C)
- insider trading (s. 1043A).

⁴⁷⁶ AWBA, Policy Update, *Broker Water Accounts*, 25 September 2019. <http://awba.org.au/wp-content/uploads/WATER-ACCOUNTS-AND-CONFLICT-Policy-Statement.pdf>, viewed 23 June 2020.

⁴⁷⁷ Paragraph 5.1.4(b) of the *ASIC Market Integrity Rules (Securities Markets) 2017*.

⁴⁷⁸ Paragraph 5.1.4(d) of the *ASIC Market Integrity Rules (Securities Markets) 2017*.

Some of these legislative measures provide useful precedents for consideration in the context of the water market. In chapter 5 of this interim report, the ACCC notes that some stakeholders raised concerns about investor behaviour. For example, that investors by themselves, or jointly with brokers, conduct allocation transactions in such a way to create or maintain artificially higher allocation prices for personal gain.⁴⁷⁹ In particular, stakeholders made the following allegations:

- Investors place substantial allocation buy orders on allocation announcement days, and around forecasted rain events, to ensure allocation prices are not eroded.
- Investors pay above market prices on small parcels of allocations to drive up the value of underlying entitlements.
- Investors place concurrent buy and sell orders to maintain prices within a narrow predetermined band.
- Investors are manipulating IVT trade to create or maintain a floor price in the destination zone.
- Investors trade on insider information.
- Investors are buying water allocations and withholding water from the market to artificially drive prices higher.⁴⁸⁰

7.8.9. Whole-of-market regulation and governance would assist in identifying misconduct and harmful behaviours

Offers to sell water are sometimes dispersed across multiple platforms, while some are not published at all. The ACCC has heard allegations that some water market participants place the same parcel of water for sale on several different exchange platforms, in order to manipulate prices.⁴⁸¹ The extent to which the same parcels of water are listed on multiple exchanges is unknown.

In the financial regulation context, it was noted:

...the offence of market manipulation can involve creating the false or misleading appearance of active trading of a financial product on a financial market. The 'false or misleading appearance' aspect arises where a person trades with themselves or an associate in an attempt to create a false impression of demand for a financial product, and consequently increase the price for the financial product. Where there are multiple markets trading in the one security this sort of misconduct would be more difficult to detect. It may not be possible to identify potential misconduct only by observing what occurs on one market. It would be possible for an individual seeking to make a false or misleading impression of demand for a product to trade with themselves on multiple markets. As the conduct would be dispersed across different markets, the actions being performed on each of those individual markets may seem innocuous. It would require a whole-of-market view to pick up the offensive behaviour.⁴⁸²

⁴⁷⁹ Almond Board of Australia, Submission to the Murray–Darling Basin inquiry, March 2020, p. 21; Select Harvest, Submission to the Murray–Darling Basin inquiry, April 2020, p. 2; and ACCC Murray–Darling Basin inquiry, Deniliquin public forum.

⁴⁸⁰ NSW Farmers' Association, Submission to the Murray–Darling Basin inquiry, p. 5; and ACCC Murray–Darling Basin inquiry, Renmark public forum.

⁴⁸¹ ACCC Murray–Darling Basin inquiry, various public forums.

⁴⁸² Explanatory Memorandum for the Corporations Amendment (Financial Market Supervision) Bill 2010, www.legislation.gov.au/Details/C2010B00010/Explanatory%20Memorandum/Text, viewed 23 June 2020.

7.9. Some stakeholders have called for restrictions on investors

At public forums and in submissions to the ACCC, some stakeholders argued for regulatory intervention in the form of restrictions on investment and foreign ownership of water rights.⁴⁸³

7.9.1. Foreign investment—harmful behaviours should be regulated rather than classes of market participants excluded

Restrictions based on classes of water market participants, or the purpose for which the water will be used, are not permitted under the Basin Plan trading rules.⁴⁸⁴ Even if such restrictions were permitted, the ACCC does not see a case for them where harms can be addressed through regulation. There have been allegations that investors hoard water. However, there are limits on that, for example, limits on carry over as well as spill rules. Investors often make their water available to irrigators through leases and forward contracts, and also offer carryover parking arrangements. These benefits are possible irrespective of whether the investor is foreign or not. If there are gaps in the existing regulatory framework that allow harmful behaviours by market participants, then those gaps should be addressed rather than certain market participants excluded.

Under the *Foreign Acquisitions and Takeovers Act 1975*, the Treasurer is responsible for making decisions on proposed foreign investment and is advised by the Foreign Investment Review Board (FIRB). Generally, foreign investment proposals are subject to monetary and control screening threshold tests. If these threshold tests are met, then FIRB examines the foreign investment proposal and advises on national interest implications by applying the 'national interest test'. The Australian Government's policy stance on foreign investment recognises that foreign investment brings many benefits. For this reason, foreign investment proposals are assessed against the national interest on a case-by-case basis. This flexible approach is preferred to hard and fast rules. Rigid laws that prohibit a class of investments too often also stop valuable investments.⁴⁸⁵

Foreign investment in rural water rights can be considered by the FIRB if the acquisition forms part of an agricultural land or agribusiness acquisition that is subject to FIRB screening. However, foreign investment in rural water rights is generally not separately subject to the FIRB screening and assessment processes. This position is largely unaffected by the temporary reduction in monetary thresholds announced on 29 March 2020 or the foreign investment review reforms announced on 5 June 2020, in the context of COVID-19.

Recognising that the regulation of agriculture and rural water is primarily the responsibility of other government agencies, the FIRB may consider a range of factors when examining foreign investment proposals for agricultural land and agribusiness, including the effect of the proposal on the quality and availability of Australia's agricultural resources (including water), land access and use, agricultural production and productivity, Australia's capacity to remain a reliable supplier of agricultural production, both to the Australian community and our trading partners, biodiversity, and employment and prosperity in Australia's local and regional communities.⁴⁸⁶

The Australian Government has legislated for mandatory reporting by foreign entities of water owned and traded, so as to gain a better understanding of the level of foreign ownership and market activity. The Commissioner of Taxation, through the Australian Tax

⁴⁸³ ACCC Murray–Darling Basin inquiry, Renmark and Shepparton public forums.

⁴⁸⁴ Section 12.07–12.08 of the Basin Plan.

⁴⁸⁵ Treasurer, last updated 24 April 2020, Australia's foreign investment policy, <https://firb.gov.au/index.php/guidance-resources/policy-documents>, viewed 23 June 2020.

⁴⁸⁶ Explanatory Memorandum for the Register of Foreign Ownership of Agricultural Land Amendment (Water) Bill 2016, www.aph.gov.au/Parliamentary_Business/Bills_Legislation/Bills_Search_Results/Result?bld=r5735, viewed 23 June 2020, p. 36.

Office, maintains a Register of Foreign Owned Water Entitlements under the *Register of Foreign Ownership of Water or Agricultural Land Act 2015* (Cth). The Treasurer publishes an annual report of data derived from the register. The most recent report was published in March 2019.⁴⁸⁷ The register is subject to statutory review by the PC.⁴⁸⁸

The Treasurer's most recent report from the Register of Foreign Owned Water Entitlements, published in March 2019, presents data in aggregate form for the northern Basin and separately in aggregate form for the southern Basin.⁴⁸⁹ There are statutory restrictions on the publication of 'protected information' collected by the ATO. The Treasurer's report states:

*The ATO is required to report on data from the Register in aggregated format only. Consistent with the principles applied in Australia's broader foreign investment regime, the details of investors are not made publicly available. The taxation law also restricts the release of information that could identify, or be used to identify, an individual or entity.*⁴⁹⁰

This means that no information is released about individual owners, or the water holdings of state-owned enterprises, nor is data released at a catchment-specific level. Also relevant to the issue of transparency is the fact that the requirement to register water acquisitions is a self-reporting requirement and, although there are enforcement provisions, the ACCC understands that no penalties for non-compliance have been issued to date.⁴⁹¹

The Senate Economics Committee is currently conducting its *Review of foreign investment proposals against the national interest test*. Its report is required by 7 September 2020.⁴⁹² The terms of reference for this review include consideration of the extent to which the risk that foreign investment proposals are being used for money laundering is examined. The Interim Inspector-General of Murray–Darling Basin Water Resources⁴⁹³ has asserted that the current rules for foreign investment in water leave the door open to criminal activity, including money laundering.⁴⁹⁴ Such money laundering risks are a matter for the Senate Committee rather than the ACCC.

The ACCC notes that tax requirements could differentiate between local and foreign owners in a way that produces unfair competitive advantage. However, while there are certain tax concessions that are available to incentivise foreign investors, new limitations were imposed on these tax concessions for foreign pension funds and sovereign entities by the *Treasury Laws Amendment (Making Sure Foreign Investors Pay Their Fair Share of Tax in Australia and Other Measures) Act 2019* (Cth). This Act is intended to protect the integrity of Australia's corporate tax system by limiting access to tax concessions for foreign investors

⁴⁸⁷ Treasurer, Register of Foreign Ownership of Water Entitlements Report of registrations as at 30 June 2018, <https://firb.gov.au/about-firb/publications/register-foreign-ownership-water-entitlements-report-registrations-30-june>, viewed 23 June 2020.

⁴⁸⁸ Section 34A of the *Register of Foreign Ownership of Water or Agricultural Land Act 2015* (Cth).

⁴⁸⁹ Treasurer, Register of Foreign Ownership of Water Entitlements Report of registrations as at 30 June 2018, <https://firb.gov.au/about-firb/publications/register-foreign-ownership-water-entitlements-report-registrations-30-june>, viewed 23 June 2020.

⁴⁹⁰ *ibid.*

⁴⁹¹ 'Stock and Land', 'Foreign investment laws leave water open to money laundering', 11 May 2020, www.stockandland.com.au/story/6750564/foreign-investment-laws-leave-water-open-to-money-laundering/, viewed 23 June 2020.

⁴⁹² www.aph.gov.au/Parliamentary_Business/Committees/Senate/Economics/Foreigninvestment/Terms_of_Reference.

⁴⁹³ Mr Mick Keelty AO, Interim Inspector-General of Murray–Darling Basin water resources from 1 October 2019, <https://www.igmdb.gov.au/>, viewed 23 June 2020.

⁴⁹⁴ 'Stock and Land', 'Foreign investment laws leave water open to money laundering', 11 May 2020, www.stockandland.com.au/story/6750564/foreign-investment-laws-leave-water-open-to-money-laundering/, viewed 23 June 2020.

who convert active business income into passive income in order to avoid paying tax at the top corporate rate.⁴⁹⁵

7.9.2. Domestic investment—many of the important benefits of water markets cannot be realised without the participation of investors

The ability to purchase water rights without agricultural land has led to water being purchased for financial investment rather than agricultural production. Retired farmers are also retaining their water entitlements for investment purposes to fund their retirement, rather than selling them on retirement.

Some stakeholders suggested that restrictions on access to the water market by non-irrigators is the appropriate response to deflate water prices⁴⁹⁶, while others advocated that the purchase of water allocations should be limited to those who hold a water use licence or water use registration.⁴⁹⁷ In terms of investors' use of carryover, some stakeholders suggested the appropriate solution is to tie carryover rights to delivery share or water use licences rather than entitlements.⁴⁹⁸

As noted above, restrictions based on classes of water market participants, or the purpose for which the water will be used, are not permitted under the Basin Plan trading rules.⁴⁹⁹ Even if they were permitted, the introduction of rigid laws that prohibit a class of market participants, such as investors, from participating in the market would preclude valuable financial investment. Investors provide irrigators with access to capital, increase water market liquidity, and provide a range of water products that help irrigators to manage water supply risks, such as forward contracts and carryover parking. It has been noted that leases from retired farmers to irrigators can be beneficial to the next generation irrigation community.⁵⁰⁰ If there are gaps in the existing regulatory framework that allow harmful behaviours by market participants such as investors, then those regulatory gaps should be addressed rather than certain market participants excluded.

The ACCC is continuing to consider the impacts of investors in the Murray–Darling Basin water market. Further detail is set out in chapter 5 of this report.

7.9.3. For taxation purposes, ABNs and ACNs should be required on registration forms

Revenue from water ownership is derived from temporary allocation trading and capital appreciation. The ATO website states:

Water rights, such as licences and water allocations, are capital gains tax (CGT) assets. The permanent trade of a water right is a disposal of a CGT asset. A temporary trade of a water right is also a CGT event... Whether there are general income tax consequences as a result of trading a water right depends on your particular circumstances'.⁵⁰¹

⁴⁹⁵ Treasury Laws Amendment (Making Sure Foreign Investors Pay Their Fair Share of Tax in Australia and Other Measures) Bill 2019, www.aph.gov.au/Parliamentary_Business/Bills_Legislation/Bills_Search_Results/Result?bld=r6192, viewed 23 June 2020.

⁴⁹⁶ ACCC Murray–Darling Basin inquiry, Renmark public forum.

⁴⁹⁷ Victorian Farmers Federation, Submission to the Murray–Darling Basin inquiry, January 2020, February 2020, p. 9.

⁴⁹⁸ Bega Cheese Limited, Submission to the Murray–Darling Basin inquiry, February 2020 p. 7; and ACCC Murray–Darling Basin inquiry, Shepparton public forum.

⁴⁹⁹ Section 12.07–12.08 of the Basin Plan.

⁵⁰⁰ 'The Land', 'Connecting generations to stop water being traded downstream', 27 March 2020. <https://www.theland.com.au/story/6700316/keeping-irrigation-water-in-the-district/>, viewed 23 June 2020.

⁵⁰¹ Australian Tax Office, *Water and carbon sequestration rights—Tradeable water rights*, <https://www.ato.gov.au/Business/Primary-producers/Livestock-and-other-assets/Water-and-carbon-sequestration-rights/>, viewed 23 June 2020.

Some irrigators include allocations in their cost of goods purchased for income tax calculations within a particular year. Some brokers keep records of client transactions for several years and provide them to clients' tax accountants, on request by clients. However, the lack of a requirement to record an ABN or ACN on registration documents inhibits the ability to cross-check the cost base of a CGT asset and the cost of goods purchased for income tax purposes. The ACCC is considering options to address this issue, including clearer rules for registers about what identifying information about registrants must be collected, and options for improved form design.

Questions for stakeholders

- What records do you keep for calculating the cost base of your allocations and entitlements for CGT purposes, and the cost of goods purchased for income tax purposes?

7.10. The ACCC is seeking stakeholder views on three options to enhance water market regulation

This chapter seeks feedback on three options that aim to enhance the market regulation and efficiency. These options span a spectrum of potential solutions starting with targeted possibilities to more robust holistic government-administered possibilities. Through each of these options, gaps and complexity in existing regulation would be addressed, with a particular focus on ensuring and maintaining the integrity of the market and effective compliance oversight.

As noted above, the regulatory environment for the water market is highly complex. As such, when considering strengthening market integrity measures, the ACCC considers that consolidating or harmonising regulatory requirements should also be considered, to simplify the framework and limit the regulatory burden on market participants.

Aside from the three options identified in this interim report, the ACCC considered other suggestions raised by stakeholders, specifically to deal with concerns about broker roles and practices, including self-regulation and education, and a voluntary accreditation scheme. The ACCC considers these voluntary mechanisms would likely be ineffective in combating the conduct of concern, for the following reasons:

- the AWBA voluntary code has had limited coverage is not enforceable
- the concerns raised about broker conduct (see chapter 6) suggests that the industry is not satisfied with self-regulation
- those engaged in conduct of concern are unlikely to participate in a voluntary scheme.

The ACCC also considered the creation of a specific dispute resolution body, such as an Ombudsman. However, the ACCC considers the issues arising in the water market require the existence of a body or bodies with a clear market integrity oversight role and with enforcement capability, rather than a general dispute resolution service.

As discussed in chapter 10, the ACCC is also considering options to improve the operation of the Basin water market through increasing market transparency and integrity. The ACCC considers that each of the three options identified in this interim report could operate in concert with potential new market transparency measures.

7.10.1. Government initiated licensing scheme (Option 1)

This option proposes a compulsory licensing regime at the federal or Basin State level, which sets out the relevant requirements for intermediaries and is supported through civil

penalties for non-compliance. This option was proposed by several stakeholders, including the AWBA.⁵⁰² The AWBA's submission notes that the water brokering industry is unregulated with low barriers to entry and as such any firm or individual can offer services to vendors and purchasers without a basic level of experience and knowledge.⁵⁰³ Consequently, the AWBA proposes that a licencing and registration system for water market intermediaries, be administered by the Basin States and include conflict of interest guidelines.

A government administered licensing scheme could:

- mandate that brokers and intermediaries be licensed
- set standards for professional conduct
- include elements of market integrity rules as discussed above
- clarify the role of intermediaries and their obligations to their clients.

A licensing regime is a regulatory instrument that allows the holding entity or individual to undertake a particular activity. Consequently, an assessment of the need for a licensing scheme needs to be done according to best practice regulatory principles.

The New South Wales Better Regulation Office (BRO) outlines seven principles that must be followed in the development of every regulatory proposal.⁵⁰⁴ According to the BRO principles in order to establish a licensing regime, among other factors, it must be shown that there is a need for government action and that action is in public interest.

Similarly, the Victorian Guide to Regulation outlines that a positive argument for government intervention has to be established.⁵⁰⁵ That is, it must be shown that a problem exists, the regulatory response is justified and the response is cost effective.

Both the New South Wales and Victorian principles outline that addressing market failure establishes the need for regulatory intervention. The market failure can be due to a number of things which include two factors directly relevant to the Basin water market:

- lack of transparency in the market (insufficient and inadequate information)
- a market that involves public goods.

Similarly, PricewaterhouseCoopers lists a number of policy rationales for establishing a regulatory licensing regime, including:⁵⁰⁶

- a lack of information, which can prevent market participants from making fully informed decisions and can lead to market inefficiency
- potential for detriment from misconduct due to information asymmetries and complexity in the market
- public goods which are likely underprovided by the market
- where there are governmental social and environmental objectives to achieve broader policy goals.

⁵⁰² Key Water, Submission to the Murray–Darling Basin inquiry, January 2020; H2OX, Submission to the Murray–Darling Basin inquiry, February 2020; Waterfind, Submission to the Murray–Darling Basin inquiry, January 2020; Fonterra Australia, Submission to the Murray–Darling Basin inquiry, January 2020; and Sunrice, Submission to the Murray–Darling Basin inquiry, February 2020.

⁵⁰³ AWBA, Submission to the Murray–Darling Basin inquiry, January 2020, p. 9.

⁵⁰⁴ Finance, Service and Innovation (NSW), *NSW Guide to Better Regulation: October 2016*, NSW Government, p. 5.

⁵⁰⁵ Department of Treasury and Finance (Victoria), *Victorian Guide to Regulation: Updated July 2014*, State Government of Victoria, p. 4.

⁵⁰⁶ PricewaterhouseCoopers, *A best practice approach to designing and reviewing licensing schemes—Guidance material* (2013), PricewaterhouseCoopers, pp. 14–15.

The nature of the MDB water market and the potential harms discussed in relation to intermediaries and general transparency concerns fall into all of the above described categories. Consequently, it is likely that part of the preliminary policy rationale assessment for a regulatory licensing regime can be met in the Basin water market. However, an assessment of the costs and benefits would need to be undertaken.

For this option to be established at the federal level, it will require cooperation between states and the federal government. Changes will likely be required to state, territory and federal laws or new legislation will need to be introduced to give effect to the regime.

Despite the complexities associated with introducing a national licensing scheme, the ACCC considers that the development of state licensing regimes in isolation may result in duplication and create unnecessary complexity. As such, should state based regimes be developed, the ACCC considers this should occur in a coordinated manner.

A government administered licensing scheme will provide for sound regulatory oversight in relation to brokers and other intermediaries and provide for strong deterrence for conduct of concern. However, it will only apply to intermediaries, so will not capture broader market integrity issues.

Questions for stakeholders

- Do you think that brokers and intermediaries in MDB water market should be licensed?
- Should a licensing scheme be enforced at the Basin State or federal level?
- Should the licensing scheme be entrusted to an already established body or an independent new body specific to the MDB water market?

7.10.2. Applying the financial regulation framework to water products (Option 2)

There have been concerns expressed about the amount of oversight of Basin water markets as compared to financial or property markets. The Interim Inspector General of Murray–Darling Basin Water Resources, Mr Mick Keelty noted, 'It is a commodity and yet it doesn't have the same governance and due diligence around it as other commodities like gold or minerals, and I think that's what's of concern to people'.⁵⁰⁷

A common theme among forum attendees was that if water is to be traded as a commodity, then it should be subject to the same transparency rules as other commodities.⁵⁰⁸ Several stakeholders indicated water should have the same rules around transparency as the share market.⁵⁰⁹

⁵⁰⁷ 'ABC News', 'Chinese state-owned company buys up water in the Murray–Darling', www.abc.net.au/news/2020-05-06/chinese-state-owned-companies-buy-up-water-in-Murray-Darling/12215548, viewed 23 June 2020.

⁵⁰⁸ ACCC Murray-Darling Basin inquiry, Kerang public forum.

⁵⁰⁹ ACCC Murray–Darling Basin inquiry, Kerang public forum.

Some stakeholders indicated they believed the market should be managed by the Australian Stock Exchange with the ability to impose severe pecuniary measures for breaches.⁵¹⁰ It was observed that, unlike for the stock market, there is ‘no real bid-offer system for water transactions’.⁵¹¹ In its submission to the ACCC’s inquiry, H2OX suggested that:

*Rather than a standalone regulation, it would be conceivable that licensing for water brokers/intermediaries could fall within existing regulation. Given the largely financial orientation of the products in the water market, a category of Australian Financial Services Licensing would seem an appropriate option.*⁵¹²

The 2014 ‘carve out’ of basic tradeable water rights from the financial regulation framework is explained earlier in this chapter. Although this policy decision was made in 2014, water rights retain many of the characteristics of a derivative and could be included within the financial regulation framework. If not excluded from the definition of a derivative (as they currently are), basic tradeable water rights would most likely be categorised as derivatives⁵¹³, or could be declared to be derivatives by regulation⁵¹⁴, and therefore included within the definition of financial product under the financial regulation framework.⁵¹⁵

The purpose of the *Financial Services Reform Act 2001* was to harmonize the regulatory regime for the financial services industry by creating a uniform licensing, conduct and disclosure regime for all financial products and services.⁵¹⁶ As such, the financial regulation framework provides a comprehensive, ready-made market regulation framework that could be applied to tradeable water rights across the Murray–Darling Basin. It has ready-made provisions relevant to the activities of water intermediaries and brokers, as well as provisions for market integrity and misconduct. As the necessary state powers for financial regulation legislation have already been referred, this option would avoid the need for new referrals of Basin State powers for an enhanced water market framework in the Murray–Darling Basin.

While industries such as financial planners and advisors, banks, insurance brokers, insurers and stockbrokers are targeted by the financial regulation formwork, several other industries deal in products that fall within the definition of a financial product.

If basic tradeable water rights and arrangements to buy and sell them were declared to be a derivate:

- A person dealing in or providing advice on these products, or selling them on their own behalf, would need to hold an AFSL under Part 7.6 of the Corporations Act.⁵¹⁷ The ACCC is aware that the complexities of being regulated under the financial services regime could be a deterrent for some water market participants, particularly for smaller entities.⁵¹⁸ However, the ACCC notes that ASIC does not take a ‘one-size-fits-all’ approach to regulation⁵¹⁹, what you need to do to comply with your obligations will vary according to the ‘nature, scale and complexity’ of your business’.⁵²⁰

⁵¹⁰ ACCC Murray–Darling Basin inquiry, Kerang public forum.

⁵¹¹ ACCC Murray–Darling Basin inquiry, St George public forum.

⁵¹² H2OX, Submission to the Murray–Darling Basin inquiry, February 2020.

⁵¹³ Consultation draft of the Explanatory Statement for the *Corporations Amendment (Water Trading Exemptions) Regulation 2013*, <https://treasury.gov.au/consultation/draft-amendments-on-regulation-of-water-market-trading>, viewed 23 June 2020.

⁵¹⁴ Under subsection 761D(2) of the Corporations Act, the regulations may declare anything to be a derivative.

⁵¹⁵ Consultation draft of the Explanatory Statement for the *Corporations Amendment (Water Trading Exemptions) Regulation 2013*, <https://treasury.gov.au/consultation/draft-amendments-on-regulation-of-water-market-trading>, viewed 23 June 2020.

⁵¹⁶ Parliament of Australia, Bills Digest, Financial Services Reform Bill 2001, www.aph.gov.au/Parliamentary_Business/Bills_Legislation/bd/bd0102/02bd026, viewed 23 June 2020.

⁵¹⁷ Section 766A of the Corporations Act.

⁵¹⁸ Australian Water Brokers Association and Waterfind submission to the 2014 consultation on the *Corporations Amendment (Water Trading Exemptions) Regulation 2013*, <https://treasury.gov.au/consultation/draft-amendments-on-regulation-of-water-market-trading>, viewed 23 June 2020.

⁵¹⁹ ASIC, Regulatory Guide 104 *AFS licensing: Meeting the general obligations*, issued 1 April 2020, p. 9.

⁵²⁰ *ibid.*

- A person operating a market⁵²¹ for these products would be required to have market operating rules in place⁵²² and to hold an Australian Market licence, under Part 7.2 of the Corporations Act.⁵²³ The obligations for licensed market operators are set out in Pts 7.2 and 7.2A of the Corporations Act.
- The provisions in Chapter 7 (financial services and markets) of the Corporations Act would apply.⁵²⁴

Further details about these rules are set out earlier in this chapter.

ASIC codes

Voluntary codes

Voluntary codes under the *Corporations Act 2001* are a vehicle for industries to self-regulate and set standards on how to comply with and exceed what is required by the law. These codes may be developed by industry associations or peak bodies to address issues of importance to that industry. Enforcement of these codes and dealing with breaches is a matter for industry itself and the regulator does not enforce such codes. ASIC approval of codes is optional. ASIC-approved codes may contain provisions which are enforceable by consumers as a contract or guarantee.⁵²⁵

In December 2017, the Australian Government established a Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry, and appointed the Hon Kenneth Hayne AC QC as the Royal Commissioner. Commissioner Hayne provided his final report to the Governor-General on 1 February 2019. Recommendation 1.15 of the Royal Commission into Misconduct in the Banking, Superannuation and Financial Services Industry proposed that:

- certain provisions of the voluntary financial services industry codes be made 'enforceable code provisions'
- the law be amended to provide for the establishment of mandatory financial services industry codes through regulations. A breach of a provision in a mandatory code of conduct may attract civil penalties, an infringement notice or other administrative enforcement action
- the process for implementing a mandatory code should be the same as the process used in respect of industry codes prescribed under the CCA.⁵²⁶

The Australian Government agreed to this recommendation and has consulted on exposure draft legislation.⁵²⁷

⁵²¹ A 'financial market' is defined in s767A of the Corporations Act in broad and flexible terms to include a wide range of market venues. The definition in s767A(1) is broad and applies to any form of technology or physical infrastructure that would enable persons to make or accept offers or invitations by means of the facility.

⁵²² Under s. 795B of the Corporations Act, a person applying for an Australian market licence will only be granted the licence if the person has adequate operating rules in place to trade the kinds of financial products they propose to trade.

⁵²³ Section 767A defines a 'financial market' with reference to offers or invitations to acquire or dispose of 'financial products'. That is, a person trading financial products on behalf of others must hold an Australian Market licence.

⁵²⁴ The obligations for market operators are under Parts 7.2 and 7.2A of the Corporations Act. The obligations for AFSL holders are under s. 912A(1) of the Corporations Act.

⁵²⁵ The Treasury, 'Enforceability of financial services industry codes', Consultation Paper 'Taking action on recommendation 1.15 of the Banking, Superannuation and Financial Services Royal Commission', p. 11. <https://treasury.gov.au/consultation/c2019-t368566>, viewed 23 June 2020.

⁵²⁶ *ibid.*, p. 9.

⁵²⁷ *ibid.*

Draft legislation for mandatory codes

In relation to mandatory codes, the draft Explanatory Memorandum⁵²⁸ for the draft Bill states:

- Any mandatory code of conduct will be prepared by the Treasury in consultation with ASIC, industry, and consumer groups, and will be subject to a public consultation process. Regulations are made by the Governor-General.
- Regulations imposing mandatory codes may confer functions and powers on a person or body for the purposes of: monitoring compliance with the code of conduct; dealing with disputes or complaints arising under the code of conduct; dealing with other associated administrative matters; or to provide for record keeping and reporting obligations.
- Under the mandatory codes of conduct regime, the regulations may specify certain provisions to be civil penalty provisions. Individual breaches of the civil penalty provisions are subject to a penalty of up to 1000 penalty units.⁵²⁹
- The process for imposing a code under the CCA is supported by the Treasury's Industry Codes of Conduct Policy Framework.

Under this Framework, government only steps in to prescribe codes when they are necessary for supporting the efficient operation of markets or the welfare of consumers, where evidence exists that self-regulation has been attempted and failed, and where it is appropriate for the matter to be dealt with in the form of a code rather than the more general law.⁵³⁰ For example, a mandatory code might be needed to address problematic behaviour arising from an imbalance of bargaining power or information asymmetry which may lead to poor outcomes for consumers or certain industry participants.⁵³¹ These issues have been identified as being of concern in the Basin water market.

Market Integrity Rules

Section 798G(1) of the Corporations Act allows ASIC to make market integrity rules in a wide range of areas. The regime is designed to be flexible and to allow ASIC to make rules to cover new and emerging issues as the market adapts and innovates, while also recognising that every market is different and needs operating rules tailored to the specifics of that market.⁵³² This tailoring extends to the design of penalty provisions.⁵³³ As noted earlier in this chapter, ASIC currently administers two sets of market integrity rules. The domestic market operators to which the ASIC market integrity rules apply are specifically identified in each set of rules. Although these rules reflect the recent consolidations by ASIC of market integrity rules, ASIC could potentially make specific rules for specific markets, such as a water derivatives market.⁵³⁴

More detail about the financial regulation framework is set out earlier in this chapter.

⁵²⁸ The Treasury, 'Enforceability of financial services industry codes', Draft Explanatory Memorandum, <https://treasury.gov.au/consultation/c2020-48919f>, viewed 23 June 2020.

⁵²⁹ The corporate multipliers contained in subsections 1317G(3) and (4) of the Corporations Act and subsections 167B(1)–(2) of the Credit Act do not apply to mandatory codes of conduct.

⁵³⁰ The Treasury, 'Enforceability of financial services industry codes', Consultation Paper 'Taking action on recommendation 1.15 of the Banking, Superannuation and Financial Services Royal Commission', p. 3, <https://treasury.gov.au/consultation/c2019-t368566>, viewed 23 June 2020.

⁵³¹ *ibid.*, p.10.

⁵³² Explanatory Memorandum for the Corporations Amendment (Financial Market Supervision) Bill 2010, www.legislation.gov.au/Details/C2010B00010/Explanatory%20Memorandum/Text, viewed 23 June 2020.

⁵³³ *ibid.*

⁵³⁴ ASIC, Regulatory Guide 172: *Financial markets: Domestic and overseas operators*, issued 4 May 2018.

Questions for stakeholders

- Should the financial regulation framework be applied to basic tradeable water rights and arrangements to buy and sell them, noting that it is a ready-made market regulation framework?

7.10.3. Independent Market Focused Government Regulator (Option 3)

This option envisages a regulatory body like the Australian Energy Regulatory (AER) overseeing the market, prescribing fit-for-purpose rules and standards (such as a licensing regime and market integrity rules as discussed above) and enforcing them under the law. This could be an entirely new body, or involve establishing a new arm within an existing regulator. This solution is by far the most comprehensive and also likely to be most expensive to implement and administer.

This option will require cooperation between Basin States and the federal government. Changes will likely be required to state, territory and federal laws or new legislation will need to be introduced to give effect to the independent regulator. The intention would be to replace ineffectual rules rather than creating another layer of regulation.

The benefits of a whole-of-market regulator would be significant. The ACCC considers that an integrity regulator could:

- instil much needed confidence and ensure close regulation of the water market
- provide for flexibility to closely monitor, audit, investigate and take enforcement action where necessary
- create regulatory transparency and certainty for market participants and provide strong support for a competitive and efficient water market.

The ACCC considers that it is essential that a regulator can access comprehensive, accurate, up to date data in order to investigate allegations of market manipulation or conduct of concern. The data currently captured by Basin State registers would not allow a regulator to readily identify and investigate suspicious conduct.

The additional trading data needed for market monitoring by a regulator includes at least the type of transaction (that is, spot trade, lease, forward contract, options, carryover, carryover parking, movement of water between accounts, allocation transferred with purchased entitlements), the method of sale (that is, through a broker, direct party-party trade), and the exact price being recorded for commercial trade.

Further, data collected by the state registers on account/licence activities (such as carryover, seasonal allocation, trade in and out) needs to be in a format that it can be combined with trading data. Comparable IIO data might also need to be captured.

There would likely be limited additional burden on trading parties, as data improvements could be achieved by adding additional fields to current trading forms. However, state registers would incur costs to reform data collection and processing practices (which they may seek to recoup from traders).

This option provides the most comprehensive and robust response in relation to the harms and integrity issues so far identified (see table 7.1). This option would include mechanisms to deal with new issues as they emerge. A market focused integrity regulator that is independent from governments will enhance confidence and trust in the market. More information about governance options is set out in chapter 15.

An independent market focused regulator could be provided with the tools to enforce integrity provisions through a number of regulatory mechanisms including provisions in a new or existing legislative regime and through implementing an industry code.

Enforcement through a new or existing legislative regime

A new regulator could be provided with the legislative backing and mandate to enforce market rules for brokers, other intermediaries and investors. This can include a licensing scheme like those discussed above. To facilitate this, a new legislative regime could be developed or specific protections could be added to existing legislation.

The legislative powers of the regulator will need to be robust and ensure that adequate data is captured in order to identify allegations of market manipulation and conduct of concern. This will ensure the regulator can take decisive and meaningful compliance and enforcement action.

Whether the mandate of the regulator should be incorporated into an existing legislative scheme or new legislation will need to be assessed in the context of the overall governance structure as discussed in chapter 15.

Enforcement through an industry code

A new regulator could also make use of industry codes for compliance and enforcement purposes. This could be done through a mandatory code.

A mandatory code would set minimum standards to govern the conduct and practices of water market participants. Mandatory codes are made by Regulation under the relevant legislation. A mandatory code would apply to all market participants specified by the code and would impose positive obligations.

The Australian Government is the ultimate decision-maker in terms of whether a mandatory code is implemented. The Treasury states that ‘Government intervention will only be considered where there is a demonstrable problem affecting industry participants or consumers that the market cannot or will not overcome, and where such intervention is likely to result in a net public benefit.’⁵³⁵

By way of example, the ACCC can take enforcement action when parties subject to one of its mandatory codes fail to comply with its requirements. A mandatory code provides the ACCC with a range of enforcement options including financial penalties and infringement notices (where penalty provisions are specifically designated to provisions) and court action for breaches of the code. These protections are in addition to the general protections of the *Competition and Consumer Act 2010*. The ACCC also has audit powers. This enables the ACCC to continue to monitor industry practices, and can assist in identifying conduct that may not be apparent to market participants.

The implementation of a mandatory code, drafting and putting the code into effect would involve several stages, which could take approximately 12 months if all stages are followed. Mandatory codes are generally reviewed every two to five years and the timeframe would be specified when the code is introduced. The review typically includes public consultation.

⁵³⁵ The Treasury, *Industry Codes of Conduct Policy Framework*, 30 November 2017, <https://treasury.gov.au/publication/p2017-t184652>, viewed 23 June 2020.

Questions for stakeholders

- Should an independent market focused regulator be established for the MDB water market?
- Should the regulation of the water market be entrusted to an already established independent regulator or a new body?

7.11. The ACCC seeks feedback on these options

As noted above, the regulatory environment for Basin water markets is highly complex. When considering strengthening market integrity measures, the ACCC (in line with best practice regulation principles) considers a consolidation of regulatory requirements is desirable, to simplify the framework, fill in regulatory gaps, and limit the regulatory burden on market participants.

The ACCC seeks stakeholder feedback on the above options to inform its consideration of recommendations for its final report.

Part IV: Trade processing and water market information

This part includes four chapters on issues relating to Murray–Darling Basin water markets trade processes, transaction costs and information transparency, as well as outlining potential solutions to address issues identified.

Chapter 8 discusses the roles, functions and services provided by brokers, exchanges, approval authorities and registers in water trading in the Basin. The chapter will not discuss broker and exchange conduct. A detailed analysis on brokers, and to some extent exchanges, can be found in chapter 6 of this Report. This chapter purely describes the roles and trade-related services provided by these entities and focuses on how, when and what data they create, store and publish. Regulatory solutions to address potential misconduct are also addressed at chapter 7.

Chapter 9 examines the transaction costs associated with water trading, considering the impact of regulatory approval processes for individual trade applications and the cost of intermediaries on individual trading decisions.

Chapter 10 examines information transparency in Basin water markets by identifying the information necessary for water market traders to make decisions that are in their best interest, which lead to effective and efficient markets and improved productivity.

Chapter 11 considers a suite of short-term and medium-term solutions, and examines the merits and drawbacks of a range of longer term technological solutions. The chapter invites stakeholder feedback on how these solutions could address the issues associated with fragmented processes, transaction costs and transparency identified in chapters 8 to 10.

8. Trade Processes—advising, matching, clearing, settlement, registration and information

Key Points

- Trading in Basin water markets can involve multiple entities, from private exchanges and brokers who assist in pre-trade processes, to Basin States and irrigation infrastructure operators (IIOs) who approve trades and have other post-trade roles.
- The fragmentation due to multiple entities being involved in trade causes issues such as trade approval authorities being unable to verify prices as they are not privy to financial settlement information, contributing to inaccurate and incomplete price data on Basin State registers. The ACCC's preliminary view is that improved integration between intermediaries and trade approval authorities would improve the availability and accuracy of water market information.
- There are also inconsistencies across the states' entitlement and trade frameworks prescribed by state specific water management legislation and regulations. The ACCC's analysis to date indicates there are substantial differences in Basin States' entitlement frameworks and trade processes and that these differences have generated problems at three levels:
 - For individual traders, interactions with different trade approval authorities across the Basin may be cumbersome due to differences in terminology, fees and trade approval forms and processes.
 - For the market more broadly, inconsistent trading processes have created complex and difficult to understand market data. As a result, participants may not make well-informed trading decisions and may limit their engagement with water markets because they lack confidence or perceive that the costs of obtaining the necessary information to benefit from water markets are too high.
 - For governance, differences in Basin States' management of water rights has impeded reforms in the past and continues to hinder streamlined interstate allocation trading.
- The ACCC's preliminary view is that trade processing in the Basin could be improved with:
 - consistent terminology and types of water rights and water dealings across states
 - greater use of electronic form lodgement pathways and processing, with consistent mandatory form fields and greater use of automation
 - consistent assessment processes for allocation trades
 - increased interoperability between brokers/exchanges and trade approval authorities, and between Basin State and IIO trade approval authorities' systems and registries
 - consistent clearing, recording settlement and registration processes across all states, particularly for permanent trades
 - consistent processes for recording and dissemination of information on all trades (permanent and temporary) by all water registers (including IIO registers), with sufficient detail for broader market use (discussed in chapter 10).

8.1. Trade-related services are crucial for market functioning, but can be a source of problems

Water markets fundamentally involve the transfer of tradeable water rights in exchange for payment. However, because finding a trading partner and executing a trade are not costless, water markets also involve *water market intermediaries*, who provide valuable services which assist water market principals (that is, buyers and sellers) to conduct trades. Well-functioning markets ensure buyers and sellers honour contract obligations. Entities that assist markets for tradeable water rights to function efficiently reduce transactions costs by ensuring that the transfer of property rights is correctly recorded, and provide publicly available information to market participants. In the Murray–Darling Basin, a range of different entities provide trade-related services, and in some cases roles overlap. Also, competition (markets) exists for some of these services (such as advisory, matching and information services), while others are provided by natural monopolies such as trade approval authorities and registers:

Generally, competition exists for the pre-trade services and information services listed below.

Clearing and registration services, performed by Basin State trade approval authorities and irrigation infrastructure operators (IIOs), are not subject to competition through market mechanisms, although Basin State trade approval authorities are subject to economic regulation as natural monopolies.⁵³⁶

Further, water markets are also underpinned by infrastructure services (such as the management of storages and delivery infrastructure) and water planning and management activities, all of which are necessary prerequisites to a system for allocation and use of water. The role of this underlying market architecture will be considered in part V of the interim report.

The trade-related services covered in this chapter are:

- **Pre-trade—Advisory services:** assisting potential buyers and sellers to assess the market, form price expectations, and make decisions in the market
- **Pre-trade—Matching services:** connecting buyers and sellers
- **Post-trade—Clearing services:** ensuring buyer and seller honour contract obligations, and assessing and approving trade applications
- **Post-trade—Settlement services:** facilitating the actual transfer of payment from buyers to sellers, and transfer of title from sellers to buyers and updating water accounts to reflect approved transactions
- **Post-trade—Registration services:** recording ownership and allocation volumes⁵³⁷ on state based registers established under water management legislation. Settlement for some trades does not take place until registration
- **Post-trade—Information services:** collecting, cleaning, aggregating and disseminating market-relevant information to water market participants.

Most of these services are core to the functioning of water markets, and are needed for every trade (clearing and settlement services). Others, while not necessary for every trade,

⁵³⁶ Trade approval charges levied by Basin State trade approval authorities are regulated as water planning and management charges under Basin State law, and also by the Water Charge Rules which are enforced by the ACCC. See <https://www.accc.gov.au/regulated-infrastructure/water/water-charge-rules>. Under the New South Wales regulatory framework, IPART sets WaterNSW's allocation trade charges. While IIOs are also subject to the Water Charge Rules, there is no direct regulation of IIO charges for trade approval services.

⁵³⁷ It should be noted that the NWI envisaged separate entitlement and trade registers. However, allocation volumes are not always required to be recorded on a register and may be kept on water management systems only.

still provide a very important function. This is particularly the case in water markets which are characterised by a high degree of fragmentation, geographic dispersion, and complex trading rules or processes where traders may require additional services to find a trading partner and make a beneficial and informed trade.

Therefore, if these trade-related services are not provided efficiently, or actually create problems for market participants, they will impact the overall efficiency of the market. This can happen via several avenues:

- Trade-related services are a crucial source of market data and information. If they fail to provide high quality information to the market in a timely manner, prices may not incorporate information on certain market-relevant factors (that is, there are *externalities* which are not 'priced in'), leading to inefficient allocation of water resources.⁵³⁸ Further, market participants may take action to 'fill in the gaps' themselves, but where they are acting on incomplete or poor quality data, may make ill-informed decisions on water market participation and related investment.
- Trade-related services may also provide information to the market in a way which generates *information asymmetries* (one market participant has access to information which another does not), which can allow certain participants to capture proportionally more gains from trade. This has distributional impacts on market participants. Information asymmetries can also create space for market misconduct—such as insider trading⁵³⁹—to occur.
- If trade-related services are inefficiently provided, and costs are recovered from market participants, transaction costs can erode gains from trade and potentially form a barrier to entry for some participants.
- If trade-related services are provided in a way which offers advantage to some users over others, this can also inadvertently allow certain participants to capture proportionally more of the gains from trade. As this chapter discusses, water markets are becoming increasingly technologically sophisticated, but technological progress is markedly uneven. This context gives rise to the question of whether trade-related services are being provided in a way which allows technologically sophisticated users to benefit at the expense of other users.

This chapter describes the different trade-related services and draws preliminary conclusions on the extent to which some of these problems outlined above are evident in Basin water markets and stem from the fact that provision of trade-related services are highly fragmented, and because of limitations or specificities in the legislation underpinning government provision of trade-related services. Transactions costs are considered in more depth in chapter 9, and transparency problems are considered in more depth in chapter 10. Chapter 11 then takes stock of findings in previous chapters and considers options to address the issues identified.

⁵³⁸ Note that market-related services are not the only source of externalities: externalities arising via other avenues such as incomplete property rights are discussed in Part V.

⁵³⁹ In the Basin water market context, 'insider trading rules' refers to ss.12.51 and 12.52 of the Basin Plan 2012 (Cth), which specify that a person is not to trade a water access right if aware of water announcement before it is made generally available, and require 'Chinese wall' arrangements for certain agencies to address certain insider trading risks.

8.2. Trade processes in water markets are split across government and private bodies in the Basin, and are different in each state

The Commonwealth *Water Act 2007* reforms were meant to be the first step toward greater centralisation of roles in the Basin:

*The Commonwealth objective remains a comprehensive Commonwealth water law. To that end, the Commonwealth will seek to negotiate an intergovernmental agreement on water with the basin states, under which they will refer their powers to underpin such comprehensive legislation within 12 months of signing.*⁵⁴⁰

However, the referral of power from the States to the Commonwealth did not eventuate. This has led to multiple institutions being involved in water trading, some directly and some indirectly. This multiplicity of roles is a function of water markets' previous construct, and are not designed to suit modern water markets where products are diverse and trade is more commonplace.

Table 8.1 sets out how different trade-related services are provided by a range of private and government entities in Basin water markets. Almost all trade-related services are provided by multiple entities, and are provided by a mix of public and private entities. The following sections explore each of the trade-related services identified in table 8.1 in more detail. Since many stakeholders have raised the idea that water markets should be more like stock markets, and some have called for an 'ASX approach for water'⁵⁴¹, this chapter makes use of comparisons to the ASX throughout in order to demonstrate how provision of trade-related services in the water context differs markedly from the financial market setup, and to explore the implications of those differences.

⁵⁴⁰ Commonwealth, Parliamentary Debates, House of Representatives, 8 August 2007, p. 7 (Malcolm Turnbull, Minister for the Environment and Water Resources).

⁵⁴¹ For example, some submissions called for a similar requirement in water for those who hold significant volumes to declare their position (such as National Irrigators' Council, Submission to the Murray–Darling Basin inquiry, January 2020, p. 3; Citrus Australia, Submission to the Murray–Darling Basin inquiry, January 2020, p. 11). Other submissions suggested there should only be one water exchange, similar to the ASX (such as Almond Board of Australia, Submission to the Murray–Darling Basin inquiry, March 2020, p. 25). See also C Seidl, SA Wheeler and A Zuo, 'Treating water markets like stock markets: Key water market reform lessons in the Murray–Darling Basin', *Journal of Hydrology*, Vol. 581, 2020, p. 12.

Table 8.1: Services performed by different market makers in the Basin water markets

	Advisory services	Matching services	Clearing services	Settlement Services	Registration services	Information services
Brokers and agents	Always	Always	Partly*	Sometimes—financial only	Never	Sometimes
Exchanges	Sometimes	Always	Partly*	Sometimes—financial only	Never	Sometimes
Approval authorities***	Sometimes	Sometimes	Partly*	Partly—title only	Never	Sometimes
Registers	Never	Never	Never	Always—title only**	Always	Always
Information providers	Never	Never	Never	Never	Never	Always

Source: ACCC analysis of broker and exchange websites, as well as state water management legislation and the *Water Act 2007* (Cth).

Notes: *Unlike in the ASX, described below, clearing is split across exchanges and trade approval authorities. **Unlike in the ASX, there is not a separate settlement service which coordinates title and financial transfers. In water, for financial settlement to take place the Registrar must notify the intermediary holding the buyer funds that the trade has been approved, settled and registered and that the money can be released to the seller. ***Approval authorities refers to both Basin State trade approval authorities (who approve trade of water access rights and water delivery rights in Victoria and Queensland), and irrigation infrastructure operators (who approve trade of irrigation rights and water delivery rights in New South Wales and South Australia).

In considering the different services provided, it is important to recognise that there are a variety of different pathways in which trades occur, depending on the nature of the right traded, the jurisdiction, and the choice of water market intermediary selected by trading parties. Box 8.1 below provides an example of trade processes, from engaging intermediary services through to settlement and registration.

In the example shown in box 8.1, information flows, financial flows, and service flows form a complex web, involving many actors. This complexity is typical for many traders in Basin water markets. Notable features which bring this complexity are:

- Trades across jurisdictions necessitate obtaining approval from multiple trade approval authorities, including IIOs and Basin State authorities.
- Some clearing functions such as guaranteeing contract obligations are conducted by intermediaries, others are performed by the trade approval authorities (TAAs).
- Clearing functions (trade approvals) are performed separately to registry functions (settlement and registration).
- Generally, financial settlement flows are quite separate from clearing functions, as trade approval authorities are not involved in the transfer of payment.
- There are many different sources of market-relevant information (discussed further in chapter 10).

Institutional features of a market's design may also reduce transaction costs. For example, an adequate and accessible register of titles and record of transfers can reduce transaction costs by facilitating the enforcement of property rights and informing market participants. This will be explored further in chapter 10.

Box 8.1: Example of all steps and processes of a temporary trade from within an IIO network to an interstate buyer

Seller and Buyer both engage their own brokers. The brokers both provide advisory services to their clients, and the trade is conducted on an online exchange between zones 10 and zone 6. The steps to execute this trade are as follows:

1. These two brokers use an exchange to lodge their offer to buy and sell on behalf of their clients. The broker of the buyer sees the seller's offer to sell and decides to match the trade by selecting to buy on the platform on the buyer's behalf. The brokers are then notified of the successful match by the exchange.
2. This example shows that there are three trade applications which need to be lodged for approval: one form to the IIO, and also forms to New South Wales and Victorian trade approval authorities.
3. The exchange prepares the form to submit to the IIO, Murray Irrigation (the network which the Seller is inside).
4. Once Murray Irrigation has approved the temporary trade to go outside of their network, the exchange then completes an interstate trade approval form and lodges it with the New South Wales approval authority as the origin state. The Murray–Darling Basin Agreement (Schedule D—Processing Interstate Transfers of Water Allocations) Protocol 2010 ('the Protocol') requires that the exchange provide Goulburn-Murray Water (GMW) with a copy of the form that will be submitted to WaterNSW.
5. As the trade is now an interstate trade going from Murray Irrigation to Victoria, the Murray–Darling Basin Agreement Schedule D applies, and the authorities must have regard to Schedule D protocols made under the schedule to determine whether the transferor's application is prohibited.
6. At this point in the flow, as the trade is from within an IIO area, the New South Wales approval authority regards the IIO as the 'seller', even though the original seller still owns the irrigation right. The application form submitted will list Murray Irrigation as the seller, not the original seller. An interstate trade can take WaterNSW up to 10 days to process.
7. Another form then needs to be submitted to the state in which the water is going, and the relevant authority there is GMW. Victoria provides electronic lodgement through the Broker portal or MyWater, but in this case the broker submits a paper form to GMW. All information has to be manually entered again into this form—and can, for example, mean that a different price is recorded in the system to what was recorded on the exchange or the New South Wales system. The Protocol requires that the exchange also provide WaterNSW with a copy of the form submitted to GMW.
8. GMW and WaterNSW then enter the information on the paper form into their water management systems. WaterNSW assesses the application from the seller side and if requirements are met (form submitted is in approved form, fee is paid, all required information is provided, sufficient account volume and any other considerations in trading rules and water sharing plan), they will update the status of the application to 'pre-approved'. GMW are required to generate a transaction ID for the transfer and will also update the status with a recommendation of either 'approve' or 'refuse'. Both TAAs then send information to each other on the status of the application through the interstate interoperability file share arrangement. While price is a mandatory field on the trade forms for temporary trades in New South Wales and Victoria, there are no processes in place to validate the amount entered on either application form.
9. The interoperability process runs and GMW receives WaterNSW's 'pre-approved' status. GMW then proceed to finalisation of the trade and approve the application.

10. GMW notify (automatically) WaterNSW of the successful trade so WaterNSW can update the seller's account. GMW also update the buyer's account.
11. Once approved, notification is provided to seller and buyer (or those acting on behalf of them) from the authorities. The money from the exchange's escrow account is then credited to the seller's account— the approval authorities have nothing to do with this and have no way to validate the price paid for the trade.

Once New South Wales and GMW confirm the trade is approved, they refer the application to be recorded on their registers.⁵⁴² GMW and DELWP have automatic processes to send information from GMW to the Victorian Water Register.

⁵⁴² The *Water Act 1989* (Vic) requires temporary trades to be recorded by GMW. New South Wales requires trades to be recorded on the Assignment Division of the register.

Trade services provided by private exchanges and brokers

8.3. Advisory and information services

8.3.1. Advisory services

Many market participants engage brokers to provide advisory services to better understand the water market. As discussed in section 6.1.1, many water market intermediaries provide information and advisory services to their clients which assist buyers and sellers to decide when and where they want to trade, and to form price expectations.

Brokers and exchanges who provide advisory services draw on a range of information sources—for example, climate and water availability data published on government websites, industry forecasts, and historical trade data from Basin State registers and IIO websites. As advisory services are usually coupled with matching services, the information provider may also have access to data from previous trades which they have facilitated. Many brokers and exchanges publish information on previous trades and publish summary statistics such as the average price.

Brokers and exchanges who provide advisory services may also be information *generators*—for example, they may keep records of past trades they facilitated, and add value by analysing raw data from other sources in order to gain actionable insights. When this occurs, advisory service providers may *create* information asymmetries between brokers and traders. This is discussed in more detail in section 6.7.

While most water market data and information are non-rivalrous (one person's use of data does not preclude another person using it), tailored and specific advice to individual clients likely does not fall into this category. Consequently, some providers may charge for information services and personalised advice while others provide information services at no charge.⁵⁴³ There may also be externalities associated with providing advisory and information services if providers cannot generate sufficient returns to cover their costs. For instance, brokers and exchanges may not make sufficient returns across these services to warrant them providing the market with the advice and information that would redress the existing information asymmetry.

If private markets do not deliver the 'right' level of information and advisory services due to externalities, or provide them in ways which create information asymmetries, there may be a rationale for governments to play a role in providing advisory and information services.

8.3.2. Information services

Entities who provide information services may also be information generators. The services provided by exchanges means they both generate and store valuable information. The exchanges active in the market only have information from their own exchange, and facilitate the trade between buyers and sellers who are using their service. This is because information services are provided by brokers and exchanges, who may publish (or provide for access by members) historical information on price, trading patterns, products and volumes traded on their platform or for trades they facilitated.⁵⁴⁴ This has created a situation

⁵⁴³ For example, some exchanges provide market information publicly on their websites.

⁵⁴⁴ ACCC, *Water market intermediaries—industry developments and practices*, ACCC, Canberra, 2010, https://www.accc.gov.au/system/files/Water%20market%20intermediaries%20-%20industry%20developments%20and%20practices_0.pdf, viewed 6 May 2020, p. 9.

in which market confidence is impacted by fragmented information and difficulty in obtaining a true and complete view of market price and market depth.⁵⁴⁵

Information is also both generated and provided by state registers. Much like the data provided by brokers and exchanges, this data is dispersed across state borders and suffers from quality issues such as inaccurate price reporting, lack of product identification and lack of consistency of what is published across the states.

This has created the need for new centralised information dissemination services, not delivered by registers or intermediaries. These information service providers (such as Waterflow and the Bureau of Meteorology (BOM) Water Market Information Dashboard, discussed in section 10.3.4) are not usually regarded as *intermediaries* because they do not actively facilitate trade, and provide information to a wide variety of stakeholders, including the general public, policymakers, and researchers who are not market participants.

While BOM has held a role in collecting and disseminating central water market information since the inception of the *Water Act 2007* (Cth), information quality and transparency are continuing to be raised as concerns by stakeholders.⁵⁴⁶ This primarily relates to the underlying quality and timeliness of the data that BOM collects from the state registers and IIOs. BOM does not collect information from intermediaries, however Waterflow now collects this information and presents more detail on current buy and sell offers, as well as historic trade data from intermediaries and the registers.⁵⁴⁷

8.4. Matching, clearing and financial settlement services provided by private exchanges

The role of exchanges in water markets is primarily to bring together buyers and sellers and facilitate the successful trade of water from seller to buyer. This section focuses on exchanges, but brokers also perform some of the same functions of exchanges. Brokers and their role in the market is explored in greater depth at section 6.1.1 in the report. The variation of matching and other services provided by these intermediaries will be explored in detail below.

8.4.1. Matching processes provided by exchanges

Services for matching buyers and sellers are key to well-functioning markets as they assist in finding the best opportunities for both buyers and sellers. During the transition to formal water markets in the Basin through unbundling of land and establishment of trading rules, the demand for matching services to facilitate this more formal trade emerged.⁵⁴⁸

There are now multiple exchanges and brokers who offer matching services in the Basin (see appendix B). These services range from automated matching on exchanges, through to bulletin boards and manual matching by brokers (for example, where they have one client who wants to buy and another who wants to sell).

Some of the exchanges operating in the Basin are Waterexchange, H2OX and Waterpool. Some IIOs also operate exchanges to facilitate the trade of irrigation rights, and trades into and out of their networks. These platforms can be used directly by water right holders, or they can be used by brokers on behalf of their clients.

⁵⁴⁵ Goulburn Murray Irrigation District (GMID) Water Leadership, Submission to the Murray–Darling Basin inquiry, January 2020, p. 10.

⁵⁴⁶ Civic Ledger, Submission to the Murray–Darling Basin inquiry, January 2020, p. 3.

⁵⁴⁷ Available at: <https://www.waterflow.io/>.

⁵⁴⁸ ACCC, Water market intermediaries—industry developments and practices, ACCC, Canberra, 2010, https://www.accc.gov.au/system/files/Water%20market%20intermediaries%20-%20industry%20developments%20and%20practices_0.pdf, viewed 6 May 2020, p. 2.

As both brokers and exchanges are involved in the matching of buyers and sellers, they also become the holders of valuable information on the willingness to pay, parties of trade, date of contract, volume traded, and sometimes—for brokers—the reason for trade. There is no interoperability between water exchanges, and the lack of regulation means that the extent to which the same parcels of water are listed on multiple exchanges is not known. Stakeholders have expressed concern that market-sensitive information is dispersed across a number of brokers and exchanges in the Basin, that the products and services offered vary across the exchanges and are not standardised, and that dispersal of buy and sell offers across multiple sites (and some not even online at all) makes it difficult to accurately gauge market depth.⁵⁴⁹

In response to this concern, some stakeholders have called for a central exchange or an ‘ASX for water’ to increase transparency and better understand market depth.⁵⁵⁰ However, there have also been concerns that this could increase costs and require additional regulation.⁵⁵¹

8.4.2. Clearing services provided by exchanges

Water market exchanges and brokers provide some clearing services. This is different to other sectors—for example, exchanges in Australia’s stock market do not provide these services and clearing is performed centrally by ASX-Clear, which takes on the role as the central counterparty (see box 8.2).⁵⁵²

The clearing services provided by intermediaries in water markets are primarily based on the contracts which they facilitate between buyers and sellers, creating an obligation for each to follow through to settlement. They also prepare and lodge trade approval lodgement forms on behalf of the principals to the trade.

It is worth noting, however, that under existing arrangements, intermediaries in water markets are unable to fully complete trades because almost all trades⁵⁵³ require assessment by a trade approval authority and then approval prior to registration or water accounts being updated. This approval role may have no direct relation in other sectors where the ability to carry out a trade is only dependent on factors such as whether the trading parties actually have the legal authority to enter into a transaction. Thus, clearing and settlement services are not always linear and are split between brokers, exchanges, trade approval authorities and registers.

Some stakeholders have suggested that the water markets would be better served through a central clearing house.⁵⁵⁴ The monopoly situation of ASX-Clear has been reviewed by the Council of Financial Regulators (CFR) and it has been observed that creating competition in clearing could have both benefits and costs of the Australian stock market. The main benefits were reported by respondents mostly as lower clearing fees, and improved product and service offerings. However, some unaffiliated market operators reported they experienced difficulties in negotiating clearing and settlement services with the vertically-integrated provider.⁵⁵⁵ Considerations such as access to the central clearing system would

⁵⁴⁹ See for example, Murrumbidgee Valley Food and Fibre, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2, which states that ‘totally transparent water trading platform and water register that follows the same rules and principles as other property, share and business ownerships in Australia urgently needs implementation as already outlined in the NWI and the *Water Act 2007*’.

⁵⁵⁰ For example, Victorian Farmers Federation, Submission to the Murray–Darling Basin inquiry, February 2020, p. 11.

⁵⁵¹ Australian Water Brokers Association, Submission to the Murray–Darling Basin inquiry, January 2020, p. 4.

⁵⁵² ASX, 2020, ASX, Sydney, <https://www.asx.com.au/services/clearing/asx-clear.htm>, viewed 4 May 2020.

⁵⁵³ Not all trades of tradeable water rights in the Basin require both approval and registration.

⁵⁵⁴ H2OX, Submission to the Murray–Darling Basin inquiry, February 2020, p. 5.

⁵⁵⁵ Council of Financial Regulators, Review of Competition in Clearing Australian Cash Equities: Conclusions, 2015, p. 2.

need to be undertaken to assess the likely success of this model in improving clearing in water markets.

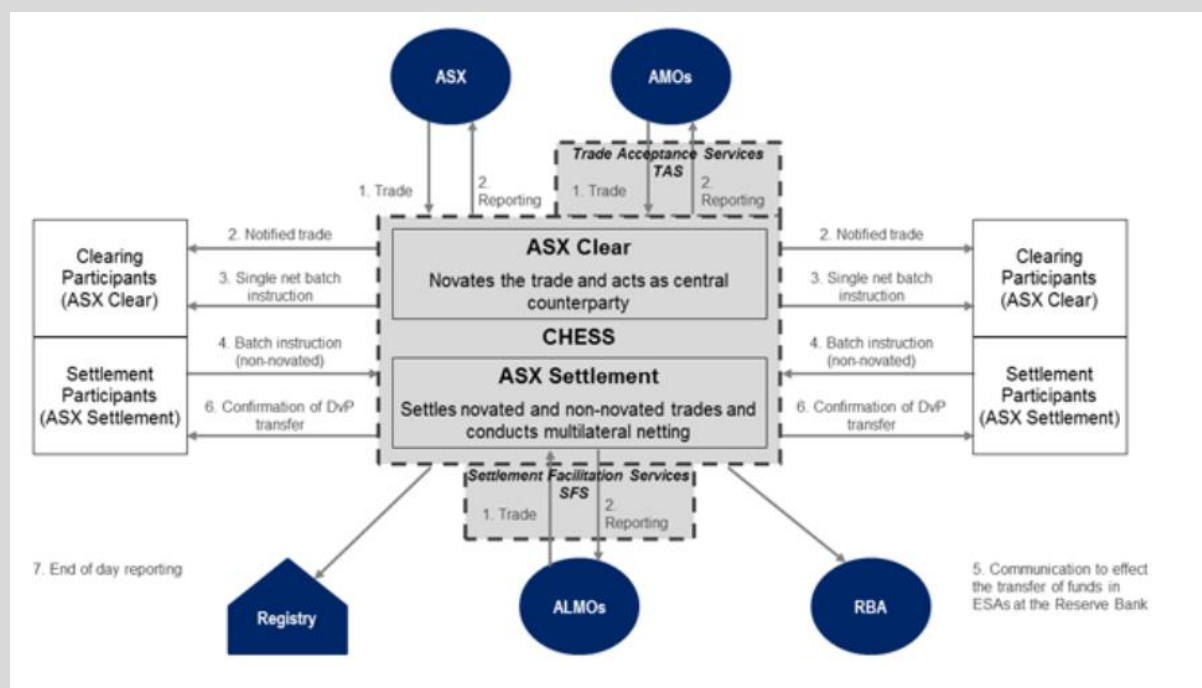
As discussed above, unlike the ASX, there is no central clearing house like ASX in water markets (see box 8.2).

Box 8.2: ASX clearing process

The current market structure of cash equity services in Australia is separated into four main functional levels: trading, clearing, settlement and registration. Trades executed either on ASX Trade, or on trading platforms of Approved Market Operators (AMOs) unaffiliated with ASX, are submitted to ASX Clear.

The figure below shows how the multilateral netting process is directly fed to the Reserve Bank of Australia (RBA) so that transfers of funds in Exchange Settlement Accounts (ESAs) can take place. This shows a more linear separation of roles in trading cash equities compared with trading in the water market, where clearing services are split between exchanges and trade approval authorities.

Figure 8.1: ASX clearing process



Source: ASX website.

While part of the clearing process in water trading may be conducted by intermediaries, most trades require assessment by a TAA and then approval prior to registration or water accounts being updated. While some other trades may only require TAA consent and do not require registration.⁵⁵⁶

⁵⁵⁶ For example, allocation assignment trading in Queensland is not registered on the Water Register, but is recorded in the Water Management System. While temporary trades in Victoria do need to be registered, they are given effect as soon as accounts are updated and not when registered.

8.4.3. Financial settlement services provided by exchanges

It is the ACCC's understanding that, in general, exchanges do not take on the counterparty risk in water trading.⁵⁵⁷ However, exchanges may mitigate this risk by providing services for financial settlement, such as quarantining the buyer's payment in an escrow account until the trade has been approved, effectively mitigating the seller's risk of payment default and the buyer's risk that the trade may not be approved. Again, this is different to the clearing of cash equity transactions, where ASX Clear becomes the central counterparty through a process known as novation, making ASX Clear liable for completing all cleared transactions.⁵⁵⁸ However, water markets have the additional step of trade approvals by separate and sometimes multiple authorities, meaning there is also risk that the trade may be refused.

The transaction of money entering the escrow account and then being sent to the seller once approval from the TAA has been received, is completely separate from TAA and state registry processes. The TAA and registry therefore are unable to efficiently verify the price of the trade reported on the trade form, and are reliant on participants accurately recording this information on the trade form and understanding their obligation to do so.⁵⁵⁹

There are now multiple different products available in the Basin water markets, beyond entitlement and allocation transfers. These new derivative products include options, forwards, contractual leases and carryover parking. These new products exhibit transparency issues due to the market infrastructure not yet standardising or reporting properly on these products, as discussed in section 10.4, however they also introduce new financial risks:

With the increasing use of derivative type products and increasing incentives for counterparty default in times of water scarcity, particularly in drought, the topic of standardisation and counterparty risk requires urgent attention.⁵⁶⁰

As shown in figure 8.1 above, settlement of cash equity transactions is undertaken through a central settlement facility (ASX Settlement) which connects to share registries and the RBA. In contrast, settlement in water markets generally occurs on a trade by trade basis, typically through the various intermediaries involved in the trade.

It is important to recognise that, while the buying and selling of water relies on water registers for clearing functions, the matching of buyers and sellers, as well as settlement (that is, transfer of payment) both occur completely separately from registers. State water registries occupy a similar role in relation to water markets as a land titles office holds in relation to real property or the share registry holds in relation to the stock market. Where key functions of water markets exist in other digital spaces, such as online exchanges or trading platforms, these platforms need to be able to digitally connect and receive information from the registers and vice versa. Similarly, where trade takes place in a more 'manual' way—for example in a small rural community using face-to-face negotiations and paper trading forms, traders still need to be able to submit trade applications for approval, and receive notification of the outcome of their application. Finally, given there are multiple registers, registers also need to be inter-connected. The degree to which different systems, registers and platforms are able to connect is known as interoperability.

⁵⁵⁷ For example, H2OX Membership Rules, July 2016, clauses 14.1 and 14.2.

⁵⁵⁸ ASX, 2020, <https://www.asx.com.au/cs/clearing.htm>, viewed 23 June 2020.

⁵⁵⁹ MDBA, Trade Price Audit Overview, 2019, p. 2. Available at: https://www.mdba.gov.au/sites/default/files/pubs/water-trade-price-audit-process_0.pdf.

⁵⁶⁰ C Seidl, SA Wheeler and A Zuo, 2020, op cit., p. 12.

Box 8.3: Trading, clearing, settlement and registration in the Australian cash equity market

Like water markets, trading can occur in a number of ways in Australia's cash equity market. AMOs unaffiliated with ASX, such as Chi-X, provide alternative platforms on which to trade other than ASX Trade.

Similarly, there are multiple share registries in Australia. An investor may choose to register their cash equities either on ASX's Clearing House Electronic Subregister System (CHES) subregister, maintained by ASX Settlement, or on an issuer-sponsored subregister, usually administered by a share registry unaffiliated with ASX.⁵⁶¹

In contrast, ASX is currently the monopoly provider of cash equity clearing and settlement services in Australia, which ASX provides using CHES infrastructure. As such, AMOs such as Chi-X require access to CHES for trades to be cleared and settled.

The Australian Government has stated that its policy is one of openness to competition in both cash equity clearing and settlement in Australia.⁵⁶² The Council of Financial Regulators, in cooperation with the ACCC, has been developing a policy framework to support competition in clearing and settlement of Australian cash equities. It has also developed a set of regulatory expectations for ASX's conduct in the provision of such services where it is a monopoly provider.⁵⁶³

The above example of the Australian cash equity market shows issues which resemble those experienced in water trading. For example, while access to up to date information from other registers is not an access issue (in regulatory sense) it is an issue for the states for them to be able to timely and confidently settle interstate trades. The ACCC is aware that the states have limited digital file exchange protocols in place when processing interstate trades, but its preliminary view is that access to register data and account balances to verify information from the other state in real time may be necessary to improve trade processing time and meet NWI objectives.⁵⁶⁴ The ACCC understands that the processes for pre-approval from the origin state for interstate allocation trading in the Southern Basin would need to be maintained should there be no system or protocol changes.⁵⁶⁵

The meaning of water register and information contained within a water register also differs across the states, with some states having multiple registers required under legislation, while others are only required to keep a register related to entitlements and any dealings which impact entitlements (including trade).

⁵⁶¹ ASX, CHES, ASX, Sydney, 2011, https://www.asx.com.au/documents/research/ches_brochure.pdf, viewed 22 June 2020.

⁵⁶² Morrison, S (Treasurer), Turnbull Government continues policy of open competition in clearing and settlement of shares, media release, Australian Government, 12 October 2016; Morrison, S (Treasurer), Open competition in clearing and settlement of shares, media release, Australian Government, 7 September 2017.

⁵⁶³ Council of Financial Regulators, www.cfr.gov.au/financial-market-infrastructure/regulatory-framework/competition-in-clearing-and-settlement.html, viewed 22 June 2020.

⁵⁶⁴ Trade processing and water market information transparency is relevant for achievement of several NWI objectives. Most relevantly, paragraph 58 includes that '[t]he States and Territories agree that their water market and trading arrangements will: (i) facilitate the operation of efficient water markets and the opportunities for trading ...; (ii) minimise transaction costs on water trades, including through good information flows in the market and compatible entitlement, registry, regulatory and other arrangements across jurisdictions; (iii) enable the appropriate mix of water products to develop based on access entitlements which can be traded either in whole or in part, and either temporarily or permanently, or through lease arrangements or other trading options that may evolve over time.'

⁵⁶⁵ The Murray–Darling Basin Agreement (Schedule D—Processing Interstate Transfers of Water Allocations) Protocol 2010, outlines the process for interstate trading in the Southern Basin, stipulating that forms need to be submitted in both the origin and destination states. Available at: <https://www.legislation.gov.au/Details/F2010L02473>.

Questions for stakeholders

- Do you consider that automating the flow of information (price, struck date, product type) from an exchange to a register would greatly improve accuracy of data? Do you consider the benefits of improving price reporting would outweigh the cost of adopting this approach?
- Would you be more likely to trade in derivative products if there was a central clearing house which took on the counterparty risk?

Trade services provided by Basin States

8.5. Trade approval, clearing, settlement, registration and information services continue to be provided by multiple public agencies

There continues to be differences in states' water rights frameworks, trade frameworks, trade processing systems and registers⁵⁶⁶, despite major reforms and commitments better facilitate efficient water markets. This fragmentation has led to many of the issues discussed further in chapters 9 and 10.

To better understand the cause and extent of these differences, the ACCC has undertaken a targeted review of Basin State water management law to examine provisions underpinning these frameworks

While the following sections focus on trade processing undertaken by Basin State TAAs, it is important to bear in mind that IIOs operate as TAAs in relation to irrigation rights, and water delivery rights within their networks.

8.5.1. States each have different legislative underpinnings for their registers but have made commitments to increase compatibility and the flow of information

Table 8.2: Differences in water rights terminology and dealing types across the states

	Queensland	Australian Capital Territory	New South Wales	Victoria	South Australia
Water Access Entitlement	Water Allocation	Water Access Entitlement	Water Access Licence	Water Share	Water licence
Entitlement dealing types (Incl. water access entitlement trade and permanent trade of irrigation right)	Transfers, leases, subdivisions and amalgamations	Permanent or limited period transfer	Transfer, term transfer, conversions, subdivision and consolidation, assignment of rights under access licence Within IIOs, irrigation rights and delivery rights trade	Transfers of ownership, limited term transfers, standing directions, divisions and consolidations	Transfers of whole licence (absolute or limited time), transfer of entitlement, surrender and variation Within IIOs, irrigation rights and delivery rights trade.
Temporary trade types (Incl. water allocation trade and temporary)	Seasonal water assignment	-	Water allocation assignment Within IIOs, irrigation rights and	Assignment of water allocation	Allocation transfers Within IIOs, irrigation rights and delivery

⁵⁶⁶ Productivity Commission, *National Water Reform*, Report no 87, 2017, p. 118.

	Queensland	Australian Capital Territory	New South Wales	Victoria	South Australia
trade of irrigation right)			delivery rights trade		rights trade
Secondary market products	No mention in Act	No mention in Act	No mention in Act	No mention in Act	No mention in Act

Source: ACCC analysis.

The states agreed under the NWI to establish compatible institutional and regulatory arrangements to facilitate intrastate and interstate trade.⁵⁶⁷

The *Water Act 2007* (Cth) specifies the following objectives and principles for water market and trading arrangements for the Murray–Darling Basin, which are drawn from NWI commitments.⁵⁶⁸ The objectives are:

- (a) to facilitate the operation of efficient water markets and the opportunities for trading, within and between Basin States, where water resources are physically shared or hydrologic connections and water supply considerations will permit water trading; and
- (b) to minimise transaction cost on water trades, including through good information flows in the market and compatible entitlement, registry, regulatory and other arrangements across jurisdictions; and
- (c) to enable the appropriate mix of water products to develop based on water access entitlements which can be traded either in whole or in part, and either temporarily or permanently, or through lease arrangements or other trading options that may evolve over time; and
- (d) to recognise and protect the needs of the environment; and
- (e) to provide appropriate protection of third-party interest.

Relevant principles include:

- (3) All trades should be recorded on a water register. Registers will be compatible, publicly accessible and reliable, recording information on a whole of catchment basis, consistent with the National Water Initiative.
- (15) Institutional, legislative and administrative arrangements will be introduced to improve the efficiency and scope of water trade and to remove barriers that may affect potential trade.

As these excerpts show, compatibility between registers is a fundamental goal of the NWI and the Act, and is linked to the quality of information flows.

The ACCC has observed that significant efforts have been made by governments in cooperation with other stakeholders to pursue these objectives and develop an effective and

⁵⁶⁷ Productivity Commission, *National Water Reform*, Report no 87, 2017, p. 116.

⁵⁶⁸ *Water Act 2007* (Cth) Schedule 3, s. 3.

efficient market system.⁵⁶⁹ However, our preliminary view is that, while there has been some success, many objectives have not been met in full, and we remain with fragmented roles and responsibilities, and inconsistent approaches to numerous market related issues across the Basin.

While there are some clear differences in both structural set up of trade approval authorities and registers, as well as information collection and publication across the states, the Basin States have agreed to certain levels of transparency and processing standards in relation to water trading in the course of water reform processes over the last 15 years.⁵⁷⁰

Basin Plan Water Trading Rules

Schedule 3 of the *Water Act 2007* (Cth) sets out the Basin water market and trading objectives and principles, which include that '[r]egisters be compatible, publicly accessible and reliable' and that there are 'good information flows in the market'. The Basin Plan trading rules are required to contribute towards the achievement of these objectives and principles set out in the *Water Act 2007* (Cth).⁵⁷¹

The Basin Plan water trading rules provide the right to trade free of certain restrictions and define the types of trade restrictions that are and are not permissible in the Basin. For example:

- a person may trade a water access right free of any restriction on the trade that relates to the person being a member of a particular 'class of persons' (such as environmental water holders or irrigators) or to the 'purpose' for which the water will be used.⁵⁷²
- free trade of surface water is required within and between regulated systems, and within unregulated systems, except where a restriction meets certain criteria (for example, where there is a physical constraint, lack of connectivity, or a need to protect the environment).⁵⁷³

The states are however able to set their own trading rules, and specify these rules in a variety of instruments, for example, in regulations (Queensland), Water Sharing Plans (New South Wales), Water Allocation Plans (South Australia), Protocols (Queensland), or separate rules (Victoria). These rules may place restrictions on trades that are generally allowable in the state legislation, but not allowed in certain water courses.

The Basin Plan Water Trading Rules include rules intended to improve market information and in particular require the price of each trade of a water access right to be reported to the relevant approval authority.⁵⁷⁴ This obligation however does not extend to specifying how this information should be collected and recorded by approval authorities, and the obligation does not extend to price reporting for trades of irrigation rights and water delivery rights within IIO networks.

⁵⁶⁹ In performing its roles of providing advice on the development of the Basin Plan water trading rules and preparing annual water monitoring reports, the ACCC has observed significant effort of basin state and Commonwealth government agencies over time which go part way to deliver on these commitments. For example, states have both amended legislation and upgraded systems to facilitate with water trading. Victoria, New South Wales and SA have implemented file sharing arrangements for interstate trades, which allows them to share the status of applications. The Commonwealth government has introduced the Water Regulations 2010 (Cth) which have helped to improve the capture and dissemination of water market information. Other agencies, such as MDBA and environmental water holders have also worked to increase and improve the level of information provided to market participants. The ACCC's water monitoring reports are available at <https://www.accc.gov.au/publications/accc-water-monitoring-report>.

⁵⁷⁰ For example, the NWI committed the states to developing registers which would produce good information flows in the market.

⁵⁷¹ *Water Act 2007* (Cth), s. 22.

⁵⁷² *Basin Plan 2012* (Cth), ss. 12.07–12.08.

⁵⁷³ *Basin Plan 2012* (Cth), ss. 12.16–12.18.

⁵⁷⁴ *Basin Plan 2012* (Cth), s. 12.48.

Box 8.4: MDBA Price Audit Findings, Recommendations and Response

Background

The MDBA has a broad audit function and undertakes audits as part of its annual work program, or in response to specific incidences.⁵⁷⁵

The MDBA price audit comprised two parts. The first part of the audit assessed the ability of the approval authorities to collect, record and publish price information reported to them. The second part of the audit looked at whether water traders were complying with section 12.48 of the BPWTR and accurately reporting price to the approval authorities in their trading forms. Price reporting obligations are relatively new, commencing in 2014 when the BPWTR came into effect. To conduct part 2, an independent assurance on compliance was undertaken by Deloitte by selecting a random sample of trades from each of the states.

Findings

In May 2019, the MBDA released the findings of the price audit.

Part 1 of the audit found that 'no Basin State has robust arrangements in place to ensure comprehensive, accurate price information'.⁵⁷⁶ The audit also found that no Basin States required evidence to support prices reported.⁵⁷⁷

State-specific findings also included some discrepancies between what was recorded on trade forms and what was on public water registers and published by BOM.⁵⁷⁸ The audit also found that at the time, Queensland did not include price as a field on temporary trade forms.⁵⁷⁹

Part 2 of the audit found that there was some confusion around the existence or purpose of s12.48 and lack of price controls meant that blank prices were accepted and inappropriately processed as zero dollar trades.⁵⁸⁰ Part 2 also found that overall 50 per cent of trades sampled were not compliant with section 12.48.⁵⁸¹

Recommendations

Part 1 of the audit included Basin-wide recommendations that all state trade forms include compulsory price fields, registry systems should require a reason to be provided for a zero dollar trade, through to implementing price validation processes which are consistent across the states, and for the states to work with BOM to ensure quality data is provided for improved reporting by BOM.⁵⁸²

Part 2 of the audit recommended that price reporting should be made mandatory on all

⁵⁷⁵ MDBA, 2020, <https://www.mdba.gov.au/publications/mdba-reports/audit-assurance>, viewed 22 June 2020.

⁵⁷⁶ MDBA, *Water Trade Price Reporting under Basin Plan, Part 1: Basin State processes and procedures for collecting water trade price information*, 2019, p. 2.

⁵⁷⁷ *ibid.*, p. 3.

⁵⁷⁸ *ibid.*, p. 7.

⁵⁷⁹ *ibid.*, p. 14.

⁵⁸⁰ Deloitte, *Water Trade Price Reporting under Basin Plan, Part 2: Independent assurance report of individual trades*, 2019, p. 2.

⁵⁸¹ *ibid.*

⁵⁸² MDBA, *Water Trade Price Reporting under Basin Plan, Part 1: Basin State processes and procedures for collecting water trade price information*, 2019, p. 5.

trade application forms, and that support should be given to both brokers and individual traders through trading sessions, information guides and reporting templates.⁵⁸³ Part 2 also recommended pursuing online portal lodgements as a way to reduce manual key entry errors, and double handling of trade information.⁵⁸⁴

MDBA response to recommendations

In October 2019 the MDBA responded to its Water Trade Price Audit Report outlining the ways it intends to work with Basin State counterparts to improve information collected and reported by state registries. The MDBA stated that it will work with State counterparts to undertake a gap analysis of information requested at the time that transactions are recorded in state registries and will then work towards developing a standard set of data fields which could be captured by the states and presented as more comprehensive water market information. The MDBA also noted in its response that it 'will also explore longer-term options to develop and implement a common Basin-wide Compliance Framework for trade information'.

The MDBA is now progressing its response to improve monitoring, validation and compliance, as well as water trade information and reporting.⁵⁸⁵ The MDBA has committed to work with the states to undertake a gap analysis of information requested at the time transactions are recorded in registries. The MDBA also committed to develop a standard set of fields which can be captured on the registers and presented to the market.⁵⁸⁶ Furthermore, the MDBA acknowledged the inefficiencies of multiple systems, and committed to working with the states and BOM to harmonise registers and explore longer-term options to develop and implement a single Basin-wide information system.⁵⁸⁷

COAG service standards

Service standards for allocation trades were first adopted by COAG in November 2008⁵⁸⁸ for commencement on 1 January 2009⁵⁸⁹, with the current service standards in place since 1 July 2009.⁵⁹⁰

The COAG service standards for allocation trades were agreed upon following a review of trade processing times in the Basin States. Prior to the introduction of these service standards, there was an inconsistent approach where not all authorities had service standards, and those that did varied by scope.

In its review of the National Water Initiative, the Productivity Commission noted trade approval times had decreased and recommended service standards be tightened.⁵⁹¹ The ACCC also recommended that service standards be reviewed every two years.⁵⁹² However, there has been no change to service standards since 1 July 2009. Despite processing improvements, trade approval times continue to fail to meet the expectations of market

⁵⁸³ Deloitte, *Water Trade Price Reporting under Basin Plan, Part 2: Independent assurance report of individual trades*, 2019, p. 4.

⁵⁸⁴ *ibid.*, p. 4.

⁵⁸⁵ MDBA, *Water Trade Price Reporting Audit: Management Response*, 2019, p. 7.

⁵⁸⁶ *ibid.*, p. 2.

⁵⁸⁷ *ibid.*, p. 3.

⁵⁸⁸ COAG Communiqué, 29 November 2008.

⁵⁸⁹ National Water Commission, *Australian Water Markets Report 2008–2009*, 2009, p. 8.

⁵⁹⁰ National Water Commission, *Australian Water Markets Report 2009–2010*, 2010, p. 12.

⁵⁹¹ Productivity Commission, *National water reform*, Report no. 87, 2017, p. 128.

⁵⁹² ACCC, *Water trading rules—Final advice*, 2010, p. 122.

participants⁵⁹³ and there are inconsistencies in these times between states.⁵⁹⁴ While outdated and in need of tightening, the standards are also only aspirational with no consequences for trade approval authorities that fail to meet them. Further, the New South Wales and Victorian trade approval authorities now measure the performance of their interstate allocation trades to South Australia using the 20 business day benchmark rather than 10 business days.^{595,596}

Section 9.3.1 explores this issue further with an assessment of trade approval times for the Southern Connected Murray–Darling Basin (Southern Connected Basin) for the 2018–19 water year.

8.6. State based water entitlement and water allocation frameworks

8.6.1. Entitlement frameworks

Water rights have been partially ‘unbundled’ into the right to hold or take water (separate to land), the right to use water on land, the right to construct or operate water-related infrastructure and the right to have water delivered by an infrastructure operator.⁵⁹⁷ These unbundled rights are what is traded in water markets; with the majority of trade being trade in water access entitlements and water allocations.

The discussion below highlights that there continue to be fundamental differences in the terminology and structure of water rights across the Basin. The consequence of these differences is that slightly different rights are afforded to individuals and the resulting trading processes also differ.

Queensland

In Queensland, what is considered a Water Access Entitlement in the Commonwealth Water Act is referred to as a ‘Water Allocation’. Queensland’s *Water Act 2000* enables a Water Allocation to be granted in accordance with the processes set up (if those processes are set up) in a water plan, water management protocol or regulation.⁵⁹⁸ Unlike other states, where a water access entitlement may be held independently of location-related rights, if the allocation is to be managed under a Resource Operations Licence⁵⁹⁹ (ROL), a water allocation may only be granted to a person if they also hold a water supply contract with the ROL holder.⁶⁰⁰

⁵⁹³ Australian Water Brokers Association, op. cit., p. 13; Coleambally Irrigation Co-operative Limited, Submission to the Murray–Darling Basin inquiry, February 2020, p. 12; Gwydir Valley Irrigators Association, Submission to the Murray–Darling Basin inquiry, January 2020, p. 5.

⁵⁹⁴ Australian Water Brokers Association, op. cit., p. 3; Coleambally Irrigation Co-operative Limited, op. cit., p. 12.

⁵⁹⁵ Department of Environment, Land, Water and Planning (Victoria), 2020, <https://waterregister.vic.gov.au/water-trading/status-of-trading-applications>, viewed 17 April 2020; WaterNSW, 2020, <https://www.watnsw.com.au/customer-service/ordering-trading-and-pricing/trading/statistics-by-month>, viewed 16 April 2020; WaterNSW, 2020, <https://www.watnsw.com.au/customer-service/ordering-trading-and-pricing/trading/statistics>, viewed 22 June 2020.

⁵⁹⁶ However, the WaterNSW FAQ page refers to the 10 business day benchmark for interstate approvals (see <https://www.watnsw.com.au/customer-service/ordering-trading-and-pricing/trading/faqs-water-trading>, viewed 16 April 2020).

⁵⁹⁷ Some aspects of rights remain bundled, for example, in most catchments, rights to storage and to on-river delivery remain bundled with water access entitlements and/or water allocations. Chapter 12 discusses this in further detail.

⁵⁹⁸ *Water Act 2000* (Qld), s. 27(2)(i), s. 39(d) and s. 147.

⁵⁹⁹ *Water Act 2000* (Qld), s. 176. In the Queensland Basin, the Queensland Department of Natural Resources, Mines and Energy is the ROL Holder for the Border Rivers Water Supply Scheme; and Sunwater holds the ROL for the remaining Queensland Basin water supply schemes. See: <https://www.business.qld.gov.au/industries/mining-energy-water/water/catchments-planning/water-plan-areas/condamine-balonne>; and <https://www.business.qld.gov.au/industries/mining-energy-water/water/catchments-planning/water-plan-areas/border-rivers-moonie>. A ROL is a licence granted to the entity who operates headworks infrastructure such as dams and weirs.

⁶⁰⁰ *Water Act 2000* (Qld), s. 147(4).

Australian Capital Territory

The Australian Capital Territory *Water Resources Act* (2007) establishes 'Water Access Entitlements', which entitle the holder to a specified share of surface or ground water within a particular water management area.⁶⁰¹

New South Wales

The New South Wales *Water Management Act 2000* allows for the granting of a 'Water Access Licence'⁶⁰² (WAL) which permits the holder to access water from a specified water source. The total volume of water available to be extracted from a specified source is shared among WAL holders based on the 'Share Component' of each licence⁶⁰³ which sits underneath the WAL.⁶⁰⁴

Unlike in other states, a person wishing to hold a water allocation must hold a WAL. Thus, in New South Wales the WAL takes the place of a water account (South Australia) or allocation bank account (Victoria). This is important because, as explored in the case study at box 8.1, it acts as an additional step and fee for someone wanting to participate in temporary trade.

Victoria

The Victorian *Water Act 1989* sets up 'Water Shares', which are ongoing entitlements to a share of the water available in a declared water system.⁶⁰⁵

The majority of water users who participate in Victorian Basin water markets hold 'Water Shares', although environmental entitlements and bulk entitlements can be amended and traded under certain circumstances.⁶⁰⁶ A 'Water Share' is a water access entitlement in and of itself, and does not sit underneath a licence (as in New South Wales or South Australia).⁶⁰⁷ In Victoria, the term 'licence' refers to either a take and use licence or a registration licence.

South Australia

The South Australian *Natural Resources Management Act 2004* provides that the Minister may grant a 'water licence', which provides the holder access to a share of water available in the consumptive pool(s) to which the right relates.⁶⁰⁸ A 'water access entitlement' is a specific share or volume of a particular consumptive pool that the licence holder is entitled to access.⁶⁰⁹ Therefore, in South Australia, a licence may hold several different classes of water access entitlement.

This framework is somewhat similar to the New South Wales framework. However, in South Australia, a licence may have several different classes of water access entitlement specified on it (for example, one licence held by a South Australian IIO has Class 1, Class 3 and Class

⁶⁰¹ *Water Resources Act 2007* (ACT), s. 19.

⁶⁰² *Water Management Act 2000* (NSW), s. 61.

⁶⁰³ *Water Management Act 2000* (NSW), s. 56.

⁶⁰⁴ New South Wales Department of Planning, Industry and Environment, <https://www.industry.nsw.gov.au/water/licensing-trade/licences/types/water-access>, viewed 22 June 2020.

⁶⁰⁵ *Water Act 1989* (Vic), s. 33F.

⁶⁰⁶ Bulk entitlements may be traded permanently (transferred under section 46D of the Victorian Water Act) and water held under a bulk entitlement can be temporarily traded (assignment of allocation under section 46 of the Victorian Water Act).

⁶⁰⁷ Water shares are described in *Water Act 1989* (Vic), s. 33E.

⁶⁰⁸ *Natural Resources Management 2004* (SA), s. 146(1).

⁶⁰⁹ *Natural Resources Management 2004* (SA), s. 76(4b) specifies the basis on which a water access entitlement may be determined.

5 water access entitlements⁶¹⁰), whereas in New South Wales different classes of entitlements are held on different licences (for example, an IIO in New South Wales may hold three separate WALs—one each for Conveyance, High Security and General Security entitlements).

8.6.2. Trading approval and registration frameworks

Each state's water management legislation sets out that the role of trade approval authorities to undertake the trade clearing process which involves assessing the trade application against the criteria set out in the Act (which can then refer to various other documents). In most states, legislation will then provide that certain trades do not take effect until they are *registered*—thus, registration is a separate but related process to trade approval.

The differences in the types of dealings specified in the state legislation impact transaction costs. For example, if a water holder needs to conduct two dealings—one to divide the entitlement and then another to transfer part of an entitlement rather than being able to transfer part of an entitlement in one dealing they may face higher transaction costs. The types of dealings specified in the state legislation also impact the data that is available to market participants. For example, by not specifying separate dealings for related-party transfers, trade data quality is reduced by being unable to differentiate trade types.

Interstate and inter-valley trading

The Basin Plan Water Trading Rules (BPWTR) allow for the free trade of surface water within or between regulated systems⁶¹¹, except for restrictions which are permissible, for example where there are hydrological constraints or environmental protection needs.⁶¹² Interstate entitlement trading and allocation trading in the Southern Connected Basin is also governed by Schedule D of the Murray–Darling Basin Agreement and the Permissible Transfers protocol enabled under it to further supplement its provisions.

Schedule D of the Murray–Darling Basin Agreement requires the states to notify the Murray–Darling Basin Authority (MDBA) of any inter-valley transfer. The MDBA is also required to provide Ministerial Council a report each year on the operation of Schedule D.

The Murray–Darling Basin Agreement (Schedule D—Permissible Transfers between Trading Zones) Protocol 2010⁶¹³ (the Protocol) outlines the restrictions and rules applying to interstate trade in the Southern Connected Basin, including for trade through the Barmah Choke.⁶¹⁴ The MDBA has a role in monitoring these trades under the Protocol, and approval authorities must promptly advise the MDBA if they approve any trades from below to above the Choke.⁶¹⁵ The MDBA also has a role advising an approval authority whether a proposed transfer from above to below the Choke may be approved.⁶¹⁶ If the MDBA advises the authority that the trade from above to below the Choke cannot be approved, the authority must then refuse the transfer.⁶¹⁷

⁶¹⁰ Department for Environment and Water (SA), <https://www.waterconnect.sa.gov.au/Systems/WLPR/Pages/Default.aspx>, viewed 22 June 2020.

⁶¹¹ *Basin Plan 2012* (Cth), s. 12.16.

⁶¹² *Basin Plan 2012* (Cth), s. 12.18.

⁶¹³ As required by Schedule D of Basin Agreement under paragraph 6 (1) (E).

⁶¹⁴ Available at: <https://www.legislation.gov.au/Details/F2010L02466/Html/Text>.

⁶¹⁵ *Murray–Darling Basin Agreement (Schedule D—Permissible Transfers between Trading Zones) Protocol 2010*, Paragraph 10(1) which states 'If an approval authority approves the transfer of a water entitlement, or the transfer of an allocation, from below to above the Choke, the approval authority must promptly advise the Authority.'

⁶¹⁶ *ibid.*, paragraph 10(3).

⁶¹⁷ *ibid.*, paragraph 10(5).

Interstate allocation trades in the Southern Connected Basin are also governed by another Schedule D protocol, the Murray–Darling Basin Agreement (Schedule D—Processing Interstate Transfers of Water Allocations) Protocol 2010.⁶¹⁸ This protocol outlines a five step process which the states have agreed the approval authorities will follow in processing interstate allocation trades in the Southern Connected Basin.

At the first step, the protocol requires that forms be submitted to the destination state and to the origin state. The protocol requires that an application not be processed unless:

- (a) the transferor provides the original of the transferor’s authority’s application form (that is, the origin state authority’s form) and a copy of the transferee’s authority form (the destination state authority’s form) to the origin state authority, and
- (b) the transferee has provided an original of the transferee’s form and a copy of the transferor’s form to the destination state authority.

The protocol then requires consideration of application by the destination state authority, and requires the authority to assign a transaction identification number to the transfer. The authority is also required to consider if any protocol under subclause 6 (1) of Schedule D of the Murray–Darling Basin Agreement or any other matters required to be considered would prohibit the transfer.

As the third step, the protocol then requires consideration by the origin state authority. If the origin state authority decides the application should be approved, they must notify the destination state authority and provide the application identification number, debit the allocation account, set the date upon which the transfer will take effect, and advise the transferor that the application has been granted.

At the fourth step, the destination state authority must finalise the application. This occurs when the destination state authority receives the notice of approval from the origin state, and the destination state authority must promptly approve the transfer, amend records to reflect the transfer, calculate the volume of the allocation to be received, and advise the transferee and any broker or agent engaged in process that the transfer has been finalised.

Finally, the MDBA conducts a monthly reconciliation of interstate trades and updates its register of interstate trades.

Victoria, New South Wales and South Australia legislation all refer to the Murray–Darling Basin Agreement⁶¹⁹ allowing for interstate trade in their provisions relating to transfers. The states in the Southern Connected Basin have introduced file sharing arrangements to assist interstate trading and meet obligations under the protocol (see section 11.3.1). There are also separate provisions allowing the states to form inter-governmental agreements (IGAs) for interstate trade. In the Border Rivers, a separate intergovernmental agreement⁶²⁰ was made to enable interstate trade, as this trade is not covered by the Basin Agreement.

⁶¹⁸ *Murray–Darling Basin Agreement (Schedule D—Processing Interstate Transfers of Water Allocations) Protocol 2010*. Available at: <https://www.legislation.gov.au/Details/F2010L02473>.

⁶¹⁹ Murray–Darling Basin Agreement, Schedule 1, *Water Act 2007* (Cth).

⁶²⁰ New South Wales–Queensland Border Rivers Intergovernmental Agreement 2008. Available at: https://www.dnrm.qld.gov.au/_data/assets/pdf_file/0006/105963/intergovernment-agreement.pdf.

Queensland

Entitlement trading

There are two broad categories of water dealings: dealings which require approval and registration⁶²¹, and dealings which only require registration.⁶²² This is set out in the Act as 'permitted' dealings in the water allocation dealing rules, which are dealings which do not require consent, and other dealings that are not prohibited or permitted (and therefore require consent).⁶²³ Dealings which require approval as well as registration include 'changes' (such as location, purpose and priority), subdivisions and amalgamations. Dealings which only require registration (not approval) include leases or transfers of water allocations that do not affect the water allocation's resource-related attributes.⁶²⁴ Regardless of whether approval is required prior to registration, the dealing does not have effect until the dealing the notification has been lodged and the dealing is recorded on the register by the registrar.⁶²⁵

Water allocation dealing rules apply to the whole state.⁶²⁶ However, these rules do not apply to the extent that a relevant water management protocol provides an alternative for either making an application, or the process for deciding the application.⁶²⁷ All dealings must be applied for using the approved form and accompanied by the relevant fee.⁶²⁸ Other dealings (those not outlined in Subdivision 3 of regulations, or in a protocol) are subject to subregulation 73(1), which outlines what must be assessed and established for a dealing to be approved by Department of Natural Resources, Mines and Energy (DNRME), including a public interest test.⁶²⁹

Allocation trading

Allocation trading in Queensland is known as 'seasonal water assignment'.⁶³⁰ Seasonal water assignments for water allocations are dealt with in the regulations not the Act.⁶³¹ Both supplemented (regulated) and unsupplemented (unregulated) water can be seasonally assigned but different processes apply, due to the different entities responsible for managing different types of water supply.

For seasonal water assignments under water allocations not managed under a Resource Operations Licence (ROL), the chief executive must approve the application if the application is consistent with the seasonal water assignment rules stated in the water management

⁶²¹ These include dealings that require two steps, an application/approval followed by lodgement/registration:

- Dealings which firstly involve an assessment and approval by the resource manager (that is, the relevant water area of the administering department—DNRME) and then lodgement of relevant instruments at the Titles Office for registration on the Water Allocations Register (WAR)—to take effect.
- Dealings that include 'changes' (e.g. location, purpose, priority, etc.), 'subdivisions' and 'amalgamations'.

⁶²² These are dealings that involve only lodgement at the Titles Office for registration on the WAR, and do not involve resource manager approval. Such dealings include: water 'transfers'; 'leases'; and other/associated 'conveyance' dealings e.g. recording encumbrances and caveats.

⁶²³ Assessed water allocation dealings are dealt with under Subdivision 4 of the *Water Regulation 2016* (Qld).

⁶²⁴ Business Queensland, 2018, <https://www.business.qld.gov.au/industries/mining-energy-water/water/water-markets/allocation-dealings>, viewed 22 June 2020.

⁶²⁵ *Water Act 2000* (Qld), s. 161(2).

⁶²⁶ *Water Act 2000* (Qld), s. 158, and *Water Regulation (2016)* (Qld), s. 62.

⁶²⁷ *Water Regulation 2016* (Qld), s. 62(2).

⁶²⁸ *Water Regulation 2016* (Qld), s. 63, and Schedule 12.

⁶²⁹ *Water Regulation 2016* (Qld), s. 73(1)(b).

⁶³⁰ 'Seasonal water assignment' is defined under Schedule 4 of the *Water Act* (2000) (Qld), and refers to the assignment to another person of all or part of the water that may be taken under certain instruments, including 'water allocations' and 'water licences'.

⁶³¹ Part 5, Division 2 of the *Water Regulation 2016* (Qld) governs seasonal assignments.

protocol applying to the relevant water plan area.⁶³² The application must be in the approved form and accompanied by the relevant application fee.⁶³³ Seasonal water assignments not within a ROL take effect on the day a notice is given to the applicant.⁶³⁴

A holder of a Resource Operations Licence, such as Sunwater, is responsible for approving seasonal water assignments of supplemented water.⁶³⁵ The application process for seasonal water assignments can occur via paper form or online via Sunwater's website. Sunwater assesses an application for a seasonal assignment of supplemented water in accordance with the Local Conditions (for example, any loss adjustments that may be applicable) for the water supply scheme in place on the day that Sunwater receives an application. Other considerations include whether the buyer has a Supply Contract with Sunwater for delivery of the water prior to the application being made (and ensuring that all accounts are current). If the seller has an arrangement with Sunwater for payment of outstanding charges, Sunwater may approve the assignment subject to these proceeds being paid to reduce the outstanding amount.

Trade processing requirements

To process seasonal water assignments for unsupplemented water in Queensland, the paper form or emailed in form (no digital form entry) must be entered into the Water Management System.

Seasonal water assignments managed by Sunwater can be submitted online. Trades submitted via Waterexchange can be accessed directly by Sunwater via the platform, and Waterexchange is not required to submit additional paperwork. Sunwater also encourages water customers to use the Waterexchange platform.⁶³⁶

Australian Capital Territory

Entitlement trading

Australian Capital Territory water access entitlements are tradeable, either permanently or for a limited period.⁶³⁷ In approving the transfer, the authority must not approve the transfer unless it is satisfied it is consistent with the conditions of the entitlement, and either consistent with the Territory plan or approved by the authority responsible for water management in the State or Territory in which the water is to be used.⁶³⁸

Allocation trading

While Australian Capital Territory legislation does make provision for the announcement of annual allocations which are able to be traded separately to water access entitlements, in practice water allocation trades have not yet occurred in the Australian Capital Territory.⁶³⁹

⁶³² *Water Regulation 2016* (Qld) s. 59.

⁶³³ *Water Regulation 2016* (Qld) s. 58(3), and Schedule 12 sets out the relevant application fees.

⁶³⁴ *Water Regulation 2016* (Qld) s. 59(6).

⁶³⁵ For trades for water allocations managed by Sunwater, subregulation 61 (2)(a) enables Sunwater or DNRME to consent to the arrangement.

⁶³⁶ Sunwater, New water trading platform a win for regional Queensland, media release, 18 September 2019. Available at: <https://www.sunwater.com.au/2019/09/18/new-water-trading-platform-a-win-for-regional-queensland/>.

⁶³⁷ *Water Resources Act 2007* (ACT) s. 26 (3)

⁶³⁸ *Water Resources Act 2007* (ACT) s. 26 (2)

⁶³⁹ Australian Capital Territory Government, 2019, https://www.environment.act.gov.au/water/water-regulation/water_trading, viewed 22 June 2020.

New South Wales

New South Wales trades vary in what requires consent, consent and registration, and registration only.

Similar to South Australia, while WaterNSW processes trades for private diverters, trades that occur wholly within privately owned irrigation infrastructure operators—the largest being Murray Irrigation Limited—are processed and approved by the IIO and information is not shared with WaterNSW.⁶⁴⁰

Since rules governing trade of irrigation rights are set by IIOs rather than in state water management law, the sections below deal with WAL trading and allocation assignments only.

Entitlement trading

Section 71Y sets out that dealings (including entitlement trades) in New South Wales are to be dealt with in accordance with the water management principles⁶⁴¹, orders established under section 71Z of the Act (currently the *Access Licence Dealing Principles Order 2004*), and access licence dealing rules established by any relevant management plan.⁶⁴²

Dealing principles are able to be published on the New South Wales legislation website to establish access licence dealing principles that regulate or prohibit the kinds of rules which may be made in management plans, and to regulate or prohibit the kinds of dealings under the Act and to establish conversion factors applicable to the share components of access licences.⁶⁴³

The Act has set up two broad types of dealings: those that require an assessment and consent and then registration (called General Dealings), and those that just require registration. There are numerous dealing types specified in the Act, including:

- **Transfer** of access licence (some require consent, others do not)
- **Term transfer** of entitlements under access licences—must be for more than six months (requires consent)
- **Conversions** of access licences to new category (can apply to cancel current licence and grant of new one)
- **Subdivision and consolidation** of access licences (can apply to split or consolidate if licences are in same water management area and are of same category)
- **Assignment of rights under access licence** (known as ‘share component trading’)—enables the holders of two or more licences to apply decrease the share component of one licence to have the corresponding increase in the other licence. This can also be used for the extraction component of the licence.⁶⁴⁴

⁶⁴⁰ Some IIOs (Irrigation Corporations) are listed in the *Water Management Act 2000* (NSW) at Schedule 1. There are also a number of smaller IIOs who, though they have authority to approve, and to restrict, trade into, out of, and within their networks, have no trade approval or trade reporting obligations at all.

⁶⁴¹ *Water Management Act 2000* (NSW), s. 5 sets out the water management principles.

⁶⁴² For example, the Murrumbidgee Regulated Water Sharing Plan (WSP) for the Murrumbidgee Regulated River Water Source 2016 (available at: www.legislation.nsw.gov.au/#/view/regulation/2016/367) outlines additional access licence dealing rules at Part 10; such as prohibiting certain dealings under the Act (with that dealing in the Act stating it was subject to the WSP). Section 71Z of the Act also requires any access licence dealing rules established by management plans are consistent with the principles in the Order.

⁶⁴³ *Water Management Act 2000* (NSW), s. 71Z.

⁶⁴⁴ *Water Management Act 2000* (NSW), s. 71M and s. 71N. A term transfer under s. 71N does not just entitle the transferee access to allocations made to the licence, but to any entitlement conferred by the licence, payment of fees and charges under the licence, and other conditions (see ss. 71N (5), 71O, 71P and 71Q).

All entitlement dealings take effect once registered with the New South Wales Land Registry Services, with only dealings on default, certain co-held share dealings (subject to sections 71M and 71N) and security interests not first requiring consent.

Given the way WALs are set up, an entitlement trade in New South Wales can be a trade of the WAL (known as ‘transfer trading’), or a trade of the share component which sits underneath it (known as ‘share assignment trading’).⁶⁴⁵

Allocation trading

Trade of water allocations in New South Wales is referred to as ‘water allocation assignment’. A water allocation can only be transferred between access licence holders and requires the consent of the Minister. An intrastate assignment dealing⁶⁴⁶ or interstate assignment⁶⁴⁷ must be dealt with in accordance with (a) water management principles, (b) the access licence dealing principles established by the Order⁶⁴⁸, and (c) the access licence dealing rules established by any relevant management plan.⁶⁴⁹

Unlike the other states, both the seller and the buyer are considered applicants for a temporary trade in New South Wales.⁶⁵⁰ This means that, in concert with the regulations,⁶⁵¹ consent is required from both parties.

Water allocation assignments take effect as soon as the details are entered into the water allocation account.⁶⁵² Therefore, while dealings with WALs that require consent need to then separately be registered, water allocation assignments only require consent although they are recorded in the Assignment Division of the register.

Trade processing requirements

WaterNSW accepts forms via email, in person or via mail. If required, during processing WaterNSW will seek external approval from an authorised body (for example, New South Wales Department of Planning, Industry and Environment (DPIE) for Groundwater applications and MDBA for Barmah Choke).

The MDBA’s Price Audit in 2019 found that price is not required on an application form for a trade to be processed.⁶⁵³

Victoria

Water entitlement trading

A Water Share can be traded wholly⁶⁵⁴, or it may be divided or amalgamated.⁶⁵⁵ Therefore a whole transfer is a different dealing to a partial transfer. The Victorian Act gives rise to the following separate dealing types (not all of which are necessarily trades):

⁶⁴⁵ WaterNSW, <https://waterregister.waternsw.com.au/water-register-frame>, viewed 22 June 2020.

⁶⁴⁶ *Water Management Act 2000* (NSW), s. 71T.

⁶⁴⁷ *Water Management Act 2000* (NSW), s. 71V.

⁶⁴⁸ Access Licence Dealing Principles Order 2004 (NSW).

⁶⁴⁹ *Water Management Act 2000* (NSW), s. 71Y.

⁶⁵⁰ *Water Management Act 2000* (NSW), s. 71T(2).

⁶⁵¹ Water Management (General) Regulation 2018 (NSW), s. 9(b).

⁶⁵² *Water Management Act 2000* (NSW), s. 71L(4).

⁶⁵³ MDBA, *Water Trade Price Reporting under Basin Plan, Part 1: Basin State processes and procedures for collecting water trade price information*, 2019, p. 8.

⁶⁵⁴ *Water Act 1989* (Vic), s. 33S.

⁶⁵⁵ *Water Act 1989* (Vic), s. 33Y and s. 33Z, respectively.

- **Transfer of ownership** of water share (water shares can be co-owned and if owned as tenants in common, a person may transfer that person’s portion of the share without consent of other tenants—but in other cases requires consent from other owners).⁶⁵⁶
- **Limited term transfers of rights to future water allocations under water shares** (leases—transfer involves ‘whole of the right to future water allocations’.) The Act specifies it cannot be for more than 20 years, but does not have a minimum, and that the lease gives right to future allocations.⁶⁵⁷
- **Standing directions as to future water allocations under water shares.**⁶⁵⁸
- **Division of water shares.**⁶⁵⁹
- **Consolidation of water shares.**⁶⁶⁰

The Minister must not give approval to a transfer of ownership if any fees owed for the water share is outstanding, any other prescribed reason.⁶⁶¹ The Minister, in approving the transfer, must have regard to any relevant trading rules made under Division 13 of the Act.⁶⁶² Once the transfer is approved, the buyer and seller must then submit a form to the Registrar. A water share transfer takes effect once recorded in the Victorian Water Register by the Registrar.⁶⁶³

‘Trade’ of water shares can mean a transfer of ownership, a change of location, or both. A change of location may occur when a water share transfer or an application to vary or associate a water share (without a transfer of ownership) is approved and recorded in the Victorian Water Register. Also, unlike in New South Wales, only a whole water share can be transferred and there is no equivalent to share component trading where one share is increased and another is decreased.

Allocation trading

Allocation trading in Victoria is referred to as ‘assignment of water allocation’ in the Victorian Act. A person may assign the whole or part of the water allocation available under their water share to any person, which may then be further traded.⁶⁶⁴ In Victoria, an allocation trade is described as assigning whole or part of a water allocation to someone else.⁶⁶⁵ The allocation trade takes effect from the date specified in the assignment.⁶⁶⁶ The Minister must not give approval under section 33X (1)(c) for any prescribed reason, and must have regard to any relevant trading rules made under Division 13 of the Act.⁶⁶⁷

Trade processing requirements

While Victoria is the most advanced in its trade approval processes where allocation trades can be submitted electronically or manually (paper-based). Eighty-five per cent of allocation trades in 2018–19 were submitted electronically. All other types of trade are currently paper-based applications.

⁶⁵⁶ *Water Act 1989* (Vic), s. 33S.

⁶⁵⁷ *Water Act 1989* (Vic), s. 33T.

⁶⁵⁸ *Water Act 1989* (Vic), s. 33U.

⁶⁵⁹ *Water Act 1989* (Vic), s. 33Y.

⁶⁶⁰ *Water Act 1989* (Vic), s. 33Z.

⁶⁶¹ *Water Act 1989* (Vic), s. 33X(3)(a).

⁶⁶² *Water Act 1989* (Vic), s. 33X(4).

⁶⁶³ *Water Act 1989* (Vic), s. 84J(1) and s84JA(1).

⁶⁶⁴ *Water Act 1989* (Vic), s. 33U and s33V.

⁶⁶⁵ *Water Act 1989* (Vic), s. 33U.

⁶⁶⁶ *Water Act 1989* (Vic), s. 33U(3) and s. 33V(3).

⁶⁶⁷ *Water Act 1989* (Vic), s. 33X(3)(b) and s. 33X(4).

Since 2007, Victoria has invested significantly into updating its trade processes, and is now ahead of the other states in terms of the services it offers. For example, Victoria's register supports a Broker Portal and Broker API, which allow for automated approval of trades submitted by approved lodgers (that is, registered brokers).⁶⁶⁸ Registered users of these lodgement pathways are also required to abide by a user agreement, compliance with which is audited annually (see chapter 7).⁶⁶⁹ The MyWater portal⁶⁷⁰ also provides electronic access to the Victorian Water Register and allows registered users to see their accounts, trade allocation, and apply for certain bore construction licences (for domestic and stock, investigation and observation bores only). Subject to automated checks of account balances and compliance with trade rules, MyWater provides near-instantaneous approval of applications, unless interstate approval is required. While the trade approval authority sits with Lower Murray Water, Goulburn–Murray Water and other water corporations, the digitisation of this process creates a more streamlined process for traders as they only have to interact with the MyWater portal which provides approval and then registration. Schedule 12B of the Act allows for electronic lodgement of trade application forms. The Victorian Water Register has a system that has been developed to process the application on behalf of the water corporation—the water corporation is still the Minister's delegate to approve the trade, and any approval letter is from the water corporation. The Register approves or refuses applications based on the collection of a fee and the assessment of a set rules. These are the same rules a human working at a water corporation would apply. These rules were agreed to by the water corporations and have been codified into the Register.

South Australia

In South Australia, the Department for Environment and Water (DEW) serves as the trade approval authority. However, Irrigation Trusts which operate in South Australia also act as approval authorities for trades within their networks. DEW processes and approves all entitlement and allocation water trades in South Australia (except for those within irrigation trusts).

Entitlement trading

Entitlement trades can either be for the licence⁶⁷¹ or for the all or part of the WAE that sits underneath.⁶⁷² A transfer of a WAE without the licence must be to someone who already holds a licence.⁶⁷³ Trade application for an entitlement trade must be submitted in a form specified by the Minister.⁶⁷⁴ The SA Act enables the following dealing types:

- **Transfer of water licence**⁶⁷⁵—whole licence (may be absolute or for a limited period)
- **Transfer of water access** entitlement—all or a portion of shares (may be absolute or for a limited period)
- Surrender of water licence⁶⁷⁶ (not a trade)
- Variation of water licence⁶⁷⁷ (not a trade).

⁶⁶⁸ Department of Environment, Land, Water and Planning, 2020, <https://waterregister.vic.gov.au/water-trading/my-water/broker-instructions>, viewed 22 June 2020.

⁶⁶⁹ Department of Environment, Land, Water and Planning, 2020, <https://waterregister.vic.gov.au/water-trading/my-water>, viewed 22 June 2020.

⁶⁷⁰ *ibid.*

⁶⁷¹ *Natural Resource Management Act 2004* (SA), s. 150(1)(a).

⁶⁷² *Natural Resource Management Act 2004* (SA), s. 150(1)(b).

⁶⁷³ *Natural Resource Management Act 2004* (SA), s. 150(2)(a).

⁶⁷⁴ *Natural Resource Management Act 2004* (SA), s. 150(5).

⁶⁷⁵ *Natural Resource Management Act 2004* (SA), s. 150(1)(a).

⁶⁷⁶ *Natural Resource Management Act 2004* (SA), ss. 150(1)(b) and 150(9).

⁶⁷⁷ *Natural Resource Management Act 2004* (SA), s. 149(1)(a).

Entitlement trades take effect upon approval.⁶⁷⁸ There is therefore no separate registration step required to give effect to settlement, unlike in the other states. In making a decision to approve or refuse the transfer or variation, the transfer must be consistent with the relevant water allocation plan, be in the public interest (taken to be met if the application satisfies the water allocation plan principles) and, if within the Basin, must take into account the requirements of the Murray–Darling Basin Agreement and any Ministerial Council resolution under that agreement that is relevant.⁶⁷⁹

Allocation trading

Allocation trades in South Australia are called ‘allocation transfers’, and the holder of a water allocation may apply to transfer the water allocation to another person subject to the Minister’s approval.⁶⁸⁰ The transfer must also be submitted in a form approved by the Minister and with the relevant fee paid.⁶⁸¹ Allocation trades must be consistent with the relevant water allocation plan and be in the public interest (taken to be met if the application satisfies the water allocation plan principles) and, if within the Basin, must take into account the requirements of the Basin Agreement and any Ministerial Council resolution under that agreement that is relevant.⁶⁸² No other state Act requires individual allocation trades to be in the public interest. No separate sections deal with registration of the allocation transfers.

At the time of the MDBA’s Price Audit, South Australia did not require price to be recorded on either allocation or entitlement trades. However, the MDBA reported that since South Australia was advised of the audit outcomes, South Australia has since made price reporting mandatory.⁶⁸³

Trade processing requirements

Each prescribed water resource area has its own application form for the entitlement or allocation trade of water.

8.6.3. Basin State water registers

Queensland

The water register in Queensland is maintained by the Titles Registry. Section 168 of the *Water Act 2000* (Qld) sets up the Water Allocations Register and sets out what is required to be recorded by the registrar on the water allocations register. Subsection 168(2) states that regulations may prescribe additional requirements of the register.

The *Water Act 2000* (Qld) specifies more detail about what must be recorded on the register about water allocations compared to other states. Section 152(1) sets out what information must be recorded on the water register, such as name, volume, location of water and other details. Certain dealings relating to water allocations must also be registered.⁶⁸⁴ There are also other relevant provisions in the *Water Act 2000* (Qld), for example, sections 173–174 refer to the collection of water transfer information including under the Duties Act, which is a link to sale price.

⁶⁷⁸ *Natural Resource Management Act 2004* (SA), s. 7(2), and Natural Resources Management (General) Regulations 2005, r. 43A. Permanent trades take effect when the Minister gives effect to the transfer in accordance with procedure in regulations; and the regulations state that the trade is given effect by approval.

⁶⁷⁹ *Natural Resource Management Act 2004* (SA), s. 150(8).

⁶⁸⁰ *Natural Resource Management Act 2004* (SA), ss. 157 (1) and (2).

⁶⁸¹ *Natural Resource Management Act 2004* (SA), s. 157(3).

⁶⁸² *Natural Resource Management Act 2004* (SA), s. 157(5).

⁶⁸³ MDBA, *Water Trade Price Reporting under Basin Plan, Part 1: Basin State processes and procedures for collecting water trade price information*, 2019, p. 17.

⁶⁸⁴ *Water Act 2000* (Qld), s. 161.

Seasonal water assignments do not require registration and are maintained in the water management system of the ROL holder (for supplemented water) and the department (for unsupplemented water).

New South Wales

Division 3A of the *Water Management Act 2000* (New South Wales) sets out the Water Access Licence Register. Subsections 71(3) and (4) allow the Minister to determine the form and manner in which the register is kept, with the only limitation being that it needs to be a computer record.

There are two divisions of water registers in New South Wales—the Water Access Licence Register (General Division), which is maintained by the New South Wales Land Registry Services, and the Water Register (Assignment Division) which details assignment dealings (allocation trade) and is maintained by WaterNSW. This means that allocation trades are recorded in a register in New South Wales.

Both the General and Assignment Division include a provision that they must record any further information as specified in regulations. The regulations require additional information be recorded on security interests in the General Division⁶⁸⁵, and all assignment dealing applications which have been submitted in approved form and signed must be recorded in the Assignment Division.⁶⁸⁶

Australian Capital Territory

Under the *Water Resources Act 2007* (section 66), the Australian Capital Territory Environment Protection Authority is required to maintain a register that includes details of (among other things) water access entitlements. The Act does not specify what information on water access entitlements is required to be recorded, just that ‘details’ need to be recorded.

Victoria

The Victorian Water Register commenced on 1 July 2007. The water register is established under Part 5A of the Victorian *Water Act 1989* which sets out the obligations in relation to the collection, storage and disclosure of register information. Section 84C states that the Minister is responsible for establishing and maintaining a system for the water register in which the Registrar has responsibility to maintain records and information on water shares, and an Authority has responsibilities to record water allocations, services delivered, water consumption and other details. Unlike other states, the Victorian Act sets out a purpose for the water register:

*The purpose of the water register is to facilitate the responsible, transparent and sustainable use of the State’s water resources and includes—(a) facilitating monitoring of, and reporting in relation to, records and information about water-related entitlements and allocation and use of water resources; and (b) facilitating a market for water related entitlements and water resources by providing publicly available records and information and other records and information about ownership and use of water-related entitlements.*⁶⁸⁷

⁶⁸⁵ *Water Management (General) Regulation 2018* (NSW), subrr. 11(1)(a) and (b).

⁶⁸⁶ *Water Management (General) Regulation 2018* (NSW), subrr. 11(2).

⁶⁸⁷ *Water Act 1989* (Vic), s. 84B.

Importantly, section 84C (1) requires the establishment and maintenance of the register by the Minister in which records and information referred to in subsections (2), (2A) and (3) is kept. These subsections include more than just ownership (title) information.⁶⁸⁸

The Minister is responsible for maintaining records and information on water-use licences, water-use registrations, bulk entitlements, environmental entitlements, amounts allocated to water shares under section 33AC and works licences, and take and use licences.⁶⁸⁹ The registrar is then responsible for records and information on water shares.⁶⁹⁰

An Authority⁶⁹¹ is responsible for establishing and maintaining records and information in the water register relating to water allocation assignments (allocation trades), standing directions, consumption of water, and other take and use licence information.⁶⁹² Section 84W(b) states that any water allocation assignment in a water system for which that Authority is responsible must be recorded in the water register by the Authority. Victoria has a single state-wide water register. A number of authorities have responsibilities for recording in the water register. Victoria's water register ensures that ownership of water entitlements is recorded with integrity, with consistency in recording across the State, due process in recording, and providing a state-wide view of entitlements recorded, water availability and use.

South Australia

In South Australia, the water register is set up under the *Natural Resources Management Act 2004*.⁶⁹³ The water register is part of the NRM register established under s. 226 of the Act. In South Australia, there is no mention of recording allocation trade information, but rather that the Minister must keep a register of 'water management authorisations granted or issued under this Act'.⁶⁹⁴ Section 226 (1a) allows the Minister to divide the NRM as the Minister sees fit, subject to the establishment of one part specifically for the water register.

While section 226 of the Act sets out the water register must be established as part of the NRM register, further detail on what must be recorded is set out in Schedule 3A. While allocation trades are not required to be recorded on the register, the Minister can record information under Schedule 3A in the manner and to the extent that the Minister sees fit, and may in addition to information that is required to be recorded, record such other information in the register as the Minister thinks fit.⁶⁹⁵ The information that is required to be recorded includes details of the entitlement holder, and any relevant information regarding,

The Minister may also require that monetary consideration for any transfer of entitlement (not allocation trades) be stated in connection with an application to register the transfer.⁶⁹⁶

While New South Wales and Victoria have provisions requiring allocation trades to be recorded in the register, these trades also need to be stored in water management systems in order to adjust account balances.

⁶⁸⁸ Section 84C (2) states that records and information on (a) water-use licences; and (b) water-use registrations, and (c) bulk entitlements; and (d) environmental entitlements; and (e) the recording of amounts of water that are to be allocated to each water share under section 33AC; (f) works licences under section 67(1); and (g) licences to take and use water issued under section 51(1) or registration licences. Section 84C(2A) states that the registrar is responsible for establishing and maintain records relating to water shares, and (3) states what an authority is responsible for.

⁶⁸⁹ *Water Act 1989* (Vic), s. 84C(2).

⁶⁹⁰ *Water Act 1989* (Vic), s. 84C(2A).

⁶⁹¹ Defined in Act as a water corporation or a Catchment Management Authority. The Act includes a list of water corporations in Schedule 1.

⁶⁹² *Water Act 1989* (Vic), s. 84C(3).

⁶⁹³ Soon to be repealed and replaced with the *Landscape South Australia Act 2019* in July 2020.

⁶⁹⁴ *Natural Resource Management Act 2004* (SA), s. 226(1)(a).

⁶⁹⁵ *Natural Resource Management Act 2004* (SA), Schedule 3A, Part 1, s. 4(1) and (2).

⁶⁹⁶ *Natural Resource Management Act 2004* (SA), Schedule 3A, Part 5 s. 16.

8.6.4. Water register information publication requirements

The differences in the trade processes, and particularly the differences in the state registers discussed above, has also given rise to different information being made available to the public from these registers. In order to fulfil the NWI's objective of 'publicly accessible' register, each Basin State's Act includes a provision on how the register should be made available. Information transparency will be discussed in more detail in chapter 10, however the below provides a basic breakdown of what each state is required to publish.

Queensland

The *Water Act 2000* (Qld) does not specifically set out requirements for the publication of the permanent register information.

DNRME publishes a monthly Permanent Water Trade Report (PWTR) which includes a weighted average sale price per ML (for all commercial water trades after filtering out valid, zero dollar trades), for supplemented / unsupplemented water and provided at the level of water supply scheme (supplemented water) and water management area (unsupplemented water) and priority/water allocation group respectively. Section 175 of the Act states that a person may on payment of fee prescribed in regulation, search and obtain a copy of a water allocation or information kept on the register about the allocation.⁶⁹⁷

Queensland's legislative framework does not require information on allocation trade prices to be captured or published. This is consistent with their legislative framework which does not require allocation trades to be registered.

The Water Act was amended in December 2018 to provide for a ROL to include conditions, such as a requirement 'that the licence holder collect and publish the sale price for each seasonal water assignment of a water allocation managed under the licence'.⁶⁹⁸ No ROLs in Queensland have been amended yet in accordance with this provision, which was introduced in December 2018.

New South Wales

In New South Wales, section 71J sets out the ability to access the register, including that the Minister 'is to make the information available to any member of the public at the times and in the manner and on payment of the fee (if any) approved by the Minister'. The New South Wales water register⁶⁹⁹ is the only register that allows for searches by entitlement number to bring up complete allocation trade history. This information is however not available in bulk download and only by one entitlement at a time. Trades conducted within IIOs are not required to be published by the IIOs, however some IIOs have obligations to report to the BOM.⁷⁰⁰

Australian Capital Territory

In the Australian Capital Territory, there is a provision which states that the register should be available for public inspection at reasonable times.⁷⁰¹

⁶⁹⁷ There are two avenues available for water market participants to access permanent sale data. For example, the public can access water sale price data either via the department's business centres or online from private value-added resellers. The department's products include: an Abbreviated sale data listing (\$9.00) or a Full sale search (\$18.05), both of which provide volume, price and other details of the dealing.

⁶⁹⁸ *Water Act 2000* (Qld), s. 179(e)(vi) for new ROLs, and s. 1288 (2) (b) for existing ROLs to be amended to include this condition.

⁶⁹⁹ Available at <https://waterregister.watarnsw.com.au/water-register-frame>, viewed 22 June 2020.

⁷⁰⁰ Under the Water Regulations, BOM is able to determine Category E persons.

⁷⁰¹ *Water Resources Act 2007* (ACT), s. 67(1).

Victoria

Victoria have implemented various improvements to the data they publish, including the way it is published—with the home screen of the Victorian Water Register website providing dashboard type information including some trade price information.⁷⁰² In Victoria, section 84EA(2) states ‘(t)he Minister may make a report created under subsection (1)(c) available to the public, if the report does not include the names and addresses of individuals’.

South Australia

In South Australia, the register is to be made available for public inspection, except for information that the Minister considers should be kept confidential for safety and security reasons.⁷⁰³ South Australian Irrigation Trusts also do not publish information on internal trades (although they may choose to report annual aggregate trade volumes in their annual reports).⁷⁰⁴ What and how is published by DEW will be explored further in chapter 10.

8.7. ACCC preliminary assessment: Transaction processes and information are currently fragmented and inconsistent and must be improved

The ACCC considers that the frameworks for enabling allocation trades need to be improved to meet NWI objectives, with most states including a single provision allowing for allocation trades of water allocation (all with different names for this trade types). This provision enables forwards, options, contractual leases, carryover parking and classic allocation trades to take place. However, the trade forms related to these provisions are set up only for allocation trades (one person transferring water allocation to another person).

The ACCC considers that interoperability and compatibility of trade processing systems and registers is needed to (i) facilitate interstate trade more easily, and (ii) to encourage harmonised data collection and processing flows, in order to provide more consistent market data to stakeholders.⁷⁰⁵ The implications of inadequate interoperability are explored in chapters 9 and 10, as it has increased transaction costs and reduced transparency. While interoperability remains somewhat limited, Victoria, New South Wales and South Australia have implemented file sharing arrangements for interstate trades, which allows them to share the status of applications.

8.7.1. Diversity in pre-trade processes provides flexibility and competition but also create some transparency issues

The pre-trade services of information, advisory and matching have considerable levels of competition. There are however some conduct concerns, explored in greater depth in chapter 6.

The ACCC considers that where key functions of water markets exist or take place in other digital spaces, such as online exchanges or trading platforms, these platforms need to be able to digitally connect and receive information from the registers and vice versa. Similarly, where trade takes place in a more ‘manual’ way—for example in a small rural community using face-to-face negotiations and paper trading forms, traders still need to be able to

⁷⁰² Available at [www.https://waterregister.vic.gov.au/](https://waterregister.vic.gov.au/), viewed 22 June 2020.

⁷⁰³ *Natural Resources Management Act 2004* (SA), ss. 226(2) and 226(3)

⁷⁰⁴ Central Irrigation Trust, *Annual Report 2018/19*, 2019, p. 4. Available at: http://cit.org.au/downloads/annual%20reports/CIT_Annual%20Report_2018-19.pdf, viewed 19 June 2020.

⁷⁰⁵ The ACCC recognises it is technically possible to implement harmonised approaches without having interoperable registers, but considers that improved interoperability will naturally foster increased harmonisation.

submit trade applications for approval, and (at a minimum) receive notification of the outcome of their application.

8.7.2. Trade approval authorities and water registries processes, frameworks and structures remain inconsistent across the states

The ACCC has considered the advancements that have occurred since water markets in the Basin were formalised, and the ACCC considers that significant progress against the NWI commitments has been made. However, the roles and functions of both trade approval authorities and registers continue to be fragmented and not fit-for-purpose in a connected Basin trading environment. Despite this progress, the ACCC's preliminary view therefore largely reflects the NWC's assessment of the markets' frameworks in 2011, which is 'that the legal, administrative and regulatory arrangements underpinning the market need to evolve further to deal with growing demand'.⁷⁰⁶

While changes to improve approval and registry processes have long been recognised, there remains no overarching mandatory driver for this change due to the voluntary and high-level nature of commitments. For example, there is no clear requirement that states revise terminology to be consistent, no requirement that trade forms must clearly identify trade type, and no clear compliance and monitoring role placed on state agencies to ensure price reporting by sellers is accurate. State-specific legislation results in differing water rights and terminology, and may cause traders to experience issues trading interstate or perceive another state's framework to better support trading processes than their current experience.

Changes to state water management law were required to give effect to unbundling (see section 2.3). Each state however did this differently, and at different times. As a result of this, there are more than 150 classes of water entitlements in the Basin, and the specification of unbundled rights differs substantially from state to state.⁷⁰⁷ This has created a situation where there continues to be differences in terminology between the states, differences in the rights of water entitlement holders and differences in fees and application processes when undertaking a dealing that changes their rights. For example, Queensland legislation uses the term 'Water Allocation' to refer to a permanent or ongoing entitlement, while all other states (as well as the Commonwealth legislation) use this term to refer to the specific volume of water allocated against a water access entitlement in a particular period (per water year) is one important example of how legislation can give rise to stakeholder confusion about the nature of rights being traded.

Previous attempts at harmonising processes, such as developing a single interstate trade form, have also shown challenges due to the differences in terminology used across the states (explored further in chapter 11, box 11.4). This is important because it indicates that the underlying frameworks and inconsistent unbundling⁷⁰⁸ may be an obstacle to reducing fragmentation and improving the consistency of trade approval frameworks throughout the Basin.

Trading is set up differently in each state water management act

The key findings from the comparative analysis of states' trading frameworks are:

- The number and types of 'dealings' for tradeable water rights varies substantially across states, and is rarely referred to in the same terms.

⁷⁰⁶ National Water Commission, *Water Markets in Australia: A Short History*, 2011, p. 95.

⁷⁰⁷ MDBA, 2019, <https://www.mdba.gov.au/managing-water/water-markets-and-trade>, viewed 6 May 2020.

⁷⁰⁸ National Water Commission, *Compatibility of Water Registers Report*, 2005, p. 23.

- Trades can take effect differently⁷⁰⁹, which varies the risk taken on by parties (for instance, in South Australia, permanent trades take effect as soon as settled).
- Trade assessment processes are also different, and there are various different trade approval authorities and structures.
- Trade assessment frameworks and trading rules can be spread across legislation, regulations, orders, and plans or protocols specific to particular water management areas, making it difficult for traders to fully grasp all the requirements of trade processes, and to understand how processes differ across geographic areas and according to the rights traded. Victoria makes trading rules available in one place (see sections 10.4.1 and 12.5 for a more detailed discussion on trading rules).
- Trade registration is often performed by a separate entity to trade approval. For example, in Victoria the trade approval role for water share transfers is delegated to the authorities, while the registration on the Victorian Water Registry is the responsibility for the Registrar.⁷¹⁰
- While water products such as forwards and options are given effect via conducting a water allocation trade, there is only one provision in each state's Act under which these trades are permitted (that is, the provision enabling water allocation trade). This means there is no basis in legislation for the approval authority to differentiate between different types or reasons for water allocation trades. Therefore, while the legislation does not prevent any of the authorities discussed above from collecting information on the type of water trade, this would be additional to the requirements of legislation. Price is also not required by any of the Acts to be reported on trade forms, except for Queensland, which has amended its Act to allow for ROLs to be required to collect and publish price information.

The example in box 8.5 below highlights the difference between a WAL holder in New South Wales and ABA holder in Victoria. Box 8.6 below also provides an example of how these differing requirements may cause issues for individual traders seeking to trade interstate.

⁷⁰⁹ National Water Commission, *Compatibility of Water Registers Report*, 2005, p. 15.

⁷¹⁰ *Water Act 1989* (Vic), s. 84C(2A)

Box 8.5: Example of how these differences in frameworks impact a new trader in New South Wales versus a new trader in Victoria

- An irrigator based in Victoria decides to start trading temporary water in New South Wales. The irrigator holds multiple ABAs in Victoria, some of which are linked to an entitlement. The irrigator has assumed the New South Wales process would be the same.
- The irrigator begins to research how to set up an ABA equivalent in New South Wales. The irrigator notices that the terminology used in New South Wales is vastly different, and there is no mention of ABAs or water shares.
- The irrigator comes across 'WALs'. The irrigator notices that the information states that to trade water, a trader must obtain a WAL. A WAL is then used as an ABA, and there is no separate water bank account. The irrigator notices that there is however an option to obtain a zero share WAL, which is most similar to obtaining an ABA with no entitlement in Victoria. The irrigator decides to apply for the zero share WAL, and also realises that there is a fee to set this up, whereas ABAs do not have set up fees.
- The irrigator then purchases water on the spot market to move onto their new zero share WAL. The seller who the irrigator bought from then applies to WaterNSW. The seller then submits Form 71 to WaterNSW. The irrigator's broker provides the irrigator's information to the seller and therefore the buyer does not see the trading form.
- The trading form is returned to the seller because the buyer has not signed the form. The irrigator notes that this process is different to the Victoria where buyer consent is not required. Section 71T which allows for the transfer of assignment between access licences states that the holders must apply to the Minister for consent to the assignment of water allocations between the water allocation accounts, and subregulation 9(b) requires all applicants' signatures. As such, the buyer must also lodge and sign the form.

Box 8.6: Example of impact of differences which results in some states requiring both buyer and seller consent for an allocation trade

In Victoria, section 33U of the *Water Act 1989* (Victoria) enables a holder of water share to assign whole or part of the allocation available to someone else. In South Australia, section 157 of the *Natural Resources Management Act 2004* (SA) enables someone to transfer the water allocation to another person. In New South Wales, section 71T of the *Water Management Act 2000* (New South Wales) states (1) that water allocations may be assigned from one access licence to another, and (2) that the holder of two or more access licences may apply to the Minister for consent to the assignment of water allocations between the access licences. This means that in New South Wales, both the buyer and seller are considered applicants when they apply for consent from the Minister. Subregulation 9(1)(b) of the *Water Management (General) Regulation 2018* (New South Wales) then states that any application must be signed or authorised by each applicant.

In practice, this means that WaterNSW (power conferred by Minister) requires the signatures of both the buyer and seller.

In Victoria, the Act is clear in only requiring a seller to apply and as such Victoria does not require buyer consent.

While South Australia's legislation does not state that the buyer must apply to the Minister,

Form A.1 requires both the seller's and buyer's signature. Section 157 does however state that the transfer must be made in a form approved by the Minister, as such, the form would need to be changed and approved.

Questions for stakeholders

- Do you consider that there would be benefits in aligning the states' water management roles (as much as hydrologically possible)?
- Do you consider, that apart from state-specific or water sharing plan specific rules that each allocation trade within the Basin should be subject to the same assessment framework? For example, that a standard and automatable checklist should be used for each state (including; is there enough water in account balance, check trading rules, check fee is paid, check correct form is used, check consent is given)? Do you consider that this checklist should be made available to water traders so that they understand what assessment process their application is subject to?
- Do you consider that entitlement trades should also be standardised across the states? Do you consider this will create more equal trading opportunities? Do you consider that fees should then also be standardised? Do you consider that the New South Wales framework provides a good starting point for separating out different transfer types?
- Would you like to see one trade form with standardised language be used across the states?
- Would you like to see the trade type and party type (investor, irrigator, other) recorded publicly?
- Would you like to see all state water register websites to provide the same information, presented consistently? If no, why not?

Registers are set up differently in each state—some with multiple registers and others only have a titles (entitlement) register

The key observation of both structure and underlying legislation is that the registers were not initially set up with the objective of capturing and reporting trade data. As such, as markets have matured, the registers have been unable to keep up with the change of pace. This is most acutely obvious by the inability to capture different temporary trade types.

There has also been confusion about what a register is, and what it should capture. There appears to be a perception that allocation trades are 'registered' by each state. However, only Victoria and New South Wales have direct legislative requirements to keep information on allocation trades in a separate register rather than just in water management systems. New South Wales does this by setting up an Assignment Division of the Water Register⁷¹¹, and Victoria does it by requiring Authorities to maintain records of water allocations assignments.⁷¹²

Given these responsibilities, moving to compatible registers or a single register has historically been a challenge for Basin States, and the formation of a single register for the entire MDB may conflict with Basin State agencies' legislated roles in managing the water accounting within their respective jurisdictions. The states have different roles under their own legislation, resulting in differing obligations. Also, since all Basin States except the Australian Capital Territory also have part of their jurisdiction outside the Basin, there may

⁷¹¹ *Water Management Act 2000* (NSW), s. 71a(2)(a).

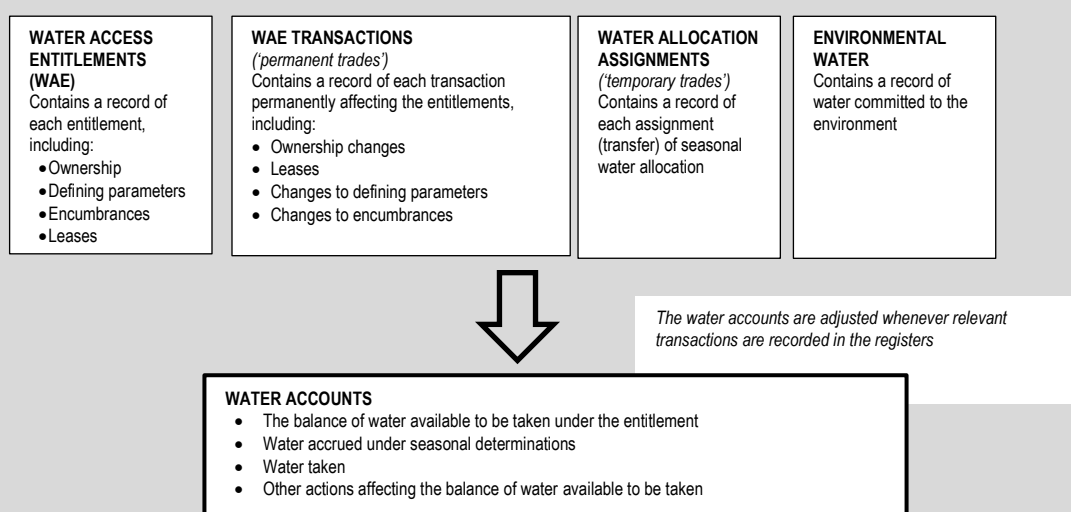
⁷¹² *Water Act 1989* (Vic), s. 84C(3)(b).

be conflicting demands to harmonise between Basin States within the Basin versus to harmonise Basin and non-Basin arrangements within a particular state.

Box 8.7: National Water Commission Working Group on register compatibility—2005

Given the NWI commitments the states made to implement publicly-accessible and compatible registers, a working group was formed in March 2005 to progress this. The Terms of Reference of the working group required a report to the NWC on ‘possible shared characteristics of registers’ and ‘a common set of actions that States and Territories would adopt in their implementation plan’.⁷¹³

The report considered the below conceptual model to encompass all components of a registry system, and that in practice it was up to states whether they chose to have one ‘register’ which captured all of these separate components, or kept them as separate systems with the appropriate linkages.



The key issues highlighted in the report were lack of price recording, inconsistent terminology, and limited coverage due to rights within IIOs not being recorded on the state registers. The report also highlighted the tension between public disclosure of information and privacy needs, noting that there was a need to ‘develop a consistent approach to disclosure of the different types of information across jurisdictions’.⁷¹⁴

Different information is published by the state registers

While the state registers store lots of valuable trade information, publishing this information is not necessarily part of the register’s core functions. As such, this has led to very different websites and trade datasets published by the registers, all at different levels of aggregation and detail.

As is most evident in Queensland, if there is no legislative requirement to maintain an allocation trade register, then no information on allocation trade can be published. Queensland and the Australian Capital Territory do not have public registers for allocation trades like the other Basin States.

⁷¹³ National Water Commission, *Compatibility of Water Registers Report*, 2005, p.3.

⁷¹⁴ *ibid.*, p.12.

The ACCC has observed stakeholder concerns about the timeliness, quality and availability of information from water registers.⁷¹⁵ Stakeholders observe that certain types of information are missing, and that the differences in reporting across states is ‘confusing and frustrating’.⁷¹⁶ Concerns also expand to there being limited information available on ‘how rights are created, what volumes are available, who is acquiring water, and how it is being used, consumed or traded’.⁷¹⁷ The ACCC considers that many of these concerns are not because the registers are not performing their roles, but because their roles do not allow them to support the appropriate level of transparency in the current water markets. For instance, most notably, allocation trades are usually recorded on water management systems and not on registers.

There have been steps made to improve the compatibility of the registers over the years, most significantly was the National Water Market System (NWMS) which included creating a centralised register (CRS).⁷¹⁸ The NWMS also aimed to verify reporting trade data, and report more detailed trade information—including prices, volumes and use approvals. Despite little publication of what NWMS achieved⁷¹⁹, it has been suggested that the states now have a better understanding of registration and trading requirements across the Basin, and that the principles are being applied in the South Australian register upgrades.⁷²⁰

Questions for stakeholders

- Do you think there would be value in extending the application of BPWTR section 12.48 to include a requirement on trade approval authorities to collect this information? Do you think section 12.48 should also include a requirement to report the reason for the trade, and an equivalent provision for the trade approval authorities to collect this information?
- Do you think that the consolidation of trading rules into one document per state/per Basin would assist users in undertaking trades?
- Do you think there would be benefit in standardising and making it clear that each state should have the following separate and distinct registers and information should be published on each:
 - Ownership register (water entitlement)
 - Water entitlement trade/transfer register
 - Water allocation trade/transfer register—including identifying product type
 - Water use register (account balances).⁷²¹
- Do you consider that the roles of approval authorities and registers are clearly understood? Are trade processes, what is actually assessed when a trade form is submitted, well known to participants? Do you consider that the assessment of applications and how it differs across states and across trade types is well understood? How could this be improved?
- Do you consider that roles, services and products offered by intermediaries are well understood?

⁷¹⁵ National Irrigators Council, Submission to the Murray–Darling Basin inquiry, January 2020, p. 3.

⁷¹⁶ Almond Board of Australia, Submission to the Murray–Darling Basin inquiry, March 2020, p. 17.

⁷¹⁷ SunRice, Submission to the Murray–Darling Basin inquiry, February 2020, p. 7.

⁷¹⁸ Department of Agriculture, Submission to the Murray–Darling Basin inquiry, January 2020, p. 10.

⁷¹⁹ Productivity Commission, *National Water Reform*, Report no 87, 2017, p. 382.

⁷²⁰ Department of Agriculture, *op. cit.*, p. 10.

⁷²¹ Publication would not involve disclosing individual account balances.

9. Transaction costs of trade

Key Points

- Low trade approval fees alone do not reduce barriers to small volume trades. While Victoria and New South Wales have similar allocation trade approval fees, trades for volumes less than 25 ML in 2018–19 represented almost half of Victorian intrastate allocation trades but less than a quarter of those in New South Wales. Although South Australia has trade approval fees five times that of the other states, it had a similar proportion of small volume trades as Victoria.
- Interstate trade is characterised by larger volume trades than for intrastate trades. Barriers to interstate trading of small volumes may be due to a combination of higher trade approval fees, longer processing times, inter-valley transfer limits and difficulties finding interstate trading partners.
- There is little consistency in irrigation infrastructure operator (IIO) trade approval fees. Some IIOs charge less for internal temporary trades (within the IIO's network) than the fees for intrastate allocation trade. However, temporary trades outside of some IIOs' networks, which also incur Basin State trade approval fees, can be more expensive for irrigators than permanently trading their water right within the IIO's network.
- While water market intermediaries' fees are generally the greatest proportion of individual traders' monetary transaction costs, intermediaries provide services that reduce some of the barriers to trading, especially in fragmented markets.
- Allocation trade processing times vary for each Basin State and throughout the year, with some trading zones experiencing significantly longer processing times than others.
- The ACCC considers current service standards for trade approval processing times are generous and provide no incentive for Basin States to improve.
- The ACCC also considers the current interstate trading process hinders the timely approval of allocation trades and contributes to traders preferring intrastate trade even between interstate trading zones within common surface water flow systems that are physically shared and free of capacity constraints.
- Delayed trade approval processing inhibits the timely publication of water market prices. Automated same-day processing of Victorian intrastate trades gives market participants better information on Victorian trading zones than for other states, reducing some of the research costs for trading Victorian water.
- The ACCC considers some water market participants incur greater transaction costs than others, impeding competitive neutrality in the Southern Connected Murray–Darling Basin.
- The ACCC's preliminary view is that automated trade processing and improved links between Basin States' systems (and brokers' and exchanges' online marketplaces) would improve the timeliness and quality of market information available to irrigators and water traders.

This chapter examines the transaction costs associated with water trading, the impact of regulatory approval processes for individual trade applications and the cost of intermediaries on individual trading decisions.

9.1. Overview of transaction costs in water markets

Water markets help move water to where it is wanted most and to put it to its most productive use, which is generally higher value irrigation activities and crops. Water trade enables individual people and businesses to work out what they want and need, irrigators to produce more of the things valued most, and as a result the Australian economy benefits.

Water markets provide market participants the flexibility to buy and sell water, provided they can find a trading partner and have sufficient information available to understand the value of the water they are trading. The costs incurred by water market participants when trading include research costs to determine market prices, identifying when and where to trade (see section 10.2.1), finding trading partners and understanding trading rules, and monetary costs such as trade approval lodgement charges. These private transaction costs can be incurred directly by private market participants or indirectly when passed through by intermediaries (who can incur transaction costs more efficiently because they provide services at scale). There are also public transaction costs associated with water markets, which include the ongoing administration of water trades and water accounts in each of the Basin States.

Private and public transaction costs are necessary to provide the different services required to support a competitive, stable and enduring market. However, if transaction costs are too high, the economic benefits delivered by water markets can be eroded and market participation can decrease. Transaction costs could also vary for different market participants, contributing to an uneven distribution of the net benefits and increasing the variability of buy and sell offers in water markets.

Water market intermediaries reduce some private transaction costs

Water market participants seek to reduce their private transaction costs by using market intermediaries such as water brokers and exchanges, who generally provide advisory, matching and information services for a fee.⁷²² Brokers match buyers and sellers, bundle water from disparate locations, and facilitate trade with expertise on interstate transfer rules and barriers, delivery constraints and lodgement processes.⁷²³ Water exchanges offer matching services via bulletin boards, online trading rooms and the automated matching and pooling of offers (see appendix B). These services can link buyers and sellers but may lack guarantees that matched sales will proceed.⁷²⁴ Exchanges also provide historical information on prices and volumes of water traded on the exchange (see section 10.3.1), although this data may not always be publicly available. Most water exchanges are available for traders to use directly while others, such as Waterexchange, are limited to brokers and their clients. The lack of access to accurate, timely and complete information on water markets is explored in chapter 10.

Private transaction costs incurred by water market participants will vary depending whether they trade directly with others or use an intermediary. Additionally, the distributed nature of water markets and the complexity of trade rules associated with inter-valley trades and delivery limits can contribute to variable private transaction costs depending on the geographical locations of traders' water licences and the timing of trades.

⁷²² Almond Board of Australia, Submission to the Murray–Darling Basin inquiry, March 2020, pp. 13–14; Citrus Australia, Submission to the Murray–Darling Basin inquiry, January 2020, pp. 5, 8.

⁷²³ Allen Consulting Group, 'Transaction costs of water markets and environmental policy instruments', *Report to the Productivity Commission*, 2006, p. 11; Department of Agriculture, Submission to the Murray–Darling Basin inquiry, January 2020, p. 11; A Loch, SA Wheeler and C Settre, 'Private transaction costs of water trade in the Murray–Darling Basin', *Ecological Economics*, vol. 146, 2018, p. 561; Ricegrowers' Association of Australia, Submission to the Murray–Darling Basin inquiry, January 2020, p. 5.

⁷²⁴ Allen Consulting Group, 'Improving market confidence in water intermediaries', *Waterlines Occasional Paper No. 3*, National Water Commission, Canberra, 2007, p. 28.

Individuals' experiences of trade approval process can vary significantly

Trade approval authority fees vary significantly between states, and market participants would prefer a more consistent approach across states.⁷²⁵ However, trade approval authority fees are set on a basis of cost recovery under the National Water Initiative.⁷²⁶ The variation in fees highlights the fragmented nature of water resources management in the Murray–Darling Basin, where each state has developed its own trading rules and systems as discussed in section 8.6.2); some which provide trade approval and registry services more efficiently than others. The number of water trades in each state also varies, which affects trade approval fees as some states are able to recover costs from a significantly greater number of trades than others (see section 9.2.1). For example, in addition to fixed trade approval fees, New South Wales also applies a variable usage charge on interstate allocations. While Marsden Jacob Associates previously found this charge decreases the value of New South Wales water sold to traders in Victoria and South Australia⁷²⁷, a more recent study suggested the variable usage charge was not material in decision-making⁷²⁸ and did not impact efficient trade.⁷²⁹ Instead, inter-valley transfer constraints were considered to have a larger influence on the water market in particular trading zones.⁷³⁰

The different approaches taken by the states to manage the Murray–Darling Basin in their jurisdictions have also affected trade approval processing times. In 2007, the typical time for regulatory approvals for entitlement trades in New South Wales could take up to six months while those in Victoria took four to six weeks.⁷³¹ While the Council of Australian Governments (COAG) service standards for processing times⁷³² that were introduced in July 2009 provided states with a benchmark most have been able to achieve since 2010–11⁷³³, approval times have not significantly improved for New South Wales or South Australia since then. Victoria was only able to meet the COAG interstate trade target in 2011–12 following enhancements to its water register.⁷³⁴

While entitlement trading times have become more consistent across the Basin States, allocation trades continue to differ due to the innovations implemented by some trade approval authorities while others continue to rely on paper-based processing.⁷³⁵ Victorian investment in telemetry and automation⁷³⁶ mean intrastate allocation trades in Victoria can be submitted online for near-instantaneous approval. Conversely, the paper-based allocation

⁷²⁵ Australian Water Brokers Association, Submission to the Murray–Darling Basin inquiry, January 2020, pp. 3, 22; Ricegrowers' Association of Australia, op. cit., p. 10; WEX Water Pty Ltd, Submission to the Murray–Darling Basin inquiry, February 2020, p. 5.

⁷²⁶ Council of Australian Governments, *Intergovernmental Agreement on a National Water Initiative*, 2004, paragraphs 64 and 67(i).

⁷²⁷ Marden Jacob Associates, 'The impact of infrastructure charge structures on water trade in the Murray–Darling Basin', *Report prepared for Australian Competition and Consumer Commission*, 2015, p. 15.

⁷²⁸ Aither, 'Review of water trading: The impact of IPART's regulatory framework on water trading markets', *A final report prepared for IPART*, 2018, p. 30.

⁷²⁹ IPART, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2.

⁷³⁰ Aither, op. cit., p. 28.

⁷³¹ Allen Consulting Group, op. cit., p. 17.

⁷³² As discussed in section 9.3, basin states agreed to process at least 90 per cent of entitlement trades that have reached approval stage within 20 business days. For allocation trades, at least 90 per cent of intrastate trades need to be processed within 5 business days (10 days for South Australia) and at least 90 per cent of interstate allocation trades within 10 business days (20 days for South Australia).

⁷³³ Loch, Wheeler and Settre, op. cit., p. 569.

⁷³⁴ Aither, '10-year evaluation of the Environmental Contribution', *A report prepared for the Victorian Department of Environment, Land, Water and Planning*, 2015, p. 84.

⁷³⁵ SunRice, Submission to the Murray–Darling Basin inquiry, February 2020, p. 13.

⁷³⁶ Victorian Government, Submission to the Murray–Darling Basin inquiry, February 2020, p. 5.

trade process and quarterly meter reads⁷³⁷ contribute to extended trade approval processing times of up to ten business days in South Australia.⁷³⁸

Water traders within irrigation districts in New South Wales and South Australia are also impacted by additional trading rules and charges set by irrigation infrastructure operators (IIOs). There is also a view that IIOs negatively impact water markets due to delays processing the transfers of water entitlements and water allocations.⁷³⁹ While the transaction costs for water allocation trades from irrigation districts decreased from 2009–10 to 2016–17 due to reductions in both Basin State agencies' and IIOs' water trade fees, decreased transaction costs were not observed for water entitlement trades, likely due to the complex nature of entitlement transfer assessments⁷⁴⁰ such as when there are changes to the water source or water management area associated with the entitlement.⁷⁴¹ However there is also an incentive for an IIO to charge high fees for permanent trade out of their network to recover costs invested by the IIO in maintaining its irrigation infrastructure without greatly impacting the costs recovered from other irrigators who remain on the IIO's network.

Public transaction costs alleviate some private transaction costs

Public transaction costs are not limited to the monetary costs incurred from maintaining the water registers and processes that facilitate water trading. Public investments in developing the COAG service standards, improving consistency of trading rules and IIO fees, and introducing automatic lodgement facilities have all contributed to reducing monetary and non-monetary private transaction costs.⁷⁴² Victoria's investments in telemetered water meters and automated trade approval have contributed to market participants' high regard of the Victorian Water Register when compared to other states.⁷⁴³ Differences between Basin States' metering programs across the Southern Murray–Darling Basin are explored in box 12.2. The ACCC's analysis of market architecture issues relating to metering is included in section 13.6.

Although further public investment in water markets could reduce some of the private transaction costs that currently impede the success of water markets, there needs to be a careful assessment of the likely benefits from the additional investment. In their study of a water quality trading program in the United States, DeBoe and Stephenson found complex assessment requirements and increased compliance processes contribute to increased public transaction costs that may exceed the relative value of the benefit to the market.⁷⁴⁴ These concerns are echoed by water users and resource managers in the Murray–Darling Basin context.⁷⁴⁵

However, increased transaction costs following public investment may only be temporary. For example, the public transaction costs of the Murray–Darling Basin salinity management program generally decreased with time, and while significant public investments caused

⁷³⁷ Department for Water and Environment (South Australia)—*Metering Improvement Plan*, 2019, p. 17; Victorian Government, op. cit., p. 5.

⁷³⁸ Australian Water Brokers Association (AWBA), op. cit., p. 3; WEX Water Pty Ltd, op. cit., p. 5.

⁷³⁹ Riparian Capital Partners, Submission to the Murray–Darling Basin inquiry, January 2020, p. 10.

⁷⁴⁰ Loch, Wheeler and Settre, op. cit., p. 571.

⁷⁴¹ Allen Consulting Group, op. cit., p. 23.

⁷⁴² Loch, Wheeler and Settre, op. cit., p. 571.

⁷⁴³ AWBA, op. cit., p. 22; Goulburn Murray Irrigation District (GMID) Water Leadership, Submission to the Murray–Darling Basin inquiry, January 2020, p. 11; H2OX, Submission to the Murray–Darling Basin inquiry, February 2020, p. 3; WEX Water Pty Ltd, op. cit., p. 11.

⁷⁴⁴ G DeBoe and K Stephenson, 'Transaction costs of expanding nutrient trading to agricultural working lands: A Virginia case study', *Ecological Economics*, Vol. 130, 2016.

⁷⁴⁵ GMID Water Leadership, op. cit., p. 12; Swan Hill Rural City Council, Submission to the Murray–Darling Basin inquiry, January 2020, pp. 6–7; WaterNSW, Submission to the Murray–Darling Basin inquiry, February 2020, p. 14.

short-term increases to transaction costs, they returned to their declining trend relatively quickly.⁷⁴⁶

9.2. Costs of trade approval applications

9.2.1. Trade approval authority fees

Under the National Water Initiative (NWI), the Commonwealth and states agreed to cost-recover the administration and water resources management of the Basin, including the water accounting systems that facilitate water trading.⁷⁴⁷ Each Basin State is responsible for its spending and cost recovery, where fees charged to water users and traders should be closely linked to the costs of the activities.⁷⁴⁸ Water registry, accounting and management costs should be recovered from entitlement holders via entitlement fees while trading costs and specific trade-related registry functions should be recovered from traders via trade approval fees. Consequently, trade approval application fees vary by state (see appendix C), depending on the costs incurred to facilitate water trading and the number of trades that costs can be recovered from.

For example, Victoria has online and paper-based allocation trade submission options where fees for in-person submissions are almost twice that for online. This cost differential reflects the smaller labour costs incurred by automated online processing system, and the ACCC considers this also encourages the online submission of trades. In contrast, South Australia's high fees reflect its reliance on labour to manage its paper-based system⁷⁴⁹ and smaller number of trades (see figure 9.1 in section 9.2.3). However, trade approval fees are a relatively small proportion of trade value in the Southern Connected Murray–Darling Basin (Southern Connected Basin) (table 9.1). While some water market participants have called for a consistent approach to trade allocation fees, such changes will affect states' cost-recovery mechanisms.

Table 9.1: Estimate of revenue from trade approval authority allocation trade fees in the Southern Connected Basin, 2018–19 (\$million)

	Origin state fees	Destination state fees	Total fees	Total allocation trade value	Origin state fees as % of total	Total fees as % of trade value
NSW	0.155	0.034	0.189	140	82.0	0.13
Victoria	0.992	0.031	1.023	408	97.0	0.25
SA	0.312	0.142	0.454	71	68.7	0.64

Source: ACCC analysis based on New South Wales, SA and Victoria responses to voluntary information request, trading fees as published on WaterNSW, Department for Environment and Water (SA) and Victorian Water Register websites.

Notes: Values in 2018–19 dollars. Estimates based on the relevant trading fee/s and approved allocation trades only, including zero dollar trades. Destination state fees apply for interstate trades only. Excludes New South Wales's variable usage charges and zero Water Access Licence (WAL) set up costs. Provisional estimates.

⁷⁴⁶ A Loch and D Gregg, 'Salinity Management in the Murray–Darling Basin: A Transaction Cost Study', *Water Resources Research*, Vol. 54, 2018.

⁷⁴⁷ Council of Australian Governments, *Intergovernmental Agreement on a National Water Initiative*, 2004, paragraphs 64 and 67(i).

⁷⁴⁸ *Water Act 2007* (Cth), Schedule 1—Murray–Darling Basin Agreement, Schedule 2, s. 4(3).

⁷⁴⁹ However, South Australia is modernising its water registry and is expected to improve its future trade processing capability (see appendix C).

Entitlement transfer fees in each state are greater than for allocation trades, ranging from two to four times the cost of allocation trades in Victoria and South Australia. However, in New South Wales the fees charged by WaterNSW and New South Wales Land Registry Services combine to be ten times that for allocation trades. The high fees reflect the costs incurred by the two entities in processing trades.

Table 9.2 shows Basin States' operating costs for their water registry and trade processing functions, although the scope of each state's services varies. For example, New South Wales's trade processing costs not only include trade approvals for surface water and groundwater in the Southern and Northern Basins, but also the costs of other water licencing and works approval functions.

Table 9.2: Estimate of New South Wales, Victoria and South Australia's operating costs for maintaining water registers and processing allocation and entitlement trade, 2018–19 (\$million)

	Registry resourcing costs	Trade processing costs	Total Southern Connected Basin trade value	Trade processing costs as % of Southern Connected Basin trade value
NSW	0.352	8.802	298	2.96
Victoria	2.862	1.460	705	0.21
SA	0.732	1.493	104	1.44

Source: ACCC analysis based on New South Wales, Victoria and SA responses to voluntary information request, New South Wales and Victoria responses to ACCC annual Water Monitoring Report Requests for Information, IPART and Bureau of Meteorology data.

Notes: Values in 2018–19 dollars. Registry resourcing costs include operating, capital and labour costs for each state's water registers. Trade approval costs are those incurred by agencies when performing their trade approval and registration functions. New South Wales registry costs are limited to the General Division of the register only (kept by New South Wales Land Registry Services) and do not include the Assignment Division (kept by WaterNSW). New South Wales trade processing costs also include the issuing of licences and the administration of works approvals. Trade value includes allocation and entitlement trades, including zero dollar trades. Provisional estimates.

While Victoria's operating costs for trade approval services are a much smaller proportion of trade value compared to other states (table 9.2), this does not consider previous investments that have improved trading processes in the Victorian Water Register. Victoria's registry resourcing costs include licensing, water usage, compliance, and resource management functions. While some of the fixed costs of maintaining the Victorian Water Register are cost-recovered from holders of Victorian water entitlements through an annual levy collected by Victorian water corporations⁷⁵⁰, there have also been investments of \$5.1 million from 2009–10 to 2011–12 from the Australian Government⁷⁵¹ and \$4.6 million from 2012–13 to 2015–16 from the Victorian Environmental Contribution levy.^{752, 753} These investments allowed for upgrades that benefitted water traders: allocation trades could be lodged online

⁷⁵⁰ Department of Environment, Land, Water and Planning (Victoria), Regulatory Impact Statement Proposed Water (Resource Management) Regulations 2017, 2017, p. 18.

⁷⁵¹ COAG, 'Implementation Plan for Enhancements to Victorian Water Register Systems', National Partnership Agreement on Water for the Future, 2010; COAG, 'Implementation Plan for Enhancements to Victorian Water Register Systems (Stage 2)', National Partnership Agreement on Water for the Future, 2012.

⁷⁵² The Environmental Contribution Levy is collected from Victoria's urban and rural water businesses to fund water reforms and water-related environmental initiatives.

⁷⁵³ Department of Environment, Land, Water and Planning (Victoria), 2019, <https://www.water.vic.gov.au/planning/environmental-contributions/third-tranche-of-the-environmental-contribution/water-entitlements-and-market-reform/enhancing-the-victorian-water-register>, viewed 8 May 2020; Victorian Auditor-General's Report, Administration and Effectiveness of the Environmental Contribution Levy, 2014, p. 28.

for a reduced fee⁷⁵⁴ and approval times were reduced⁷⁵⁵, without any changes to the paper-based application fees for trade approval that had been in place since 2009.⁷⁵⁶

Similar to the investments into the Victorian Water Register, the South Australian water registry upgrade is jointly funded by the Australian and South Australian governments.⁷⁵⁷ The ACCC expects this \$14.7 million investment in South Australia's water registry and automated trade approval processing should result in lower trade approval fees, as seen in Victoria.

9.2.2. Irrigation infrastructure operator fees

In New South Wales and South Australia, water users within IIO networks hold irrigation rights, a contractual right against the IIO, while the IIO holds the water entitlement. IIOs act as trade approval authorities for both temporary and permanent trade of irrigation rights, and also for trade of water delivery rights within their networks.

However, there is little consistency in IIO trade approval fees (see appendix C). Some IIOs charge less for temporary trades within the IIO's network than the intrastate allocation trade fee, but this is not always the case. Additionally, trading water into and out of the IIO's network can incur more significant costs, and also attract Basin State trade approval authority fees, while permanent trading or leasing of irrigation rights outside of the IIO district requires the irrigation right first be transformed into a water entitlement. Decision-making becomes complex for traders in IIO networks where temporary trades outside of the network can incur IIO and Basin State fees that are greater than the IIO's fee to permanently trading the water right within the network.

9.2.3. Impact of trading fees on trade

All water trades incur transaction costs from a trade approval authority or similar entity. Water trades outside of IIO areas require their trades to be approved by the relevant state government authority (or authorities when trading interstate) while trades that occur wholly within an IIO's area will require approval from that IIO. Trades between a trader within an IIO area and a trader outside of the same IIO will incur transaction costs from both the state trade approval authority and the IIO.

The case study below revisits our example trade from section 8.2 between the hypothetical irrigator located within an IIO in New South Wales (Murray Irrigation) and an interstate buyer in Victoria (served by Goulburn-Murray Water), with an emphasis on the transaction costs encountered by both parties.

⁷⁵⁴ Water (Resource Management) Regulations Amendment Regulations 2013, S.R. No. 163/2013.

⁷⁵⁵ Aither, '10-year evaluation of the Environmental Contribution', *A report prepared for the Victorian Department of Environment, Land, Water and Planning*, 2015, p. 84; Department of Environment, Land, Water and Planning (Victoria), 2019, <https://www.water.vic.gov.au/planning/environmental-contributions/third-tranche-of-the-environmental-contribution/water-entitlements-and-market-reform/enhancing-the-victorian-water-register>, viewed 8 May 2020.

⁷⁵⁶ Trade approval fees in Victoria are set by legislation. The current Water (Resource Management) Regulations 2017 (Victoria) prescribe fees for entitlement trade applications as 13.57 fee units, and for allocation trade as 3.20 fee units through the automated lodgement process or 6.04 fee units through any other lodgement process. The revoked Water (Resource Management) Regulations 2007 prescribed the same fees for entitlement and allocation trade applications from 2009. The automated lodgement process prescribed fee came into effect following the 2013 amendments and was set at 3.20 fee units. In Victoria, fee units are automatically indexed.

⁷⁵⁷ Department for Environment and Water (South Australia), 2019, <https://www.environment.sa.gov.au/licences-and-permits/water-licence-and-permit-forms/new-state-water-register/frequently-asked-questions>, viewed 9 June 2020.

Box 9.1: Case study on transaction costs for a temporary trade from within an IIO network to an interstate buyer

As described in section 8.2, the seller and buyer have engaged brokers who use an exchange. Fees for using the exchange are absorbed by the brokers.

1. The seller's broker charges 2 per cent of the value of the trade for its services while the buyer's broker charges \$2 per ML.⁷⁵⁹
2. Murray Irrigation's \$85 charge for a temporary trade with an external trader is charged to the seller. As the brokers have negotiated for the buyer to be responsible for all IIO and trade approval authority fees, the charge is ultimately passed through to the buyer.
3. The exchange is charged \$49.94 for lodging a trade approval form with WaterNSW (where New South Wales is the origin state) and \$89.50 for submitting the trade via paper application to Goulburn-Murray Water (GMW) for approval (Victoria is the destination state). WaterNSW also charges Murray Irrigation the \$390 variable usage charge for interstate allocation trade (\$1.95/ML for the Murray). These costs are passed through to the buyer.
4. For a 200ML trade at \$600/ML (that is, a trade value of \$120 000):
 - (a) The seller is charged \$2400 in brokerage fees and receives \$117 600 for the trade. Monetary transaction costs are 2 per cent of the trade value.
 - (b) The buyer is charged \$400 in brokerage fees and \$614.44 in trade authority approval fees (total fees of \$1014.44) and pays \$120 014.44 for the trade. Monetary transaction costs are 0.8 per cent of the trade value.
5. An interstate trade can take WaterNSW and GMW up to 10 business days to process.

Table 9.3 summarises the brokerage fees and the trade authority fees (trade approval fee and variable usage charge) for this scenario, and also shows how the transaction costs can vary with broker selection and the locations of the trading zones.

Table 9.3 Summary of transaction costs

Scenario	Seller's costs		Buyer's costs		
	Brokerage (\$)	Total fees as % of trade value	Brokerage (\$)	Trade authority fees (\$)	Total fees as % of trade value
Base case (NSW to Victoria)	2400	2.0	400	614.44	0.8
Buyer and seller swap brokers	400	0.3	2400	614.44	2.0
Destination zone in SA* (NSW to SA)	2400	2.0	400	783.94	1.0
Origin zone in Victoria** (Victoria to Victoria)	2400	2.0	400	89.50	0.4

Note: (*) If the buyer was in South Australia, the transaction may have taken twice as long to process (20 business days).
 (**) If the seller was in Victoria, the transaction may have taken up to five days to process (as an intrastate trade), halving the trade approval time.

⁷⁵⁹ Refer to appendix C for an overview of broker and exchange trading fees.

How do transaction costs compare to trade value?

Trade approval authority fees for allocation and entitlement trades are generally a very small proportion of the trade value. A \$500 000 entitlement trade would incur trade approval fees ranging from 0.04 per cent of the trade value for an intrastate trade in Victoria and up to 0.2 per cent for an interstate trade between South Australia and New South Wales, but these would increase ten-fold to 0.4 per cent and 1.95 per cent respectively for a ten-fold reduction in the trade value, as trade approval authority fees are applied per transfer application.

In the case study scenarios above, IIO and trade approval application fees amount to less than 1 per cent of the total trade value but can grow to relatively more for smaller trade volumes and values. In 2018–19, trade approval authority fees alone were often less than 0.4 per cent of trade value, except in South Australia where it was slightly higher at 0.64 per cent (table 9.1).

However transaction costs incurred by irrigators who seek to sell their water rights outside of their IIO's network can be exceptionally high. This may inhibit affected irrigators from seeking to trade outside of the IIO, limit them from maximising the value of their water rights and preventing water from moving to its highest value use. While the Water Market Rules 2009 prevent IIOs from imposing excessive fees for transformations, there are no similar provisions for temporary trades.

Box 9.2: Are transaction costs included in water price information sources?

The Bureau of Meteorology (BOM) maintains the Water Markets Dashboard⁷⁶⁰, which collates volume and price data for water entitlements and allocations. This information is reported to BOM by trade approval authorities and some IIOs under the *Water Act 2007* (Cth) and *Water Regulations 2008* (Cth).

Trade approval authorities and some IIOs are required to supply BOM with the gross and net sale price for each trade, where the gross price is 'the transfer price as agreed between legal entities inclusive of all applicable transaction costs' while the net sale price is exclusive of these transaction costs.⁷⁶¹ BOM considers transaction costs to include:

*search, negotiation and enforcement costs including, but not limited to, all government water transfer fees and charges applicable to water trade, conveyance charges and professional service fees (such as accountants, brokers, lawyers).*⁷⁶²

However, BOM only report the net price as trade approval authorities and IIOs only request a single dollar value per trade. While trade approval authorities and IIOs may also be able to supply their approval fees to BOM, any additional transaction fees incurred by the water market participants to facilitate the trade would not be captured and the additional transaction cost information would be incomplete. However, trade approval authorities' forms are inconsistent. For allocation trades, WaterNSW requests a value per volume (\$/ML)⁷⁶³ while the Victorian Water Register requests a total sale value⁷⁶⁴, where transaction costs may be inadvertently included

⁷⁶⁰ Bureau of Meteorology, 2020, <http://www.bom.gov.au/water/dashboards/#/water-markets/mdb/at>, viewed 20 May 2020.

⁷⁶¹ Bureau of Meteorology, *Explanatory Notes for Water Regulations Metadata and Contextual Information Category 6: Information about water rights, allocation and trades, subcategories 6a, 6b, 6c, 6d, 6e, 6f and 6g*, 2016, pp. 19 and 26.

⁷⁶² Bureau of Meteorology, 2020, <http://www.bom.gov.au/water/awid/id-544.shtml>, viewed 8 May 2020.

⁷⁶³ WaterNSW, *Application to Assign Surface Water Allocation*, 2015, <https://www.waternsw.com.au/customer-service/service-and-help/forms>, viewed 20 May 2020.

⁷⁶⁴ Department of Environment, Land, Water and Planning (Victoria), 2018, https://waterregister.vic.gov.au/component/waterregister_reports/report/view?type=F4&rid=WS_039, viewed 20 May 2020.

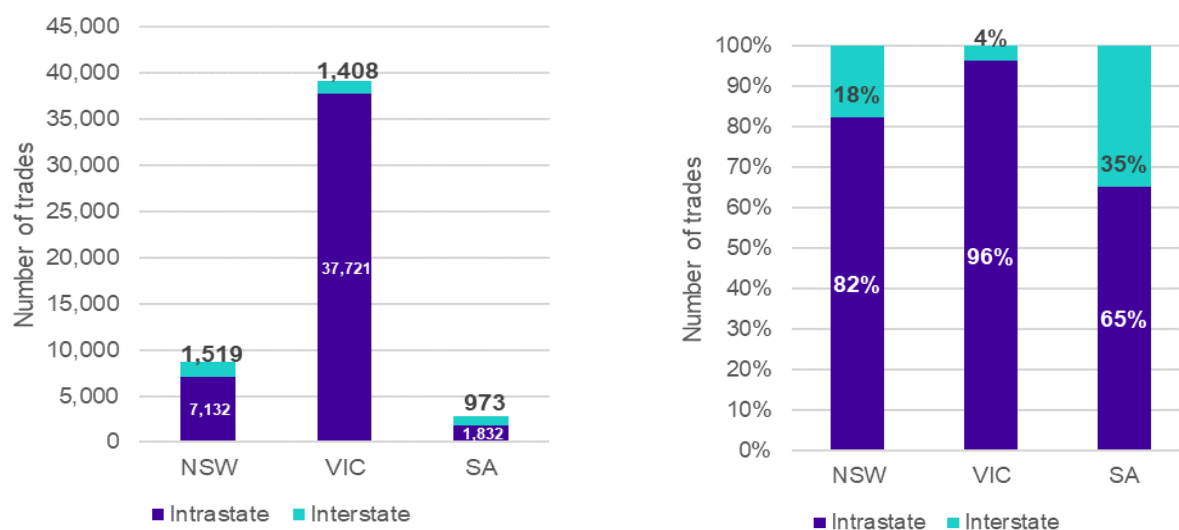
Additionally, the prices reported in trade approval applications can be erroneous or intentionally left blank, and none of the authorities require trade applications to provide evidence to support the entered trade price.⁷⁶⁵ Without consulting the traders, there is no clarity on which fees have and have not been included in the reported trade price.

Do transaction costs influence trade volumes?

Analyses in this section only consider trades from 1 July 2017 as trade approval authority fees have not materially changed since then (see appendix C).

Each of the Basin States in the Southern Connected Basin has a very different makeup of intrastate, interstate and total allocation trades (by destination state). Figure 9.1 shows Victorian water trade buyers undertook almost 40,000 allocation trades from 1 July 2017 to 30 November 2019, where 96 per cent were for water sourced intrastate. New South Wales buyers executed less than a quarter of Victoria's total number of trades but only 83 per cent of trades were for water sourced intrastate. South Australian buyers had the smallest number of trades and the smallest proportion of trades where water was sourced intrastate (65 per cent). These trading volumes also show that for trades in the Southern Connected Basin, Victoria is able to cost-recover from a significantly greater number of trades than New South Wales and South Australia.

Figure 9.1: Number (left) and relative proportion (right) of intrastate and interstate trades for buyers in New South Wales, Victoria, and SA from 1 July 2017 to 30 November 2019



Source: ACCC analysis based on New South Wales, SA and Victorian Governments response to voluntary information request.

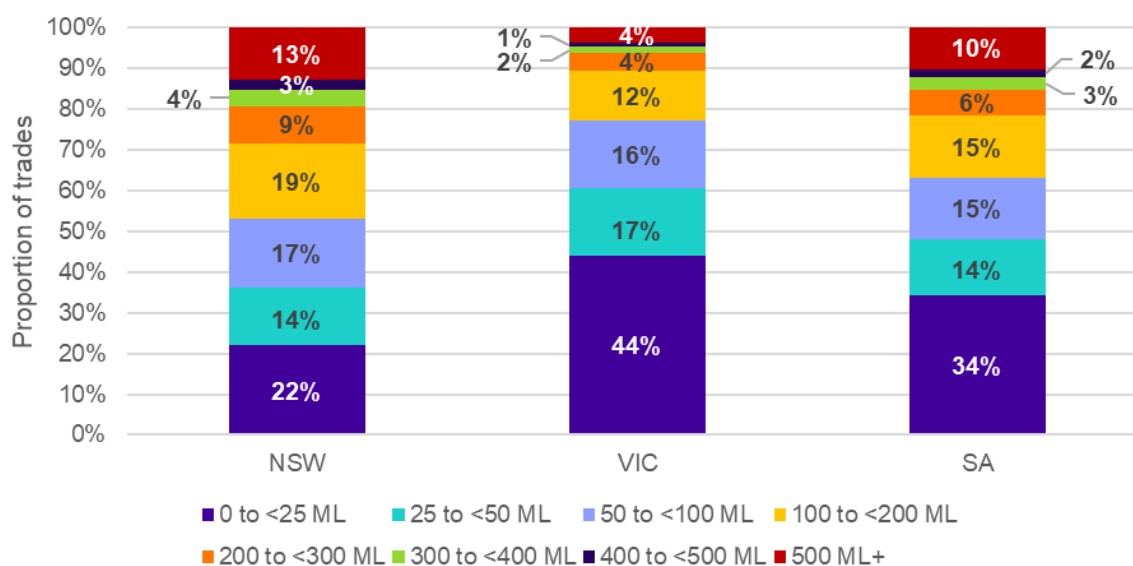
Notes: Includes zero dollar trades. Provisional estimates.

Water volumes per trade also varied for each of the states (figure 9.2). Almost half of the Victorian trades were volumes that were less than 25 ML and over 75 per cent were less than 100 ML. While this could be attributed in part to Victoria's low trade approval fees, the distribution of volumes is markedly different in New South Wales where less than one quarter of trades were up to 25 ML and only about 50 per cent of trades were less than 100 ML. South Australia, with trade approval fees that are five-times the size of the other two

⁷⁶⁵ MDBA, *Water Trade Price Reporting under the Basin plan Part 1: Basin State processes and procedures for collecting water trade price information*, 2019, p. 11.

states⁷⁶⁶, had a distribution that was closer to Victoria than New South Wales where over one-third of trades were for volumes up to 25 ML and almost two-thirds were for volumes up to 100 ML. This may be due to South Australia's high proportion of interstate trades, which it predominantly sources from Victoria.⁷⁶⁷ However, when interstate trades are excluded, buyers in Victoria and South Australia have similar buying patterns despite marked differences in trade approval charges (figure 9.3).

Figure 9.2: Relative proportions of interstate and intrastate trades by water volume per trade, for buyers in New South Wales, Victoria, and SA from 1 July 2017 to 30 November 2019



Source: ACCC analysis based on New South Wales, SA and Victorian Governments response to voluntary information request.

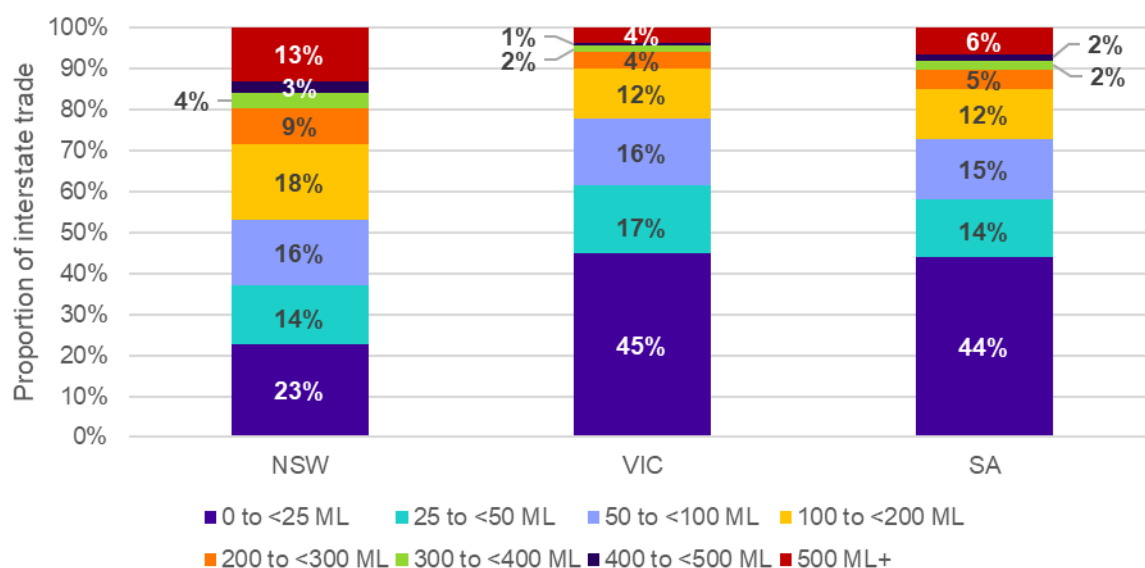
Notes: Includes zero dollar trades. Provisional estimates.

While Victoria and South Australia have marked differences in trade approval charges, buyers in these states have similar buying patterns (figure 9.3).

⁷⁶⁶ See appendix C.

⁷⁶⁷ Aither 2019, <https://www.aither.com.au/water-markets-report-2018-19/>, viewed 8 May 2020.

Figure 9.3: Relative proportions of intrastate trades by water volume per trade, for buyers in New South Wales, Victoria, and SA from 1 July 2017 to 30 November 2019

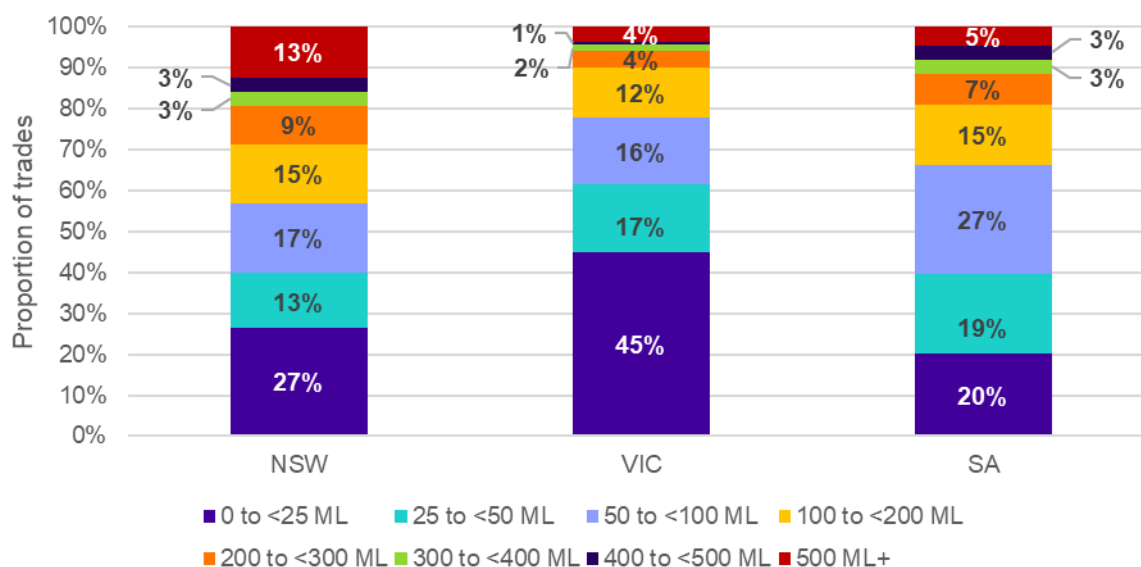


Source: ACCC analysis based on New South Wales, SA and Victorian Governments response to voluntary information request.

Notes: Includes zero dollar trades. Provisional estimates.

From a monetary transaction cost perspective, buyers are generally best off when they only purchase intrastate water. Interstate trades are a small proportion of all trades for each of the Basin States in the Southern Connected Basin, particularly in Victoria and New South Wales. Victoria and South Australia had similar volume distributions for intrastate trades and both had more trades of at least than 200 ML from interstate than intrastate (figure 9.4 and figure 9.6). New South Wales buyers tended to purchase similar volumes from Victoria as intrastate, but purchased more moderate volumes (50–100 ML) from South Australia than small or large volumes (figure 9.5). These trends towards higher volume interstate trades may suggest the higher trade approval fees and increased complexity associated with interstate trade may be limiting interstate trade of low volumes.

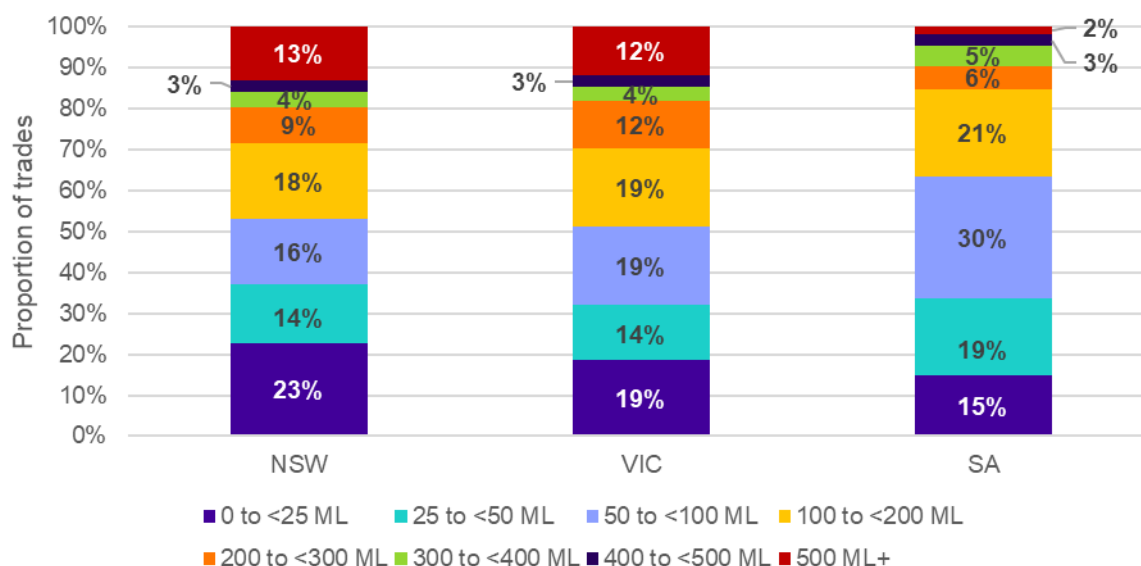
Figure 9.4: Relative proportions of trades by water volume per trade purchased by buyers in Victoria, for water sourced from New South Wales, Victoria and SA from 1 July 2017 to 30 November 2019



Source: ACCC analysis based on New South Wales, South Australia and Victorian Governments response to voluntary information request.

Notes: Includes zero dollar trades. Provisional estimates.

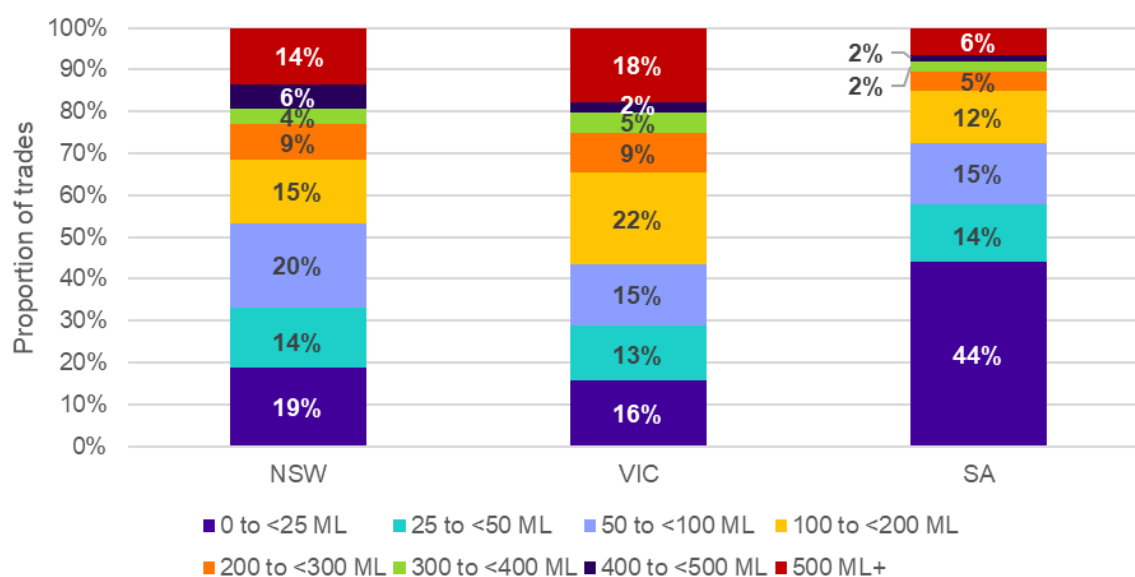
Figure 9.5: Relative proportions of trades by water volume per trade purchased by buyers in New South Wales, for water sourced from New South Wales, Victoria and SA from 1 July 2017 to 30 November 2019



Source: ACCC analysis based on New South Wales, South Australia and Victorian Governments response to voluntary information request.

Notes: Includes zero dollar trades. Provisional estimates.

Figure 9.6: Relative proportions of trades by water volume per trade purchased by buyers in SA, for water sourced from New South Wales, Victoria, and SA from 1 July 2017 to 30 November 2019



Source: ACCC analysis based on New South Wales, South Australia and Victorian Governments response to voluntary information request.

Notes: Includes zero dollar trades. Provisional estimates.

While inconsistent trade approval fees across the Basin States were an issue for a number of stakeholders who provided a response to our issues paper, they do not seem to be significantly influencing the water volumes being traded within each Basin State. Victoria and South Australia both had a high proportion of small (up to 50 ML) intrastate trades from 1 July 2017 to 30 November 2019 despite the high trade approval fees in South Australia. However, intrastate trades in New South Wales and interstate trades across all the Basin States in the Southern Connected Basin have a greater proportion of larger volume interstate trades. It is unclear whether this is due to the complexity of interstate trades (due to inter-valley transfer restrictions and/or the need to interact with two trade approval authorities) or difficulties in finding interstate trading partners for low volume trades.

Questions for stakeholders

- Do trade approval authority and irrigation infrastructure operator fees influence your water market trading decisions?
- What actions do you undertake to minimise your transaction costs of trading?

9.3. Trade processing times

One of the key issues experienced by participants of water markets is a lack of timely information, and many water market participants rely on water registries to provide them with the data they require to make a more informed trading decision (see section 10.2.2). Extended processing times from trade approval authorities delay the timely publication of any trading data associated with the trade, which increases the transaction costs for market participants as they must undertake additional research to better understand the ‘current’ state of the water market.

As described in section 8.5.1, service standards were adopted by COAG in November 2008 for allocation and entitlement trades.⁷⁶⁸ Since 1 July 2009, Basin States are required to meet the following timelines for allocation and entitlement trades:

- at least 90 per cent of intrastate allocation trades processed within 5 business days (10 days for South Australia)
- at least 90 per cent of interstate allocation trades processed within 10 business days (20 days for South Australia)
- at least 90 per cent of entitlement trades processed to the registration stage within 10 business days
- at least 90 per cent of entitlement trades processed to the approval stage within 20 business days.

9.3.1. Allocation trade applications

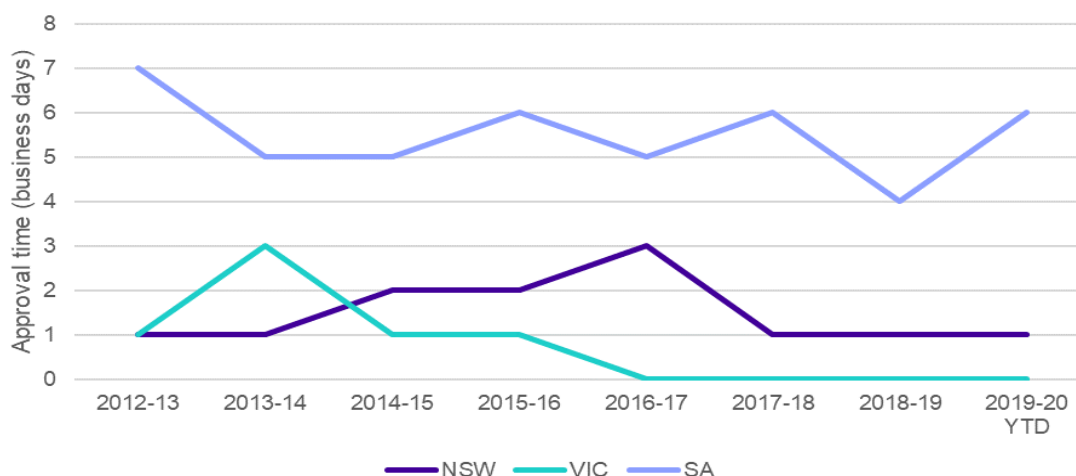
Allocation trades accounted for about 85 per cent of water market trades in 2018–19⁷⁶⁹, representing most of the trades submitted to trade approval authorities for processing. Most allocation trades approved were for intrastate trades (86 per cent) and 78 per cent of trade approvals were processed by the Victorian trade approval authority.⁷⁷⁰ Victoria's trade approvals are assessed by an automated online processing system, which is able to provide same-day approvals for most applications. Figure 9.7 shows Victoria has approved at least 90 per cent of its intrastate trades on the same day the application has been submitted since 2016–17. New South Wales has achieved next business day approval times for 90 per cent of its approved allocation trades since 2017–18, while South Australia has approved 90 per cent of its allocation trades within four to six business days since 2013–14. All Basin States are clearly meeting their 2009 COAG service standards for intrastate trades in the Southern Connected Basin.

⁷⁶⁸ COAG Communiqué, 29 November 2008.

⁷⁶⁹ ACCC analysis on BOM data (provisional estimates, includes zero dollar trades).

⁷⁷⁰ ACCC analysis on New South Wales, SA and Victoria responses to voluntary information request (provisional estimates, includes zero dollar trades).

Figure 9.7: Approval time for at least 90 per cent of intrastate trades, by state and year



Source: ACCC analysis based on New South Wales, South Australia and Victorian Governments response to voluntary information request.

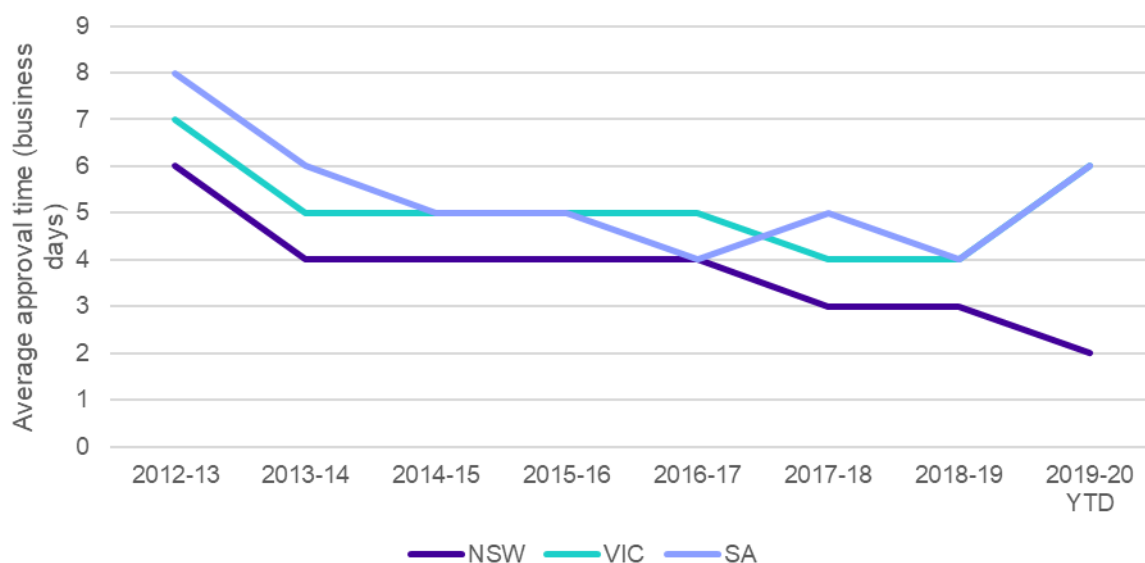
Notes: Same day trade approvals Victoria that occurred on non-business days or the next business day if submitted on a weekend or public holiday have an approval time of zero. Includes zero dollar trades. Provisional estimates. YTD = year to date (2019–20 year to 30 November 2019).

Interstate trading requires coordination between both Basin States’ trade approval authorities. The processes are independent but rely on a batched interoperability system to verify whether a trade can be progressed.⁷⁷² Figure 9.8 shows all states have improved their interstate processing times since 2012–13. New South Wales has reduced its approval time for at least 90 per cent of interstate trades, from 6 business days in 2012–13 to two business days for the 2019–20 water year (to 30 November 2019).

While the Victorian automated system can deliver same-day approvals for intrastate trade, if submitted online the system approves the Victorian side of an interstate trade automatically but relies on other Basin States’ trading rules to process their side of the trade. Consequently, Victoria’s approval times for at least 90 per cent of interstate trades only decreased from seven business days in 2012–13 to 4 business days in 2018–19. South Australia has also improved its processing time for interstate trades, with approval times decreasing from eight business days in 2012–13 to 4 in 2018–19. While Victoria’s and South Australia’s approval times for at least 90 per cent of trades at the start of the 2019–20 water year have increased to six business days, this is still well below the 2009 COAG service standard of 10 business days for Victoria and 20 for South Australia.

⁷⁷² Note: New South Wales/Queensland interstate trades still operate on a manual bilateral approval process.

Figure 9.8: Approval time for at least 90 per cent of intrastate trades, by state and year

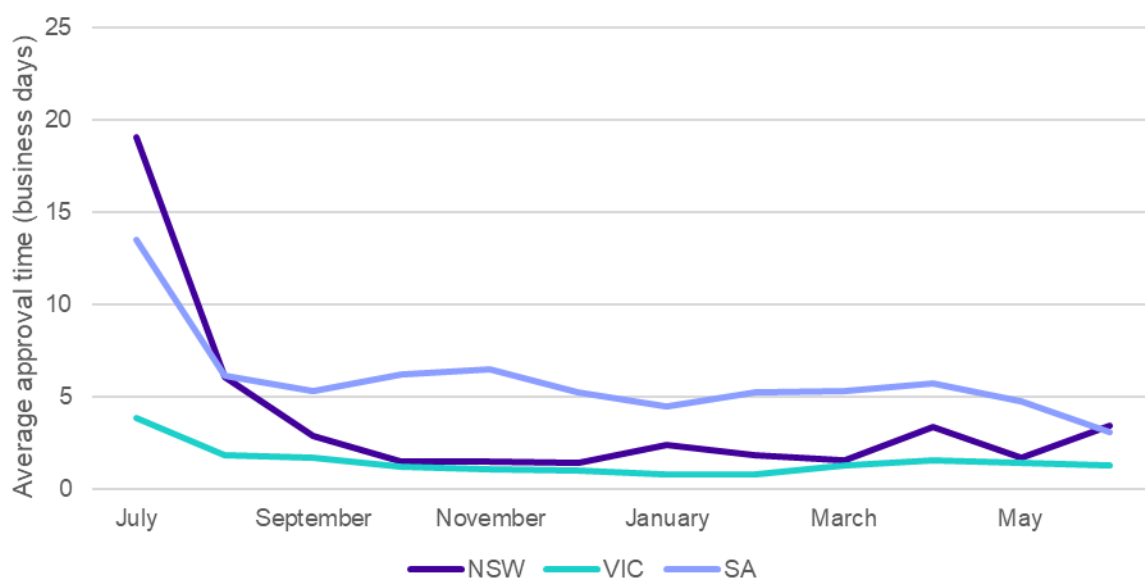


Source: ACCC analysis based on New South Wales, South Australia and Victorian Governments response to voluntary information request.

Notes: Includes zero dollar trades. Provisional estimates. YTD = year to date (2019–20 year to 30 November 2019)

However, on average, the New South Wales and South Australian trade approval authorities struggle to meet the COAG service standards at the start of each water year (figure 9.9).

Figure 9.9: Average approval time for at least 90 per cent of intrastate and interstate trades, by month, 1 July 2012 to 30 November 2019



Source: ACCC analysis based on New South Wales, South Australia and Victorian Governments response to voluntary information request.

Notes: Includes zero dollar trades. Provisional estimates.

Further, the extended average approval times are limited to particular trading zones (table 9.4). 90 per cent of trades that moved water into trading zone 10 (New South Wales Murray

Above Choke) experienced a trade approval time of up to 48.2 days (that is, 10 per cent of trades experience a trade approval time greater than 48.2 days).

Table 9.4: Average approval time (business days) in Southern Connected Basin destination trading zones for at least 90 per cent of trades from 1 July 2012 to 30 November 2019.

Trading Zone	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
NSW												
10 NSW Murray Above Choke	48.2	8	3	2	2	2	2	2	2	2.7	2	2
11 NSW Murray Below Choke	4	2	1	1	1	2	2	2	2	2	2	3
13 Murrumbidgee	2	1	1	1	1	2	2	1	1	1	2	3
14 Lower Darling	2	1.2	1	2	2	2	2	3	2	12.6	6	3
VIC												
1A Greater Goulburn	2	1	2	2	1	1	1	1	1	1	1	1
1B Boort	1	2	3	3	1	2.8	1	1	1.5	1	3	1
3 Lower Goulburn	1.6	12	0	3.4	3.6	1	1	0	2	1	1	1
4A Campaspe - Eppalock to WWC	0.9	1.9	5.2	1	0.4	3.8	1	1	1	1	1	2
4C Lower Campaspe			0	0	1.8	0	0	0	0.8	0	0	0
5A Loddon - CC/Tull to LWP					1		1	0	1.9		1	
6 VIC Murray - Dart to Barmah	3	2	3	3	2	2	1	2	1	1	2	2
6B Lower Broken Creek	0	1	3	2	1	1.1	1	1	1.1	2	2	1
7 VIC Murray - Barmah to SA	4	3	3	3	2	2	2	2	2	1	1	1
SA												
12 SA Murray	12	7	6	6.8	7	6.3	5	7	6	6	5	3
Legend	0 to ≤ 5 business days	[Unshaded]	5 to ≤ 10 business days		10 to ≤ 20 business days				Over 20 business days			

Source: ACCC analysis based on New South Wales, South Australia and Victorian Governments response to voluntary information request.

Notes: Includes zero dollar trades. Provisional estimates.

Questions for stakeholders

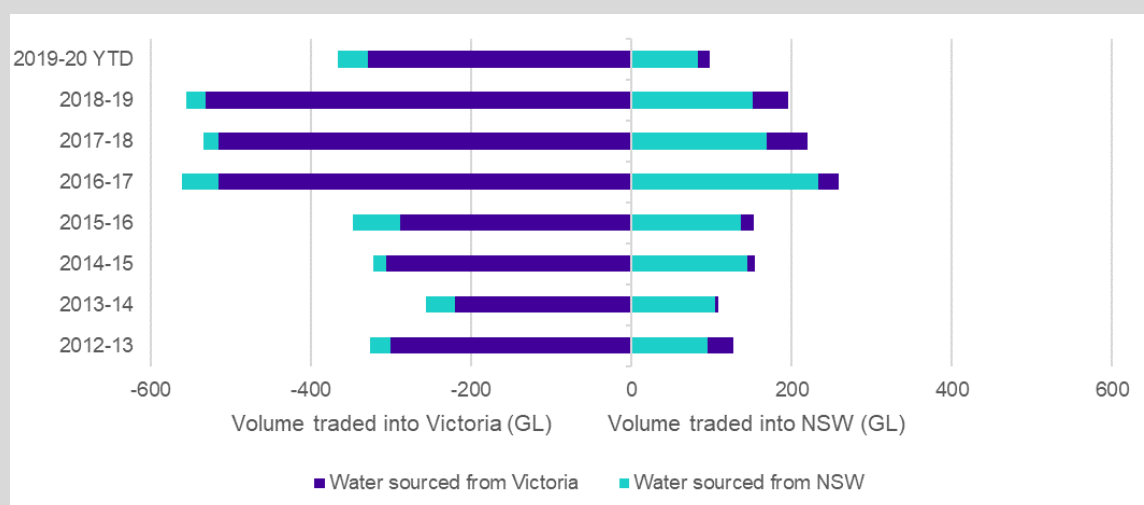
- Do the trade processing times identified reflect your experiences or have you experienced other significant delays in trade processing approvals?
- What are the impacts of these lags on your approach to water management? For example, you may have invested in on-farm storage to ensure you have immediate access to water when needed.

Box 9.3: Case study on interstate trading between the Murray trading zones below the Barmah Choke

The New South Wales Murray and Victorian Murray trading zones below the Barmah Choke are not limited by any physical capacity constraints. The only barrier that exists between the two trading zones is the New South Wales-Victoria border, and the interstate trading process.

Figure 9.10 shows buyers prefer intrastate trading rather than interstate trading, with significantly more trading occurring in Victoria than New South Wales. The preference for intrastate trading over interstate trading could be due to the greater trade approval fees incurred for interstate trading, the longer approval times or costs associated with finding trading partners. This case study clearly shows interstate trading is a barrier to trading that reduces competitive neutrality of hydrologically indistinguishable water sources and contributes to the fragmentation of water markets.

Figure 9.10: Allocation trade in the New South Wales and Victorian Murray trading zones below the Barmah Choke, by source and year



Source: ACCC analysis based on New South Wales, South Australia and Victorian Governments response to voluntary information request.

Notes: Includes zero dollar trades. Provisional estimates. YTD = year to date (2019–20 year to 30 November 2019).

9.3.2. Entitlement trade application processing times

Entitlement trades take longer to process than allocation trades as they are more complex, requiring identity checks and at times involving third party interests such as mortgages and long-term leases. They can also involve multiple government entities in some Basin States, even for intrastate transfers.

In New South Wales, two government entities can be involved in the entitlement trading process—the trade approval authority (WaterNSW) and registry holder (New South Wales

Land Registry Services). For entitlement trades where water share components are transferred between New South Wales water access licences, the trade will need to be approved by WaterNSW before it is registered with New South Wales Land Registry Services. The entitlement holder (the seller) is responsible for registering the change in ownership with New South Wales Land Registry Services. The impact of this two-step process on IIO transformations in 2015–16 is described in the next section (9.3.3). Alternately, the entitlement trade may only require a change in ownership of the Water Access Licence and this can be directly registered with New South Wales Land Registry Services.

Water entitlement transfers can also be a two-step process in Victoria. The transfer can be lodged online to the Victorian Water Register or through a rural water corporation for pre-approval. Offline applications that are approved need to be submitted to the Water Registrar to complete the trade.

In South Australia entitlement trades can be wholly managed by one entity, the Department for Environment and Water. The single entity approach to processing entitlement transfers result in a shorter approval time, as discussed in the next section (9.3.3).

Entitlement trade application processing times will be explored in the final report.

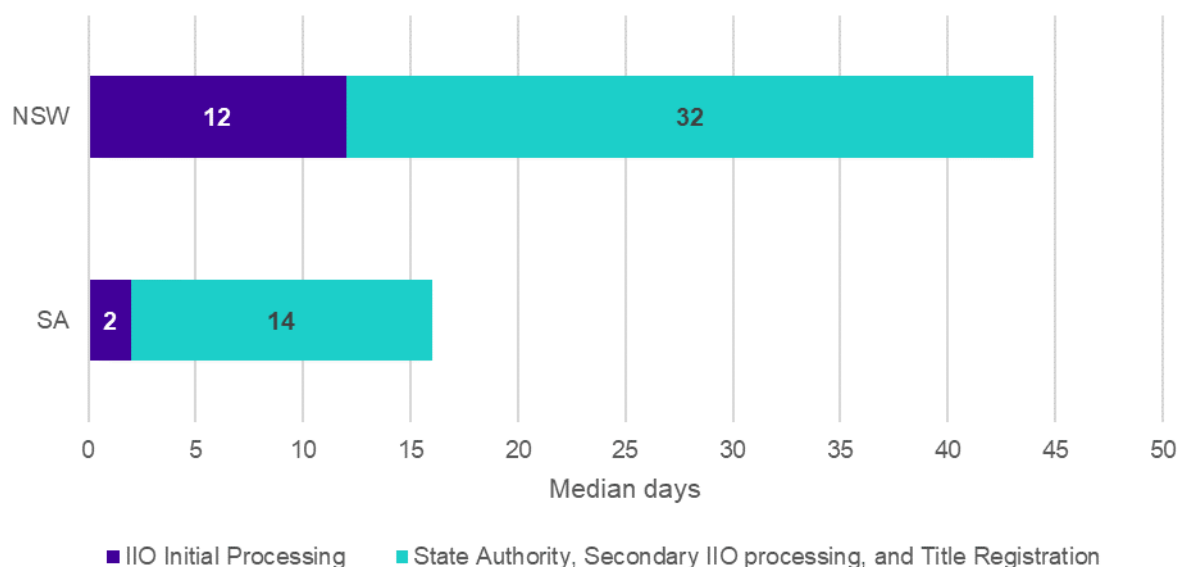
9.3.3. Transformation application processing times

Transformation allows irrigators with an irrigation right against IIOs in New South Wales and South Australia to permanently transform their irrigation right into a water access entitlement in their own name. Irrigators may wish to do this so they can trade water without any restrictions that may be imposed by their IIO.

An IIO's revenue is derived from infrastructure charges for the delivery of water to their irrigators, and so has an incentive to restrict water trade out from their network. The *Water Market Rules 2009* prevent IIOs from imposing excessive fees or unreasonably delaying the transformation of irrigation rights. However, the rules give IIOs up to 60 business days to reach agreement with an irrigator on the contractual details of the irrigation right they are considering to transform, and associated water delivery rights. Once agreement has been reached and the irrigator has applied to their IIO for transformation and paid any fees and outstanding charges, the IIO has 20 business days to process the application and an additional 5 business days to notify the irrigator of the outcome.

Following the processing of the transformation application by the IIO, the relevant state authority needs to create the water entitlement. In 2018–19, the median number of days for an IIO in South Australia to complete the initial transformation processing was two days while the median state authority processing time was 14 days. Meanwhile, the median IIO processing time in New South Wales was 12 days while the second component of processing had a median time of 32 days (figure 9.11).

Figure 9.11: Median days to process transformation applications, by processing stage and state, 2018–19



Source: ACCC analysis based on IIO response to ACCC annual Water Monitoring Report Requests for Information.

Notes: Includes zero dollar trades. Provisional estimates.

The extended state authority processing time in New South Wales is due to the involvement of two separate government entities. After the initial processing by the IIO, the application is forwarded to WaterNSW. The application is then returned to the IIO who either submits the approved application to the New South Wales Land Registry Services directly or returns it to the irrigator for lodgement.⁷⁷³ In South Australia, the Department for Environment and Water is responsible for the trade approval and the registration of the transformed water right.

IIO transformation processing times will be explored further in the final report.

9.3.4. Impact of processing times on trade

The variable trade processing times experienced by water market participants throughout the water year and in different areas of the Southern Connected Basin suggest there are significant inconsistencies in the water markets. For water users seeking an immediate source of water, this variability can influence trading and investment decisions and decrease the value of difficult to access water sources.

More broadly, extended processing times delay the timely publication of any trading data and increase the transaction costs for market participants as they must undertake additional research to better understand the ‘current’ state of the water market.

One way to consider the impact of delayed processing on market information is to compare the price of water for trades submitted to a trade approval authority with the price of water for trades approved by the trade approval authority on the same day. This will only be a minimum lag given trades are applied for after the deal has been struck, and are published after they have been approved by the trade approval authority.

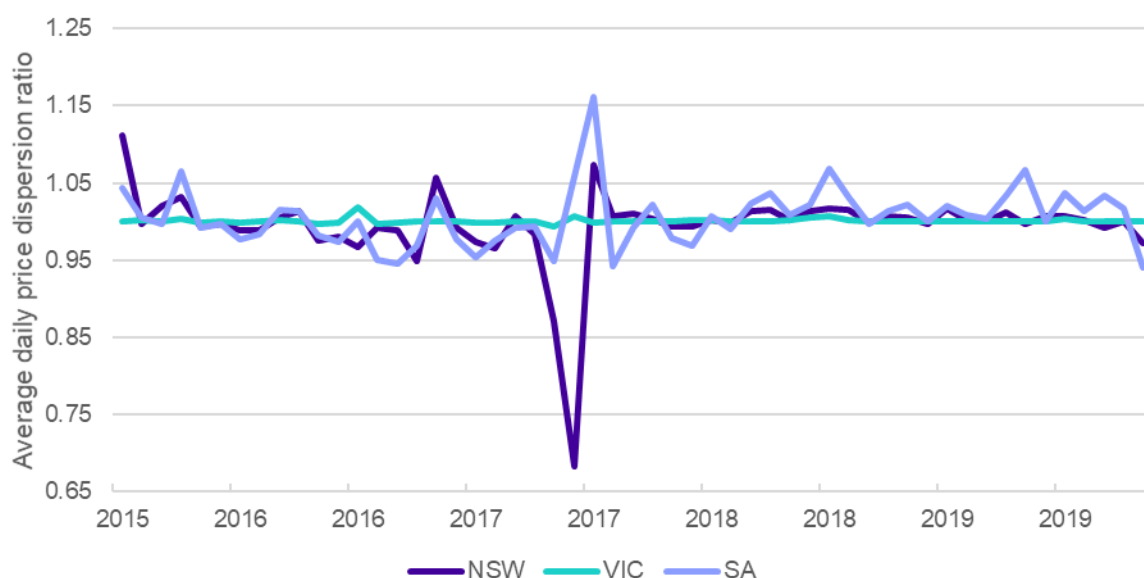
This *price dispersion ratio* will equal one for days when the price of water is the same for trades that are submitted and trades that have been approved that day. When trades submitted have a lower price than those approved on the same day, the price dispersion

⁷⁷³ Hay Private Irrigation District, *Irrigation Transformation and Termination Guideline 2017*, 2017.

ratio is less than one. When the trades submitted have a higher price than those approved on the same day, the price dispersion ratio is greater than one. The price dispersion ratio is calculated for each trading zone, and will be influenced by intrastate and interstate trading processes.

Figure 9.12 shows the price dispersion ratio is closest to one for trading zones in Victoria, which is likely a result of the consistent short approval times for intrastate trade. It also means water market participants have better information on Victorian trading zones than for other states, reducing the research costs for those trading Victorian water. Trading zones in New South Wales and South Australia have more variable price dispersion ratios, although this does stabilise for zones in New South Wales from mid-2017. This coincides with New South Wales achieving next business day approval times for at least 90 per cent of its approved allocation trades (figure 9.7).

Figure 9.12: Monthly averages of the daily price dispersion ratios for trading zones in New South Wales, Victoria and SA from 1 July 2015 to November 2019.



Source: ACCC analysis based on New South Wales, South Australia and Victorian Governments response to voluntary information request.

Notes: Daily zone and price series derived using ABARES GAM methodology.⁷⁷⁴ Excludes zero dollar trades. Provisional estimates.

9.4. Opportunities to reduce transaction costs

One of the objectives under the National Water Initiative was to develop open and efficient water markets that facilitate trading within and between states to broaden and deepen markets⁷⁷⁵, with a specific reference to ensuring competitive neutrality in the Southern Murray–Darling Basin.⁷⁷⁶ However, the variable trade processing times could influence trading and investment decisions, and subsequently affect the value of water in affected trading zones. Extended processing times also contribute to delays to information flows, providing a false picture of the ‘current’ market and increasing transaction costs for traders.

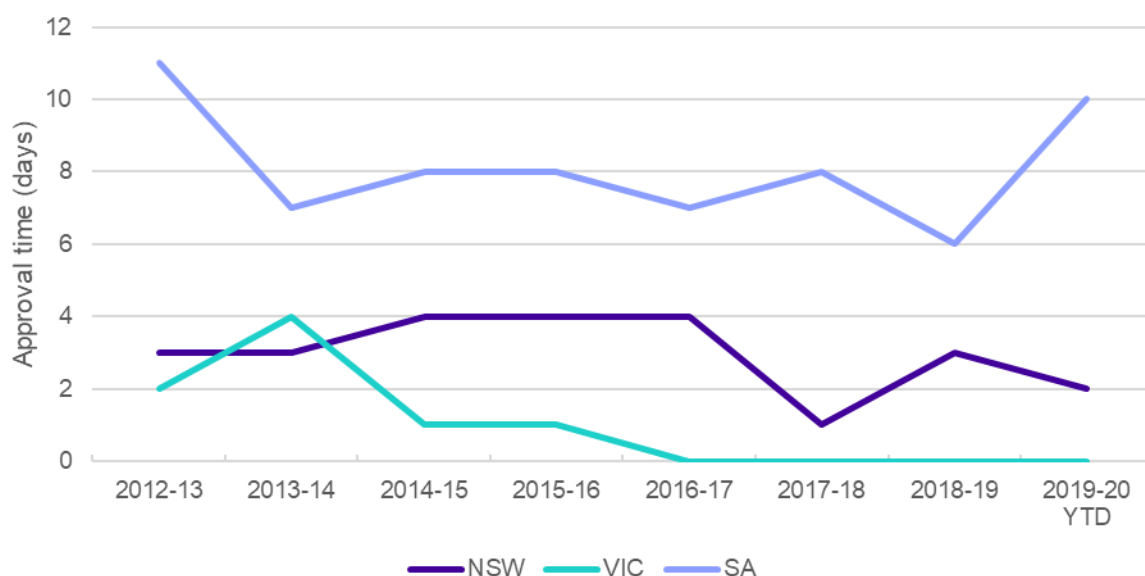
⁷⁷⁴ ABARES, *Measuring water market prices: statistical methods for interpreting water trade data*, 2019. Available at <https://www.agriculture.gov.au/sites/default/files/abares/documents/research-topics/water/measuring-water-market-prices.pdf>, viewed 26 June 2020.

⁷⁷⁵ Council of Australian Governments, *Intergovernmental Agreement on a National Water Initiative*, 2004, paragraphs 23(v) and 58(i).

⁷⁷⁶ *ibid.*, paragraph 63(ii).

On yearly averages, the 2009 COAG services standards are being met by the trade approval authorities. However New South Wales and Victoria have generally been able to meet these standards, inclusive of non-business days, since 2012–13 for intrastate trades (figure 9.13) while all Basin States in the Southern Connected Basin have also met the standards, inclusive of non-business days, for interstate trades (figure 9.14). While there is already scope for these standards to be tightened at little reputational cost for most of the Basin States, the standards must be mandated for water market participants to benefit.

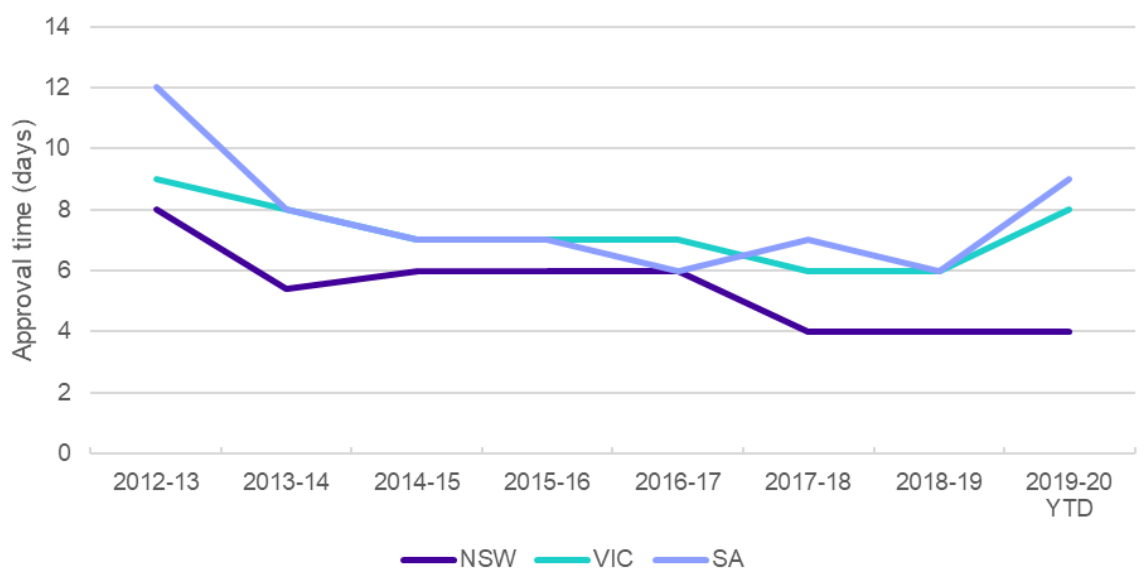
Figure 9.13: Approval time for at least 90 per cent of intrastate trades by state and year



Source: ACCC analysis based on New South Wales, South Australia and Victorian Governments response to voluntary information request.

Notes: Includes zero dollar trades. Provisional estimates. YTD = year to date (2019–20 year to 30 November 2019).

Figure 9.14: Approval time for at least 90 percent of interstate trades, by state and year



Source: ACCC analysis based on New South Wales, South Australia and Victorian Governments response to voluntary information request.

Notes: Includes zero dollar trades. Provisional estimates. YTD = year to date (2019–20 year to 30 November 2019).

The Victorian Water Register's same day approval for the majority of intrastate trades, regardless of the day of submission, demonstrates the benefits of automating water registry processes. However, improved integration between trade approval authorities' water registers is required to extend these benefits to interstate trading. Victoria's investment in its water register is also a good opportunity for the other Basin States, who can invest in their own register modernisation projects with the benefits of learning from the Victorian experience.

Integrated trade approval authority water registers should help improve consistency in the operation of states' registries and could deliver better outcomes for others with an interest in water markets, such as the Bureau of Meteorology. A consistent approach to trade approval with increased automation and better links between registers would reduce approval times and improve users' experiences of trade approval processes, particularly for those who trade interstate. Such improvements will go some way towards increasing the breadth and depth of water markets.

There also needs to be better integration between the trade approval authority registries and the brokers and exchanges where trades are negotiated and deals are struck. Investments to reduce lags between the time a deal is struck and when that trade data becomes available to market participants will help create a transparent market and reduce some transaction costs.

However, some water market participants experience significantly greater transaction costs than others. Irrigators in particular IIOs who wish to undertake allocation trading outside of their irrigation district are charged trade fees by their IIO and trade approval authority, while irrigators who seek to transform their irrigation right into an entitlement right in New South Wales may experience far longer approval and registry times than their South Australia counterparts due to New South Wales's different administrative processes.

10. Information transparency

Key points

- While water market transparency is one of the objectives of the National Water Initiative, its implementation has been haphazard due to Australia's multi-jurisdictional approach to water reform and the disjointed way that trade-related services have evolved. There are currently many disconnects which impede the free flow of core market data from its generation source through to end users who use this data to inform their own trading decisions or provide advisory services to others. This has contributed to water market participants' lack of confidence in water markets and variation in what 'transparency' means to different stakeholders.
- The ACCC recognises that there have been improvements to water market transparency in recent years: Basin States have updated websites and launched apps to provide detailed and user-driven data, the Bureau of Meteorology (BOM) has adopted near real-time publishing of water market information, the Murray–Darling Basin Authority (MDBA) has audited trade price reporting to understand deficiencies and the Australian Government has supported the development of the Waterflow, which draws together water market information from several public and private sources.
- However, the ACCC's preliminary view is that there is still some way to go to improve information transparency as the underlying issues that influence how trading data is collected have not been addressed.
- Trade Approval Authorities and Registers have not kept pace with the market and are not providing reliable or timely data. The ACCC's preliminary view is that, while registers and trade approvals remain the responsibility of the states, updating state water legislation is necessary to mandate the collection, verification and recording of information such as price, trade type, product type, agent/broker name and date of agreement would greatly improve the quality of water register data.
- Information on allocation policies, allocation announcements, carryover and trading rules also suffer from fragmentation and consistency issues, where there are many sources of information with variation in terminology. Basin States take different approaches on how and where policies and rules are documented, and the guidance provided to stakeholders to help them combine and understand disparate and often highly technical information.

10.1. Overview of water market information transparency

The efficient allocation of water resources using market mechanisms relies on water market participants having access to timely and relevant market information and making well-informed choices on how they engage with markets, so that price signals accurately capture all relevant information.⁷⁷⁷ In a transparent market, all traders would have access to timely and reliable market information that allows them to understand current market conditions, compare trading offers and make decisions that are in their best interests.

Trade services across the Murray–Darling Basin (the Basin) are provided by multiple public and private entities (see chapter 8), resulting in fragmented and inconsistent datasets that can favour market participants with the time and resources to invest in developing trading

⁷⁷⁷ According to standard economic theory, market mechanisms achieve efficiency by using price to equate marginal costs and benefits. If some information on costs or benefits is missing, then market may misallocate resources compared to the full-information case.

strategies. This fragmentation can also facilitate the entrance of market intermediaries to provide advisory and information services to fill information gaps, which can result in smaller and newer market participants relying on them to form price expectations, provide advice and enact trades.

Insufficient access to comprehensive, consistent and accurate market data can create information asymmetries, which can reduce market efficiency.⁷⁷⁸ These information asymmetries can exist between the diverse groups of trader types who are actively competing with each other in the water market (such as between investors and irrigators), and also between brokers and their clients in providing advisory services (discussed further in section 6.7). This chapter focusses on how the lack of transparent market information impacts traders.

Box 10.1: What is ‘information transparency’?

The ACCC’s approach to examining information transparency in the Basin water markets is framed by identifying the information necessary for water market traders to make decisions that are in their best interests, which will lead to effective and efficient markets and improved productivity. The ACCC’s preliminary view is that all water market participants should have equal access to the following ‘primary’ information to make well-informed trading decisions:

- Pricing—current and historical market prices for water product types across the Basin.
- Trading partners—timely information on the buy and sell offers for a range of water product types across the Basin.
- Product types—understand the types of market products available and the advantages and costs associated with each
- Cost of trading—trade approval fees and intermediary charges.

Further, the ACCC’s preliminary view is that all market participants should also have information which allows them to understand the broader context in which markets operate and the impacts or outcomes associated with trading decisions. In particular, market participants should have sufficient information (referred to in this report as ‘secondary information’) to the following information sources:

- Clear market rules and processes—open communication of market rules, allocation announcements and policy changes, and unbiased information on opportunities to trade.
- Clear water accounting methods—consistent processes applied by Basin States when accounting for losses and managing spill risk.
- Total amount of water for consumptive use—how much water there is in the system available for use (total volume allocated to entitlements, plus aggregate volumes carried over from previous water years)
- Broad supply and demand data—forecast water availability, weather conditions, and demand.
- Information on whether and how trade has impacts or imposes costs on the system which are not directly reflected in prices—for example, impacts on the environment, extent of conveyance losses and how they are accounted for, or impacts on the system’s capacity to deliver water to other water rights holders. This is important for

⁷⁷⁸ ACCC, *Guidelines for Authorisation of Conduct (non-merger)*, 2019, <https://www.accc.gov.au/system/files/Guidelines%20for%20Authorisation%20of%20conduct%20%28non-merger%29.pdf>, viewed 13 May 2020.

traders who have preferences over intangible outcomes such as environmental and social impacts. As in other sectors, many market participants are interested not only in price but in other unpriced aspects (often captured in notions of 'ethical consumption' or 'social corporate responsibility').

The ACCC also recognises that there are additional transparency concerns relating to information that some consider should be disclosed during private dealings, for example, dealings between a broker and a client. For example, brokers could use their access to information, their ability to analyse that information, and the reliance on information provided by brokers, to misrepresent the market to their clients in order to maintain or increase the price and volume of water rights traded. This type of transparency will not be explored in this chapter, but is explored further in section 6.7.

A number of stakeholders have called for information in Basin water markets to be made more transparent. For example, SunRice, a major rice exporter, submitted:

The level of transparency and disclosure of water market information is not currently sufficient to support a properly functioning market. SunRice understands from growers that there is only limited information available about how rights are created, what volumes are available, who is acquiring water, and how it is being used, consumed or traded. There is currently no water holdings / entitlements register or platform. In addition, the information that is available is difficult to access and understand, and is not always updated in real time. As a result, it provides limited useful insights or information for water users.⁷⁷⁹

10.2. Stakeholder concerns and potential solutions

Many stakeholders have submitted to the ACCC that greater transparency is needed over market information and data, regulatory decisions, institutional settings, and market behaviour.⁷⁸⁰ These are discussed in turn below.

10.2.1. Irrigators and some other stakeholders are concerned that there is inadequate primary market information available

Many stakeholders hold the view that there is inadequate information on historic (approved) trades, and current buy and sell offers. Concerns are summarised in table 10.1. Where stakeholders also provided suggestions on how their concerns might be addressed, these are also summarised in the table.

⁷⁷⁹ SunRice, Submission to the Murray–Darling Basin inquiry, February 2020, p. 7.

⁷⁸⁰ ACCC Murray–Darling Basin inquiry, Mildura public forum.

Table 10.1: Stakeholder concerns and proposed solutions on insufficient or inadequate information

Example of stakeholder types raising concern	Stakeholder concern	Potential transparency-related solutions proposed by stakeholders
Irrigators Irrigation Infrastructure Operators (IIOs) Government Bodies	Market information such as price is dispersed, presented in different formats and is difficult to access ⁷⁸¹ , which leads to difficulties in determining market depth and full extent of trading opportunities, and creates an ‘un-level playing field’ because some participants have a comparative advantage in making use of fragmented information ⁷⁸²	National Irrigation Corporations Water Entitlement Register could be used as a model for what could be done by the other IIOs ⁷⁸³ Single trading platform (for lodging buy and sell offers) ⁷⁸⁴ Single water market information platform bringing together core market information from multiple sources and presenting information in a uniform way ⁷⁸⁵ Single national water register. ⁷⁸⁶ Harmonising and streamlining collection and reporting of core market information ⁷⁸⁷
Irrigators	Poor quality and lack of timeliness of publicly available register information (due to trade approval authority processing lags) leads to difficulties in understanding prevailing market prices and assess trading opportunities ⁷⁸⁸	Improving or creating more consistency across states trade approval times ⁷⁸⁹ Improve publication times after trades are approved ⁷⁹⁰ Harmonising and streamlining collection and reporting of core market information ⁷⁹¹
Irrigators Environmental water holders	Inconsistencies in collection and dissemination of core market information across Basin States leads to additional costs to understand prevailing market	Single water market information platform bringing together core market information from multiple sources and presenting information in a uniform way ⁷⁹³

⁷⁸¹ For example, Coleambally Irrigation Co-operative Limited, Submission to the Murray–Darling Basin inquiry, February 2020, p. 8; Department of Agriculture, Submission to the Murray–Darling Basin inquiry, January 2020, p. 11; Murrumbidgee Irrigation, Submission to the Murray–Darling Basin inquiry, February 2020, p. 3; Numerous irrigator submissions, such as AJ and MH Spiers, Submission to the Murray–Darling Basin inquiry, January 2020, p. 1.

⁷⁸² New South Wales Irrigators’ Council, Submission to the Murray–Darling Basin inquiry, January 2020, p.7.; Fruit Growers Victoria Ltd, Submission to the Murray–Darling Basin inquiry, February 2020, p. 2.

⁷⁸³ Coleambally Irrigation Co-operative Limited, op. cit., p. 9.

⁷⁸⁴ Department of Agriculture, op. cit., p. 11; Murrumbidgee Irrigation, op. cit., p. 3; H2OX, Submission to the Murray–Darling Basin inquiry, February 2020, p. 5; SunRice, Submission to the Murray–Darling Basin inquiry, February 2020, p. 9.

⁷⁸⁵ Renmark Paringa Council, Berri Barmera Council and District Council Loxton Waikerie, Submission to the Murray–Darling Basin inquiry, February 2020, p. 2.

⁷⁸⁶ Murrumbidgee Irrigation, op. cit., p. 3.

⁷⁸⁷ Fruit Growers Victoria Ltd, Submission to the Murray–Darling Basin inquiry, February 2020, p. 3.

⁷⁸⁸ Gwydir Valley Irrigators Association, Submission to the Murray–Darling Basin inquiry, January 2020, p. 4.

⁷⁸⁹ Coleambally Irrigation Co-operative Limited, op. cit., p. 12.

⁷⁹⁰ Australian Water Brokers Association, Submission to the Murray–Darling Basin inquiry, January 2020, p. 4.

⁷⁹¹ Fruit Growers Victoria Ltd, op. cit., p. 3.

Example of stakeholder types raising concern	Stakeholder concern	Potential transparency-related solutions proposed by stakeholders
	prices and assess trading opportunities across states ⁷⁹²	
Irrigators	Significant proportion of zero dollar trades leads to difficulties in understanding prevailing market prices and assess trading opportunities ⁷⁹⁴	Require trade type and reasoning for a zero dollar price to be reported on trade form ⁷⁹⁵
Brokers	Lack of information on ownership and trade within IIOs leads to difficulties in understanding prevailing market prices and assess trading opportunities ⁷⁹⁶	IIO internal trades be presented on state registers in a timely manner ⁷⁹⁷
Irrigators Environmental water holders	Inability to distinguish 'new products' in Basin State trading data leads to difficulties in understanding prevailing market prices (especially prices for 'new products') and assess trading opportunities ⁷⁹⁸	Include ability to identify new products accurately in trade forms and publish trades by product type on register ⁷⁹⁹
Water technology companies	Concern that intermediaries have access to greater information and that there are information asymmetries in the market ⁸⁰⁰	Provide more accurate and timely information ⁸⁰¹

Stakeholders consider market depth is not well known as buy and sell offers are dispersed across multiple exchanges and broker websites

Several irrigator groups and individual irrigators expressed concerns that they do not have information available to them to make decisions about when to trade, and they are left overly reliant on brokers who have a more up to date and informed understanding of current market prices.⁸⁰²

Small growers, irrigators and representative bodies are concerned that the current market information is insufficient and makes trading costly for small irrigators and growers. For example, Citrus Australia submitted:

⁷⁹³ Renmark Paringa Council, Berri Barmera Council and District Council Loxton Waikerie, op. cit., p. 2.

⁷⁹² Webster Limited, Submission to the Murray–Darling Basin inquiry, February 2020, p. 4.

⁷⁹⁴ New South Wales Irrigators' Council, op. cit, January 2020, p. 7.; Commonwealth Environmental Water Holder, Submission to the Murray–Darling Basin inquiry, February 2020, p. 5.

⁷⁹⁵ Australian Water Brokers Association, op. cit., p. 3.

⁷⁹⁶ Australian Water Brokers Association, op. cit., p. 4, Webster Limited, op. cit., p. 4.

⁷⁹⁷ Australian Water Brokers Association, op. cit., p. 4.

⁷⁹⁸ National Irrigators' Council, Submission to the Murray–Darling Basin inquiry, January 2020, p. 7.; Commonwealth Environmental Water Holder, op. cit., p. 5.

⁷⁹⁹ National Irrigators' Council, Submission to the Murray–Darling Basin inquiry, January 2020, p. 8.

⁸⁰⁰ Civic Ledger, Submission to the Murray–Darling Basin inquiry, January 2020, p. 1.

⁸⁰¹ New South Wales Irrigators' Council, op. cit. p. 7.

⁸⁰² Ricegrowers' Association of Australia, Submission to the Murray–Darling Basin inquiry, January 2020, p. 5.

*Trading on the market is time costly more than anything, and the lack of transparency means that growers don't know what other participants are trading, nor the accurate volume on the market.*⁸⁰³

There were also concerns that the current level of transparency causes inefficiencies. Fruit Growers Victoria Ltd submitted:

*The system is inefficient because it takes too much time for irrigators to establish prices for like for like water in the market, the price spread between markets can be substantial, and irrigators pay for the cost of brokers monetising (via commission) what should be a more automated price discovery, counterparty matching, and transactional service.*⁸⁰⁴

A large irrigator acknowledged that the current level of transparency gives them an informational advantage over smaller market participants. For example, Select Harvests submitted:

*A lack of consolidated, accurate, comprehensive and timely data on water rights trading activity gives a significant informational advantage to large, well-resourced and connected Sophisticated Investors and large scale irrigators (like Select Harvests) over smaller market participants. This has led to an overreliance on thinly traded water exchanges for price signals. It means the extent to which price movements are attributable to a genuine change in market sentiment or the actions of one or more related parties is very difficult for ordinary water users, sellers and regulators to determine.*⁸⁰⁵

Other stakeholders considered a lack of transparency with regard to the volume of water available for sale and documents from brokers detrimental to irrigators. For example, Robinvale Table Grape Growers submitted:

*Irrigators [are] left without true transparency on the volume of water [that] is available for sale at any one given time. Whether there is a shortage or an abundance of water available. These figure can be easily manipulated by sellers of water, to create a perceived shortage in the market, driving the market up in a very short period of time. There is very little transparency within a water trade transaction... documents from brokers are not transparent enough to reflect the actual cost and allocation year of origin of the water being sold to the [absolute] detriment of irrigators.*⁸⁰⁶

Irrigators also acknowledged the progress that has been made, but noted concerns remain around underlying data quality. For example, NSW Irrigators' Council (NSWIC) submitted:

*Applications such as Waterflow™ provide useful information, and are a positive step forward, but they also rely on government agencies and sources such as the state water registers as a primary source. Further, while NSWIC acknowledges there are many legitimate instances of \$0 trades, it is difficult to have confidence that all trade prices are reported accurately.*⁸⁰⁷

The emphasis on informational issues raised in submissions and public forums contrasts somewhat with data from representative irrigator surveys. For example, consultancies commissioned by the ACCC to report on data drawn from irrigator surveys show that a majority of irrigators across the Basin in 2015 and 2016 agreed that information to trade

⁸⁰³ Citrus Australia, Submission to the Murray–Darling Basin inquiry, January 2020, p. 6.

⁸⁰⁴ Fruit Growers Victoria Ltd, op. cit., p. 2

⁸⁰⁵ Select Harvests, Submission to the Murray–Darling Basin inquiry, April 2020, p. 3.

⁸⁰⁶ Robinvale Table Grape Growers, Submission to the Murray–Darling Basin inquiry, January 2020, p. 6.

⁸⁰⁷ New South Wales Irrigators' Council, op. cit., p. 7.

water was 'easy to access'.⁸⁰⁸ Given this data was gathered several years ago, this discrepancy could indicate that water information is becoming more difficult to obtain. It also could indicate that informational issues are concentrated and experienced more acutely by some participants than others. The ACCC therefore will be seeking further feedback on the specific information needs of water market participants, and the practical difficulties stakeholders face when seeking to access information.

Stakeholders consider reporting on historical trades is inaccurate, incomplete, untimely and dispersed across multiple state websites

As state registers only report on approved trades, the historical trade data they provide suffers deficiencies resulting from the gradual changes that have occurred in the market, with the main issues being zero dollar trades and inaccurate product identification.

Given the volume of trades that are now facilitated by intermediaries, these intermediaries hold significant and valuable information which although it may be published, is not required to be published or reported. This enables intermediaries' access to information that other market participants do not have.⁸⁰⁹

Stakeholders consider there is insufficient information published, or that information is not published in a timely manner and have suggestions for what information would better assist them. For example, Gwydir Valley Irrigators Association submitted:

The timeliness of this information and the quality of the records [from the appropriate Government databases] is sometimes in question.⁸¹⁰

Also goFARM submitted:

*It is currently difficult to determine the timeliness and therefore relevance of trade information on some state water registers due to delays in processing transactions and inconsistent reporting. All state water registers should specify the 'Date Agreed', 'Date Lodged' and 'Date Approved' for a water trade to allow market participants to understand market movements in close to real-time.*⁸¹¹

Other stakeholders were concerned about the credibility of prices reported on state registers, For example, Murray Valley Winegrowers submitted:

*[There is a] lack of credibility around water price reporting across various states. There is a further difficulty because of the lack of both transparency and compatibility of the state based price reporting systems for those needing to know the depth of the market for temporary water and thus understand how the market is operating.*⁸¹²

Stakeholders are also concerned that IIO internal trades are not reported on the state register, even though they represent large volumes of trade. The ACCC shares these concerns: in 2018–19, IIOs accounted for 8 per cent of water allocation volumes purchased, and also 8 per cent of water allocation sold in the Southern Connected Basin; further, 1028 GL of temporary irrigation right was traded within New South Wales and South

⁸⁰⁸ See Appendix A, box A.1 from J Schirmer and D Peel, *Understanding participation in water trading by irrigators in the Murray–Darling Basin*, Consultant report prepared for the ACCC Water Market inquiry, 2020, pp. 25–27.

⁸⁰⁹ Civic Ledger, op. cit., p. 1.

⁸¹⁰ Gwydir Valley Irrigators Association, op. cit., p. 4.

⁸¹¹ goFARM Australia Pty Ltd, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2.

⁸¹² Murray Valley Winegrowers, Submission to the Murray–Darling Basin inquiry, February 2020, p. 4.

Australian IIOs in the Southern Connected Basin.⁸¹³ This demonstrates the extent of trading activity involving New South Wales and South Australian IIOs. Internal trade is not captured at all in Basin State water registers, as IIOs are the sole approval authorities for these trades. As for water allocation trade, the ACCC understands that not all of these are ‘commercial’ trades, but information provided by IIOs to the ACCC to date indicates that some operators do not attempt to record price information for internal trades. Thus, the lack of integration of data on IIO internal trades with Basin State allocation trade data, together with the lack of price data captured for these trades, leads to the outcome of widespread opacity about IIO trading activity.

Where broker and exchange websites do offer the ability to trade within, into or out of IIO networks, this can lead to a situation where:

- participants may not fully understand that trading with an IIO is different than undertaking a water allocation trade, and therefore may be ‘caught out’ in the trade approval process or face unexpected costs of trading
- participants likely have insufficient data on how prices for temporary trade of irrigation right may differ from water allocation prices in the same zone⁸¹⁴, and may not be made aware that IIOs are not subject to the same rules that regulate Basin State trade approval authorities and the setting of trading rules governing the trade of water access rights.

10.2.2. Irrigators and some other stakeholders are concerned that there is a lack of transparency about how water is managed

Stakeholders have submitted a wide range of concerns about access to information on market architecture aspects such as allocation policies and carryover rules.

These concerns, together with solutions proposed by stakeholders, are summarised in table 10.2 below. Stakeholder concerns in relation to these issues are dealt with more deeply in sections 12.3 (allocation policies) and 12.4 (carryover).

Table 10.2: Concerns about whether the market architecture is ‘fit for purpose’, which lead to calls for greater transparency

Example of stakeholder types raising concern	Stakeholder concern	Potential transparency-related solutions proposed by stakeholders
Irrigators	Lack of transparency and accountability for how trading affects storage and conveyance losses has led to concerns about third party impacts of trade ⁸¹⁵	Improved publication of information regarding the scale of losses, and how these impact the distribution of water between users ⁸¹⁷
	Lack of transparency in how conveyance losses are calculated and where financial liability for losses should accrue ⁸¹⁶	Better communication of the application of risk assignment principles (as in, who incurs the cost of increased losses)

⁸¹³ Temporary trade within IIOs covers the following IIOs: Barossa Infrastructure, Buddah Lake, Coleambally, Central Irrigation Trust, Eagle Creek Pumping Syndicate, Hay Private Irrigation District, Jemalong, Marthaguy, Murrumbidgee Irrigation, Murray Irrigation, Moira, Narromine Irrigation Board of Management, Renmark Irrigation Trust, Tenandra, Trangie-Nevertire Irrigation Scheme, West Corrgan, Western Murray Irrigation. Source: ACCC annual IIO Requests for Information.

⁸¹⁴ Where possible, the ACCC intends to analyse price data provided by IIOs to determine the extent to which this occurs in practice, and include this analysis in its final report.

⁸¹⁵ Murrumbidgee Valley Food and Fibre Association, Submission to the Murray–Darling Basin inquiry, January 2020, p. 4.

⁸¹⁶ Riverina and Murray Joint Organisation, Submission to the Murray–Darling Basin inquiry, March 2020, p. 6.

Example of stakeholder types raising concern	Stakeholder concern	Potential transparency-related solutions proposed by stakeholders
		A real time, visual portal showing water flows through system, broken down by consumptive, operational, conveyance, environment, and 'other' ⁸¹⁸
Irrigators Councils	Concerns that information about market architecture, including carryover and allocation policies, and trade and inter-valley trade (IVT) rules is difficult to find, lacks clarity and is complex ⁸¹⁹ Concerns that IVT rules are opaque ⁸²⁰ and access to opportunities is unequal (lack of a 'level playing field') ⁸²¹	Better communication and education of the purpose of, justification for and operation of IVT restrictions ⁸²²
Irrigators IIOs Exchanges	Lack of transparency of allocation decisions and later announcements leads to difficulties in planning water use and trading strategies, and can increase water prices ⁸²³	Improve and increase consistency across states for how allocation announcements are communicated ⁸²⁴

Stakeholders consider that water allocation policies and allocation announcements and changes to them are not well communicated to the market

While not direct market data, information on expected allocations greatly impacts water markets and if not communicated or managed well by government agencies, has the potential to damage confidence in water markets.⁸²⁵ Stakeholders consider the increasing complexity of policies (including allocation policies) has caused confusion. For example, Robinvale Table Grape Growers submitted:

The water trade market, together with an ever changing set of water trading policies, have only caused confusion and in some cases chaos within the market. From a grower/irrigators perspective, it seems very systematic. We essentially have gone from a time where all our information regarding the coming seasonal outlook on

⁸¹⁷ Bega Cheese, Submission to the Murray–Darling Basin inquiry, February 2020, p. 8.

⁸¹⁸ Ricegrowers' Association of Australia Inc., Submission to the Murray–Darling Basin inquiry, January 2020, p. 5.

⁸¹⁹ Almond Board of Australia, Submission to the Murray–Darling Basin inquiry, March 2020, p. 18.

⁸²⁰ Fruit Growers Victoria Ltd, op. cit., p. 3.; Almond Board of Australia, Submission to the Murray–Darling Basin inquiry, March 2020, p. 18; Leeton Shire Council, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2.

⁸²¹ New South Wales Irrigators' Council, op. cit., January 2020, p. 2; Barossa Infrastructure Limited, Submission to the Murray–Darling Basin inquiry, January 2020, pp. 3–4.

⁸²² Leeton Shire Council, submission, op. cit., p.2; Green Dymension, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2.

⁸²³ Australian Grape and Wine Incorporated, Submission to the Murray–Darling Basin inquiry, January 2020, p. 7; Waterfind, Submission to the Murray–Darling Basin inquiry, January 2020, p. 6; Deborah Arthur, Submission to the Murray–Darling Basin inquiry, February 2020, p. 1.

⁸²⁴ Australian Water Brokers Association, op. cit., January 2020, p. 5.

⁸²⁵ MDBA, 2019, <https://www.mdba.gov.au/publications/policies-guidelines/strategic-priorities-basin-plan-water-trading-rules>, viewed 22 June 2020.

*storage levels and pending allocations were coming directly from our local water authority.*⁸²⁶

While table 10.2 outlines most concerns, there were also concerns raised that New South Wales had changed allocation policies without communicating this change, and that the change resulted in lower allocations to general security holders.⁸²⁷ There were also concerns that there are differences in the states' approaches, with both South Australia and Victoria providing consistent and transparent announcements and outlooks.⁸²⁸

Aither's report in 2018 noted that stakeholders in New South Wales considered that the quality of information provided by WaterNSW and the Department of Planning, Industry and Environment could be improved relative to the information provided in the other states, particularly Victoria.⁸²⁹

In South Australia, stakeholders have observed that they are generally happy with the information provided by the Department of Environment and Water on allocation decisions.⁸³⁰

The case study below (box 10.2) explores how an irrigator within Murrumbidgee Irrigation might use water allocation statements when contemplating trading some excess water.

Box 10.2: Using Water Allocation Statements to identify whether to hold or sell water

An irrigator is considering whether to sell water allocation currently not needed for production, or hold it for future use. Although the irrigator is within Murrumbidgee Irrigation (MI), the irrigator is still subject to the allocation policies of the New South Wales Government, as reflected in MI's water entitlements contract.⁸³¹

On 1 December 2017, the irrigator consults the fortnightly Water Allocation Statement for the Murrumbidgee water source on the New South Wales government website to determine how their general security allocation is increasing or likely to increase.

The irrigator consults the storage levels figures and the 'Murrumbidgee Resource Assessment Data Sheet' table within this update to get a sense of how much water is available in total, some 2600 GL in total, and how much is allocated to towns, conveyance and other licence categories. In the following statement, on 15 December 2017, the irrigator notes that the total available resource has risen to 2745 GL, but announced general security allocation remains unchanged. The irrigator further notices that there is a new category in this table called 'Future (2018–19) high priority needs' in the amount of 220 GL that has not been seen before. The irrigator notices that this volume is included in the Total Available Resource volume. The irrigator notices that this category is in addition to the 'Reserves' category, and also notices that the Total Available Resource definition has not changed to account for this new category. The irrigator notes that the explanatory notes for this category indicate that 'it is required to look ahead to next water year... to ensure there is sufficient resource available to meet high priority commitments' for the

⁸²⁶ Robinvale Table Grape Growers, op. cit., p. 5.

⁸²⁷ Murrumbidgee Valley Food and Fibre Association, op. cit., p. 2.

⁸²⁸ Australian Water Brokers Association, op. cit., p. 5.

⁸²⁹ Aither, 'Review of water trading: The impact of IPART's regulatory framework on water trading markets', *A final report prepared for IPART*, 2018, p. vi.

⁸³⁰ Central Irrigation Trust, Submission to the Murray–Darling Basin inquiry, January 2020, p. 3.

⁸³¹ Murrumbidgee Irrigation, Water Entitlements Contract, clause 7, https://www.mirrigration.com.au/ArticleDocuments/210/Water%20Entitlements%20Contract%202020_final_1.pdf.aspx, viewed 9 May 2020.

following year.

The irrigator has not seen this category before and notes there is a large volume set aside in this category and therefore assumes there has been an allocation policy change. The irrigator assumes this is a new category, and that this is the reason why general security holders are still receiving 0 per cent allocations. The irrigator loses confidence in their previous understanding how allocation decisions are made, and how allocations to their entitlement may progress for the rest of the season.

The irrigator is now not certain whether to place current excess water on the spot market in case allocations will not increase. While the irrigator notes that this is always a risk, not knowing what the current policy further increases that risk.

The irrigator instead decides to hold on to the excess water in case it is needed, rather than selling it. The irrigator ends up not requiring the water, and in June decides to carry-over the water into the next year given the allocation uncertainty.

The irrigator's contract with the IIO also states that the same carryover amount per megalitre of share component in respect of the corresponding category of Access Licence held by the company must be made available to customers.⁸³²

The irrigator now needs to consult the current New South Wales carryover policy to see how much is able to be carried over.

The irrigator later finds out in public meetings that the Department has increased transparency on the measures needed to manage the risk of shortfall to high priority commitments at the start on the following year. Rather than set the 220 GL aside and exclude it from 'Total Available Resource', as occurred historically, the Department has begun to explicitly recognise the need to build resource in the current year, to ensure that as a minimum, high priority commitments can be met on 1 July, in accordance with the water sharing plan.

Stakeholders consider that there is insufficient information provided on carryover policies and how they impact entitlement holders

Similar to allocation policies, stakeholders have raised concerns about the availability and quality of information on carryover policies. The underlying policies differ in each state, and stakeholders have submitted that these policies are hard to understand. For example, Citrus Australia submitted:

*Carryover can be somewhat confusing for growers, depending on the region. In South Australia, the amount of carryover is only announced annually, therefore it is difficult for growers to make plans any earlier. Growers must seek out this information, depending on whether it is at a local or state level.*⁸³³

There is also concern that the impact that carryover levels have on future allocations is not well explained.⁸³⁴ As part of its 2019 transparency consultation, Victorian Department of Environment, Land, Water and Planning (DELWP) have committed to a number of

⁸³² *ibid*, clause 8.

⁸³³ Citrus Australia, *op. cit.*, p. 8.

⁸³⁴ Almond Board of Australia, Submission to the Murray–Darling Basin inquiry, March 2020, p. 14; Citrus Australia submission, *op. cit.*, p. 6; David Morrison, Submission to the Murray–Darling Basin inquiry, January 2020, pp. 6–7; Australian Farming Services, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2.

transparency improvements and in response to concerns to about how carryover was being used, has begun publishing more detailed reports on carryover in Northern Victoria.⁸³⁵

Stakeholders consider that trading rules are too complex and are not transparent

Stakeholders also raised concerns that trading rules were not transparent and were difficult to navigate. For example, Green Dymension submitted:

Too much red tape and around trading rules. It is not transparent.

*We do not have a clear understanding of the regulatory function, settings as it is too involved, complex, and contradictory.*⁸³⁶

Fruit Growers Victoria Ltd also had concerns around intervalley trading rules:

*Current intervalley trade rules are opaque, confusing, and the opportunities for extracting price premiums currently limited to the most sophisticated participants in the market.*⁸³⁷

10.2.3. Irrigators and some other stakeholders are concerned that lack of oversight and transparency is leading to the potential for misconduct to occur

In some cases, stakeholders call for increased transparency—even the full transparency of releasing all personal details of traders or entitlement holders—because they are concerned about the potential for misconduct, and that some market participants are unfairly capturing gains from trade. Table 10.3 summarises these concerns and the transparency-related solutions stakeholders have proposed to address them.

Table 10.3: Concerns about market integrity, distributions of gains from trade, or potential misconduct, which lead to calls for greater transparency

Example of stakeholder types raising concern	Stakeholder concern	Potential transparency-related solutions proposed by stakeholders
Irrigators Councils	Concerns that investors have the ability to engage in inappropriate conduct in water allocation markets. ⁸³⁸	Public disclosure of trading party identities (full disclosure, or partial disclosure such as disclosure of ‘large traders’ or ‘non-irrigator traders’ etc.). ⁸³⁹ Public disclosure of ownership identities of water access entitlements. ⁸⁴⁰
Irrigators Exchanges	Concerns with how brokers provide advisory and information services to their clients. ⁸⁴¹	Reporting, disclosure and auditing requirements for brokers, possibly under a licencing regime. ⁸⁴³

⁸³⁵ Department of Environment, Land, Water and Planning (Victoria), 2020, <https://waterregister.vic.gov.au/about/news/302-improving-market-transparency-and-carryover-information>, viewed 22 June 2020.

⁸³⁶ Green Dymension, op. cit., p. 2.

⁸³⁷ Fruit Growers Victoria Ltd, op. cit., p. 3.

⁸³⁸ Australian Grape and Wine Incorporated, op. cit., p. 8; Murray River Group of Councils, Submission to the Murray–Darling Basin inquiry, January 2020, p. 4; Leeton Shire Council, op. cit., p. 2.

⁸³⁹ Yenda Producers Co-operative, Submission to the Murray–Darling Basin inquiry, January 2020, p. 4.

⁸⁴⁰ For example; Yenda Producers Co-operative, op. cit., p. 4. This submission supports full transparency, while Australian Dairy Industry Council Inc., Submission to the Murray–Darling Basin inquiry, February 2020, p. 2. supports disclosure of large water holders, but notes this needs to be balanced with privacy concerns.

Example of stakeholder types raising concern	Stakeholder concern	Potential transparency-related solutions proposed by stakeholders
	Concerns with broker participation in water markets as trading principals. ⁸⁴²	
Water Technology company Irrigators	Concerns that there are information asymmetries that intermediaries ⁸⁴⁴ or large investors are able to use to their advantage ⁸⁴⁵	Distributed Ledger Technology to improve transparency and improve ease of trading ⁸⁴⁶
Irrigators	Concerns about foreign ownership tradeable water rights ⁸⁴⁷	Public disclosure of trading parties ⁸⁴⁸ Public disclosure of ownership identities of water access entitlements, or large entitlement holders only ⁸⁴⁹
Irrigators	Concerns about non-irrigator ownership of tradeable water rights ⁸⁵⁰	Public disclosure of trading party identities or disclosure of identities of large trading parties only ⁸⁵¹ Public disclosure of ownership identities of water access entitlements by way of a national water register ⁸⁵²
Brokers and exchanges	Concerns about environmental water holders (EWH) ownership of tradeable water rights and/or EWH trading activity ⁸⁵³	Improve register reporting to better identify and explain EWH trades and ownership ⁸⁵⁴
Irrigators	Concerns that inadequate information is collected for a regulator to monitor the market or support a well-functioning market ⁸⁵⁵	A seamless and unfettered sharing of information between compliance regulators approach be developed as a priority ⁸⁵⁶

⁸⁴¹ Goulburn Murray Irrigation District Water Leadership, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2.

⁸⁴³ Australian Dairy Industry Council Inc, op. cit., p. 2.

⁸⁴² H2OX, op. cit., p. 4.; Riverina and Murray Joint Organisation, op. cit., p. 4.

⁸⁴⁴ Civic Ledger, op. cit., p. 5.

⁸⁴⁵ Australian Grape and Wine Incorporated, op. cit., p. 6; Yenda Producers Co-operative, op. cit., p. 5.submission

⁸⁴⁶ Civic Ledger, op. cit., p. 5.

⁸⁴⁷ Nathan Lines, Submission to the Murray–Darling Basin inquiry, January 2020, p. 1; Lindsay Rogers, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2.

⁸⁴⁸ Victorian Farmers Federation, Submission to the Murray–Darling Basin inquiry, January 2020, p. 9.

⁸⁴⁹ For example; Australian Dairy Industry Council Inc., op. cit., p. 2. supports disclosure of large water holders, but notes this needs to be balanced with privacy concerns.

⁸⁵⁰ SunRice, Submission to the Murray–Darling Basin inquiry, February 2020, p. 2; Marion Peters, Submission to the Murray–Darling Basin inquiry, November 2019, p. 4; Yenda Producers Co-operative, op. cit., p. 3.

⁸⁵¹ Victorian Farmers Federation, op. cit., p. 9.

⁸⁵² Yenda Producers Co-operative, op. cit., p. 4.

⁸⁵³ Michael Lawry, Submission to the Murray–Darling Basin inquiry, February 2020, p. 1.

⁸⁵⁴ Coleambally Irrigation Co-operative Limited, op. cit., p. 10.

⁸⁵⁵ National Irrigators Council, op. cit., p. 3.

⁸⁵⁶ Coleambally Irrigation Co-operative Limited, op. cit., p. 9.

Stakeholders consider market confidence and effective oversight is impacted by a lack of transparency

Stakeholders consider the current level of transparency does not instil confidence that market manipulation is not occurring. For example, Almond Board of Australia submitted:

*Along with many other irrigators reliant on the temporary water market, almond growers want confidence the market is not being abused and there are appropriate consequences if market manipulation is occurring.*⁸⁵⁷

Other stakeholders are concerned about the roles of private exchanges, such as the Environmental Farmers Network, which submitted:

*The current governance risks associated with a myriad of private exchanges in a lightly regulated industry is a too large to be allowed to continue. Many owners of water exchanges also have water entitlements, own properties in dispersed irrigation areas, and are advertised as brokers. Transparency of water markets and the roles of promoters are far from clear.*⁸⁵⁹

Other stakeholders consider a lack of transparency leads many in the community to believe market manipulation is occurring:

*The community has major concerns about the lack of transparency. Many believe speculators are manipulating carryover to limit water for sale and drive up prices, to the detriment of farmers who use water to grow food.*⁸⁶¹

10.3. Currently available water market data

10.3.1. Primary market information: water access entitlements, water allocations and trading data

Each Basin State currently publishes information from their water registers, in line with the National Water Initiative (NWI) principles and objectives. Water agencies in each State and Territory, as well as rural water corporations and some irrigation infrastructure operators, are also required to provide water right and trade information to BOM.⁸⁶³ BOM publish this data on its Water Markets Dashboard.⁸⁶⁴

The *Water Act 2007* (Cth) requires information to be provided to the BOM and provides BOM with the discretionary power to publish information on water access rights, trades or leases of water access entitlements and irrigation right and water allocation announcements and allocation trades.⁸⁶⁵ However, information remains fragmented across the state registers, and BOM's water market information dashboard is limited to publishing transaction data and producing statistics and aggregate summary statistics based on data as supplied by the Basin States and IIOs.

While detailed trade information is available for both permanent and temporary trades (noting that no temporary trade information is available in Queensland), the datasets are inconsistent, and do not accurately report on price or product type. Furthermore, lags between trade agreement date and publication date can contribute to price dispersion (see section 9.3.4) and may contribute to volatile prices until market information becomes

⁸⁵⁷ Almond Board of Australia, op. cit., p. 8.

⁸⁵⁹ Environmental Farmers Network, Submission to the Murray–Darling Basin inquiry, January 2020, p. 1.

⁸⁶¹ Goulburn Murray Irrigation District Water Leadership, op. cit., p. 2.

⁸⁶³ *Water Act 2007* (Cth), s. 126.

⁸⁶⁴ Bureau of Meteorology, 2020, <http://www.bom.gov.au/water/dashboards/#/water-markets/mdb/at>, viewed 12 May 2020.

⁸⁶⁵ *Water Regulations 2008* (Cth)—Part 7.

available. Further investment is now required for trade approval authorities, the BOM and the legislative frameworks that empower them to 'catch up' with developments in water markets.

Zero dollar trades and unverified price reporting continue to be an issue and price reporting obligations are not working as intended

While prices for all trades of water access rights (including water access entitlements and water allocations) are required to be reported under Basin Plan Water Trading Rules (BPWTR) 12.48 by the seller⁸⁶⁶, a significant proportion of approved transactions for both water allocation trade and water access entitlement trades have a reported value of zero dollars. There is no obligation on Basin States to collect and record this information, and trade mechanisms and application forms have not kept pace with the market, resulting in participants opting to record zero dollar trades when they are unsure how else to report the trade. The ACCC understands that investors who offer contractual leases, forwards and carryover parking will report trades at zero dollars as there is no other way in the trade form provided to categorise the trade. The ACCC understands that practices for reporting price for leases can also vary between intermediaries, creating an inconsistent picture.

Stakeholders have identified that the prevalence of zero dollar trades, and the lack of information on *why* traders report zero dollars as the price, are obscuring understanding of prevailing market conditions, particularly in relation to what stakeholders refer to as the 'commercial' market or 'arms-length' trades.⁸⁶⁷ While the Australian Stock Exchange provides a separate form for 'non-market' zero dollar trades⁸⁶⁸ where the reason for the trade is a gift to family member, there are no such trade forms available in water trading.

Table 10.4 shows the results of the ACCC's preliminary analysis into the prevalence of zero dollar water allocation trades in the Southern Connected Basin, demonstrating that zero dollar trades have consistently constituted a large proportion of both the volume and number of trades.

The ACCC understands that the trade forms used by the Basin States are not designed to capture information on different product types. As a result of this, market participants have developed their own methods of reporting trades such as forwards, options, contractual leases. The ACCC understands that these methods may be inconsistent across market participants.

⁸⁶⁶ Section 12.48 of the Basin Plan requires trading prices to be made available where the trade requires the approval of an approval authority and where the trade requires registration. Section 12.38 of the Basin Plan requires the approval authority to publish on its website information such as the volume of water traded, the price of the trade and the days elapsed between lodgement and approval.

⁸⁶⁷ For example, Commonwealth Environmental Water Holder, op. cit., p. 6.

⁸⁶⁸ See: <http://sraa.asn.au/forms/form23.pdf>.

Table 10.4: Proportion of zero dollar water allocation trades by volume and number, Southern Connected Basin

Water year	Proportion of trades by volume that are \$0	Proportion of trades by number of trades that are \$0
2012–13	62%	34%
2013–14	64%	34%
2014–15	70%	33%
2015–16	73%	36%
2016–17	71%	39%
2017–18	71%	33%
2018–19	66%	28%
2019–20 (year to 30/11/2019)	79%	36%
Whole period	69%	34%

Source: ACCC analysis based on New South Wales, South Australia and Victorian Governments response to voluntary information request.

Zero dollar trades occur for a variety of reasons, so a multi-pronged approach to solutions is needed

There are several reasons why zero dollars may be the true value of a trade, as outlined in tables 10.5 (temporary trade) and 10.6 (permanent trade) below. Some reasons for zero dollar trades are more problematic than others, and require different responses to address them. The tables below include potential actions in relation to each different reason for zero dollar trades.

Table 10.5: Reasons why traders may report zero dollars for temporary trades

Examples		Is \$0 the true value?	Potential actions
<i>Trade is not commercial and no consideration was paid</i>			
Trade is between a person’s own accounts	An irrigator holds a portfolio of entitlements to mitigate water risk, and uses inter-zone trade to move all allocation to the zone in which their farm is located)	Yes	Adapt trade application and reporting processes to clearly distinguish these types of trades by allowing traders to identify if it is a related party transaction, or if the trade is in relation to a separate financial agreement
The trade is between related parties, and no monetary consideration is paid	Trade occurs between neighbouring irrigators, and consideration is non-monetary (e.g. water allocation in exchange for machinery ‘rental’)	Potentially	In interim, states should agree on standard approach
<i>Trade form does not suit trade, so traders report zero dollars to distinguish trade from regular spot allocation trades</i>			
Multiple trades are conducted to give	A broker facilitates an inter-zone trade: first, a trade from Joe’s water	No	

Examples		Is \$0 the true value?	Potential actions
effect to a single transaction, so traders report zero dollars for all trades except for the final trade	account to the broker's account; second, a trade from the broker's origin zone account to the broker's destination zone account; and third, a trade from the broker's destination zone account to Mary's account		for reporting consideration to remove uncertainty over approval processes. Traders should be educated about this standard approach
Trades are pursuant to leases, forward contracts, or for carryover parking and traders are uncertain how to report consideration paid	As part of a forward contract, Joe agrees to provide Mary with specified water allocations at a series of dates in the future. Each time, they must apply for a temporary trade to give effect to the previously agreed forward contract	No	Consider changes to trade rules which remove the incentive or need to conduct multiple trades to give effect to one transaction
Other			
Trades are conducted by an IIO to give effect to temporary trade on behalf of a customer, but no price information is available to IIO	An IIO's customer conducts a trade with a person outside the IIO's network. The customer's internal temporary irrigation right is adjusted and the IIO enters into a water allocation trade with the external party on behalf of the internal customer. The IIO may not know what price was agreed for trade.	No	Place a mandatory obligation on both internal IIO trader to report, and obligation on IIO to collect price information Educate internal IIO traders about the need to correctly report prices
Accidental misreporting	A typing error or illegible hand-written trade application causes a zero dollars price to be recorded.	No	Adopt in-built trade application error checks for when impermissible price values are entered.

Looking in more detail at water allocation trades in the Southern Connected Basin for the 2018–19 water year, the ACCC's preliminary analysis shows that:

- 28 per cent of trades in 2018–19 reported a price of zero dollars
- by volume, trade with EWH accounts for the majority of zero dollar trades. However, because EWHs tend to conduct large-volume trades, trade with EWH accounts for only around 3 per cent of the total number of zero dollar trades in 2018–19
- trades involving New South Wales and South Australian IIOs accounted for 10 per cent of the number of zero dollar trades; trades involving brokers or exchanges as buyers or sellers accounted for 6 per cent; and trades involving 'institutional Investors' accounted for 9 per cent⁸⁷⁰
- 32 per cent of zero dollar trades are for less than 10 ML per transaction.

⁸⁷⁰ See chapter 4, box 4.1 for a description of the ACCC's methodology to derive statistics on water ownership and trading activity by participant group.

These results suggest that:

- the majority of zero dollar trades are for small volumes, conducted by buyers and sellers who *do not* fall into the following types of trader categories: EWHs, brokers/exchanges (as trading principals), IIOs, and Investors. These traders are likely to be individual irrigators. This suggests that in order to significantly improve reporting of zero dollar trades, solutions will need to ensure that small traders understand their price reporting obligations, and follow them correctly
- there is still a proportion of zero dollar trades being conducted by EWHs, which are likely to be ‘true’ zero dollar trades—therefore distinguishing these trades from other types of trades should be part of the solution
- there is also a proportion of zero dollar trades being conducted by IIOs—therefore engaging with IIOs directly to improve their processes for reporting trades, especially when engaging in allocation trades on behalf of their clients (which the ACCC understands to constitute the majority of IIO allocation trade⁸⁷¹) is also part of the solution.

Table 10.6: Reasons why traders may report zero dollars for permanent trades

Examples		Is \$0 the true value?	Potential actions
<i>Trade is not commercial and no consideration was paid</i>			
Trade does not involve a change of ownership and is more akin to a ‘transfer’	An irrigator holds a water access entitlement, and establishes a tag to be able to extract water allocated to that entitlement in another zone)	Yes	Adapt trade application and reporting processes to clearly distinguish these types of water trades
A water access entitlement is traded from an IIO to a customer to give effect to transformation	Joe currently holds permanent irrigation right, and wants to ‘transform’ this into a water access entitlement held in his own name. To give effect to this process, Joe’s IIO reduces or cancels Joe’s permanent irrigation right, and trades part of its water access entitlement to Joe	Yes	Agree on standard approach for reporting consideration in the case of non-monetary trade between related parties and educate traders about this approach
Trade is between related parties, and no monetary consideration is paid	Trade occurs between neighbouring irrigators, and consideration is non-monetary (e.g. water in exchange for agricultural machinery ‘rental’)	Potentially	
<i>Other</i>			
A bundle of water rights and other assets are traded together, and traders do not separately estimate the value of the water rights traded	Joe purchases a farm from Mary, including the water access entitlement that is attached to the farm. Joe and Mary agree on a single price for the entire transaction, and report the trade of the water access entitlement at zero dollars	No	Adopt in-built trade application error checks for when impermissible price values are entered
A person trades with	Mary receives an infrastructure	No	

⁸⁷¹ This will be confirmed in further analysis comparing IIO trading records to Basin State water registry records.

the government in return for an infrastructure upgrade	upgrade grant from the government, and in return, trades part of her water access entitlement. Mary reports this trade as zero dollars	
Accidental misreporting	A typing error or illegible hand-written trade application causes a zero dollar price to be recorded, even when the applicant intended to correctly report price	No

Intermediary contributions to water market transparency

While not mandated to provide information, intermediaries now compete with registers to supply the emerging information services market (table 10.7). These providers include brokers and exchanges who use the data generated from their advisory and matching services, sometimes supplemented with publicly available registry data, to provide information to the market. While the intermediaries' data can include current market offers and trades that have not yet been approved, they provide more timely information than trade approval authorities that only publish approved trades.

Exchanges and brokers are the key source of buy and sell offer data. As part of their matching and information services, water brokers and exchanges often list their current buy and sell offers publicly or privately to members on an exchange. For example, Waterfind provides a real-time water market for allocation and entitlement trades but this is limited to its members and not publicly available.⁸⁷² Additionally, many IIOs also run their own exchanges.

⁸⁷² Waterfind, <https://my.waterfind.com.au/water-market.html>, viewed 12 May 2020.

Table 10.7: Water market information sources used by water market participants

Answers to: 1) What method to you use to value water entitlements? 2) What data sources do you use?		Banks % (n=6)	Evaluators & water brokers % (n=15)	Investors % (n=19)	Environmental water holders % (n=3)
Methods Used*	Current market price	50	53	16	67
	Volume weighted average	33	27	0	33
	Original purchase price	17	0	0	0
	Other	17	13	32	0
Data Sources	Water registries	67	73	16	67
	Water brokers	67	80	11	33
	Own data	67	20	0	0
	Property sales	0	27	0	0
	Other evaluations	17	7	0	0
	Test listing**	0	7	0	0

Source: Adapted from Wheeler and others.⁸⁷³

Notes: *Multiple mentions of methods and data sources per interview possible. **Where a water broker offers an entitlement for sale to collect bidding data, but then does not go through with the sale.

The case study below revisits our hypothetical interstate buyer in Victoria, who tries to use information available from exchanges to determine the market price for water in preparation for the allocation purchase described earlier in chapters 8 and 9.

⁸⁷³ S Wheeler and others, *Water market literature review and empirical analysis*, Consultant report prepared for the ACCC Water Market inquiry, 2020.

Box 10.3: Case Study on looking for allocation trade sale offers on broker and exchange websites

A prospective buyer in Victoria, who has a water-use licence and a linked allocation account in Trading Zone 7, wishes to determine the current market price for water using settled trades.

The buyer looks for publicly available information from exchange and broker websites but finds there is no single measure on the current state of the market. The irrigator looks to the Bureau of Meteorology website and the Victorian Water Register, but notes that they have different prices reported. The irrigator notices that lots of trades are for zero dollars and is unsure how to interpret the volume weighted average price. They also find significant variation in the amount of information provided by each information source and inconsistencies in how the information is reported.

Table 10.8: Buyer-side issues with information provided by exchanges

Information source	Information provided	Issues faced by buyer
H2OX	Summaries of trades for each trading zone and the past week's trades ⁸⁷⁴	Assumes information presented by origin trading zone
Key Water	Lists the previous day's last trade prices ⁸⁷⁵	Assumes information presented by origin trading source and unsure how representative a 'last trade' is for each trading zone
Waterexchange	Historical views for each trading zone and IIO, average weekly prices for each zone and recent individual trades pending approval from trade approval authority ⁸⁷⁶	Assumes information presented by origin trading zone. Inconsistent mix of trades into, out of and within the trading zone listed with Victorian Water Register ⁸⁷⁷
Wilks Water	Last five trades per valley ⁸⁷⁸	Some trades provide insufficient information for determining origin and destination trade zones
Waterpool Trading	Complete record of trades, including source and destination trade zones ⁸⁷⁹	Only shows intrastate trades and requires manual search for trades relevant to buyer's zone
Elders	Last 20 trades ⁸⁸⁰	Describes trading zones by destination only
Murray Irrigation exchange	Summary of Murray Irrigation sales since start of water season ⁸⁸¹	Unclear how many sales were for water traded out of IIO's network

⁸⁷⁴ H2OX, 2020, www.h2ox.com/trades-allocation/, viewed 12 May 2020.

⁸⁷⁵ Key Water, 2020, www.keywater.com.au/last-trades/, viewed 12 May 2020.

⁸⁷⁶ Waterexchange, 2020, www.waterexchange.com.au/, viewed 12 May 2020.

⁸⁷⁷ Victorian Water Register, 2020, waterregister.vic.gov.au/water-trading/allocation-trading, viewed 12 May 2020.

⁸⁷⁸ Wilks Water, 2020, www.wilkswater.com.au/temporary-water, viewed 12 May 2020.

⁸⁷⁹ Waterpool Trading, 2020, www.waterpool.org.au/traderoom/history, viewed 12 May 2020.

⁸⁸⁰ Elders, 2020, eldersrural.com.au/water-trading/, viewed 12 May 2020.

⁸⁸¹ Murray Irrigation, 2020, www.murrayirrigation.com.au/water/services/water-exchange/daily-sales-live/, 12 May 2020.

10.3.2. Secondary information: allocation and carryover, and trading rules

Like registries, state water trading rules and policies are fragmented across state-level regulation and water plans.

The NWI also committed the states to develop trading rules consistent with the principles outlined in the agreement. All states are also required to publish their trading rules.⁸⁸³ BPWTR 12.46 requires the Basin States to provide a compiled form of their trading rules to the MDBA. While available publicly, Basin States' trading rules can be based in multiple different pieces of legislation and regulations, protocols or plans made under the legislation and not easily accessible.

IIOs are also required to provide the MDBA with a copy of their trading rules, and must make them available to IIO customers.⁸⁸⁴ While these are formal documents, they are more accessible to traders familiar with a particular IIO than the states' legislative frameworks, but may be difficult to access for traders more generally, for example, because they are provided on IIO websites under a range of headings and in different levels of detail.⁸⁸⁵

10.3.3. Past progress on transparency in Basin water markets has fallen short of delivering the information water market participants need

Under the NWI, states and territories committed to establishing water market and trading arrangements that facilitated intrastate and interstate trade and water resource accounting to support public and investor confidence in the amount of water being traded, extracted, recovered and managed.⁸⁸⁶

The NWI reforms gave BOM a new water information role, with a legal mandate to collect and publish water resource management and water trading data from the states and territories and other data providers.⁸⁸⁷ The *Improving Water Information* program was the first attempt to centralise the collation and publication of Australian water information⁸⁸⁸ and required standardisation of the terms and definitions that different states had developed for water entitlements, allocations and trades.⁸⁸⁹

The states and territories agreed under the NWI to have compatible water registers for entitlements and trades (both permanent and temporary) on a whole of Basin or catchment basis⁸⁹⁰ that would go some way to minimising transaction costs through 'good information

⁸⁸² Coleambally Irrigation, 2020, www.colyirr.com.au/watermart, viewed 12 May 2020.

⁸⁸³ Council of Australian Governments, *Intergovernmental Agreement on a National Water Initiative*, 2004, paragraph 60.

⁸⁸⁴ Basin Plan Water Trading Rule 12.47 requires IIO who meet 15 of the Water Charge (Infrastructure) Rules 2010 to provide trading rules.

⁸⁸⁵ For example, Murray Irrigation Limited's webpage directs users to its exchange site www.murrayirrigation.com.au/exchange-tables/ or a separate link to permanent trade: www.murrayirrigation.com.au/water/services/permanent-trade/, whereas West Cororgan's website provides a link to a pdf download of its 'Water Delivery and Entitlement Policy 2019-2020, which contains its trading rules. See www.cororgan.com.au/images/Water-Delivery-and-Entitlements-Policy-2019-2020.-Updated-18.07.19.pdf, available from www.cororgan.com.au/policies.

⁸⁸⁶ *Intergovernmental Agreement on a National Water Initiative*, paragraphs 58(i) and 80.

⁸⁸⁷ *Water Act 2007* (Cth) Chapter 7, ss. 118–135; *Water Regulations 2008* (Cth) Part 7, ss. 7.01–7.11.

⁸⁸⁸ Bureau of Meteorology, 'Advances in water information made by the Bureau of Meteorology from 2007 to 2010', *Improving Water Information Program Progress Report*, 2010, p. 5.

⁸⁸⁹ R Vertessy, 'Water Information Services for Australians', *Australian Journal of Water Resources*, vol. 16, no. 2, 2013, p. 99.

⁸⁹⁰ *Intergovernmental Agreement on a National Water Initiative*, paragraph 59.

flows' and compatible registry arrangements.⁸⁹¹ However, this has not yet been wholly achieved. While the information to be supplied by the Basin States to the MDBA to maintain the water entitlement transfer register was prescribed⁸⁹², no guidance was provided for trading information or how registers should capture the trading of different types of water products.

Water registers were envisaged to be able to accommodate the trading of entitlements in whole or in part, temporarily or permanently, through lease arrangements or any other water product that may evolve.⁸⁹³ These commitments were formalised in the Water Act⁸⁹⁴, with little guidance except that the BPWTR may provide that the registers could be used to provide information about the trading of water rights.⁸⁹⁵ While the BPWTR require certain specific information (for example, information about certain types of water access rights, and Basin State and IIO trading rules) to be given to the MDBA or a designated central information point⁸⁹⁶, the BPWTR do not specify more generally what transactional or other water market information is to be collected or made publicly available. They also do not create obligations on Basin States or IIOs to publish certain information from their registers.

The lack of guidance and coordination has resulted in the states setting up very different register arrangements, both as internal systems and in what they publish. The differences in their systems has given rise to lags in interstate trading, even though the Southern Connected Basin States now have a file sharing arrangement (interstate trade interoperability protocol) in place.

Further, there has been little progress in developing agreed approaches for adapting water trade administration processes and water registers in line with developments as water markets mature. One key example is the evolution of leasing arrangements. While most states' legislation provide for leases as a limited-term entitlement transfer⁸⁹⁷, the ACCC understands that parties may also form lease agreements outside of these processes and instead give effect to the 'lease' agreements by applying for a series of water allocation trades as water is allocated to the 'leased' entitlement. There is no consistency in how these agreements outside of entitlement transfer framework are recorded. There has however been flexibility in processes which has allowed new products to emerge, such as forward contracts which can be managed by multiple or no entitlements to supply a guaranteed volume of water to the buyer (for example, an investor could use multiple allocation bank accounts (ABAs) to supply a single forward contract). This flexibility in allowing new products to emerge was listed as a planned outcome in the NWI.⁸⁹⁸

Depending on the type of contract entered into, these arrangement mean that 'leases' could be recorded in Basin States' registers either as a trade (lease) of an entitlement, or as a series of allocation trades. Also, in the latter case, there is no agreed process for recording in the register that a particular set of allocation trades have been undertaken pursuant to a 'lease' arrangement. When this data is forwarded to the BOM for collation, leases on entitlement registers that extend beyond one water year are published as a form of

⁸⁹¹ *ibid.*, paragraph 58(ii).

⁸⁹² *Water Act 2007* (Cth) Schedule 1 - Murray–Darling Basin Agreement, Schedule D, s. 16.

⁸⁹³ *Intergovernmental Agreement on a National Water Initiative*, paragraph 58(iii).

⁸⁹⁴ *Water Act 2007* (Cth) Schedule 3, s. 3(c).

⁸⁹⁵ *ibid.*, s. 26(3).

⁸⁹⁶ *Basin Plan 2012* (Cth), ss.12.43–12.47.

⁸⁹⁷ *Water Management Act 2000* (NSW), s. 71N; *Water Act 1989* (Vic), s. 33T; *Water Resources Act 2008* (ACT), s. 26(3); *Natural Resources Management Act 2004* (SA), s. 150(3); Sunwater, 2009, www.sunwater.com.au/customer/property-water-allocation-transfer-process/lease-of-water-allocation/, viewed 13 May 2020; Business Queensland, 2018, www.business.qld.gov.au/industries/mining-energy-water/water/water-markets/allocation, viewed 13 May 2020.

⁸⁹⁸ *Intergovernmental Agreement on a National Water Initiative*, paragraph 58(iii) states that the states and territories agreed that their water market and trading arrangements will 'enable the appropriate mix of water products to develop based on access entitlements which can be traded either in whole or in part, either temporarily or permanently, or through lease arrangements or other trading options that may evolve over time'

entitlement trade while those that start and end in the same water year are published as an allocation trade.⁸⁹⁹ Leases in the allocation data however remain mixed in allocation trade and are not separately identifiable.

There are also several other water products that have evolved since the NWI was agreed. Forward allocations and 'carryover parking' trades are executed through the allocation trade framework: from the Basin State's perspective, they are indistinguishable from 'classic' allocation trades, and are forwarded on to BOM for collation and publication with no requirement for them to be labelled differently either by the seller when completing the trade form, or by the authority when entering the trade into the system.⁹⁰⁰ These outcomes arise due to the fact that—much like leases explained above—contracts underpinning forward allocation and carryover parking trade are entered into without the involvement of trade approval authorities; the trade approval authority does not approve the forward contract, but rather the allocation trades that take place under those contracts.

10.3.4. Ongoing initiatives to improve trade information as concerns remain

While there have been improvements to enhance information transparency in Australia's water markets over time (see section 10.3.3 above), transparency and information concerns continue to impact efficiency and confidence in the markets.⁹⁰¹

Recently, the Basin Socio-Economic Assessment Panel draft report acknowledged that transparency and accountability are very important to all involved in water markets. The report noted there were transparency concerns about environmental flows in the northern Basin and general concerns about market manipulation.⁹⁰² The report included draft findings that governments must collectively do more to make credible information available and accessible to Basin communities about the beneficial impacts of enhanced environmental and working river outcomes.⁹⁰³ Similarly, the Interim Inspector General of Murray–Darling Basin Water Resource's report on the impact of lower inflows on state shares under the Basin Agreement highlighted the difficulties of communicating 'the right information to Basin communities effectively', and concluded that '[i]mproving the transparency, accessibility and availability of information—as well as people's ability to interpret and understand it—needs to be a focus.'⁹⁰⁴

Basin State and Commonwealth governments are continuing efforts to improve information flows. Key initiatives currently underway are detailed below.

Murray–Darling Basin Compliance Compact

In December 2018, the Australian, New South Wales, Victorian, Queensland, South Australian and Australian Capital Territory governments agreed to the Basin Compliance Compact (the Compact). The Compact is a collaborative, joint commitment, with an overarching objective to 'restore public confidence in water resource management in the Basin by providing transparency and accountability of surface and groundwater management and regulation, and a consistent approach to compliance and enforcement

⁸⁹⁹ Bureau of Meteorology, Explanatory Notes for Water Regulations Metadata and Contextual Information Category 6: Information about water rights, allocation and trades, subcategories 6a, 6b, 6c, 6d, 6e, 6f and 6g, 2016, p. 23.

⁹⁰⁰ *ibid.*, 2016, p. 23.

⁹⁰¹ Independent Panel, *Panel report: Independent assessment of social and economic conditions in the Basin—Draft Report*, 2020; Interim Inspector-General of Murray–Darling Basin Water Resources (IIG), Impact of lower inflows on state shares under the Murray–Darling Basin Agreement, 2020; Productivity Commission, *Murray–Darling Basin Plan: Five-year assessment, Report no. 90*, 2018; Productivity Commission, National Water Reform, Report no. 87, 2017.

⁹⁰² Independent Panel, *op. cit.*, pp. 45–46.

⁹⁰³ *ibid.*, p. 46.

⁹⁰⁴ IIG, *Impact of lower inflows on state shares under the Murray–Darling Basin Agreement*, 2020, p. iv.

practices by governments across the Basin'.⁹⁰⁵ This demonstrates Basin States and Commonwealth governments conceive transparency to be fundamentally linked to accountability and to effective enforcement and compliance.

The Compact commits the states to publish a work program to improve transparency and for the program to be fully implemented by 2025.⁹⁰⁶ The MDBA must also prepare annual reports to Council of Australian Governments and the Basin Ministerial Council on the progress of Compact commitments.⁹⁰⁷

The MDBA's 2019 Assurance Report⁹⁰⁸ demonstrates that while some progress on agreed milestones has been achieved, not all key commitments have been met and some aspects are lagging behind agreed schedules.⁹⁰⁹ For example, the report notes the following concerns in relation to transparency commitments:

- Queensland made significant progress since the previous report but missed some water information transparency and metering commitments that were due in 2019.⁹¹⁰
- South Australia is yet to publish its water information transparency improvement program (including any relevant exemptions).⁹¹¹
- Scoping for a Basin-wide system that provides publicly accessible and real time advice on environmental watering was due in September 2018 but was still not complete. The lack of progress on this priority action was highlighted in the 2018 Independent Assurance Committee report, which noted an 'apparent lack of collective commitment from some states and the [Australian Government] Department of Agriculture and Water Resources to this item' and called for a re-commitment to this Basin-wide system. While the MDBA noted some progress was made in the form of a signed funding agreement, but that 'the funding agreement does not extend to implementing the projects', and that '[t]he Australian Government Minister for Water may or may not decide to contribute to implementation, once the project plans are complete'.⁹¹²

Overall, the MDBA stated that: 'Should these [key commitments not yet met] not be completed in 2020, *the key objectives of the Compact are at risk of not being achieved, particularly with respect to transparency and accountability of water management.*'⁹¹³

This evaluation shows that despite renewed in-principle agreements on the importance of improving transparency, practical progress and sufficient compliance still lags behind intent, and funding arrangements to delivery transparency commitments are not secure.

Victoria transparency consultation process

The Victorian Department of Environment, Land, Water and Planning (DELWP) responded to stakeholders' calls for increased water market transparency in 2018–19 by initiating a new program of work on the issue. DELWP conducted stakeholder consultations in 2019, and released a consultation summary which provided useful insight into what information was

⁹⁰⁵ Australian Government, Murray–Darling Basin Compliance Compact, 2018, www.mdba.gov.au/sites/default/files/pubs/Basin-Compliance-Compact-12-December-2018.pdf, viewed 25 June 2020, p. 1.

⁹⁰⁶ *ibid.*, p. 3.

⁹⁰⁷ MDBA, 2019, www.mdba.gov.au/node/5066, viewed 22 June 2020.

²⁷⁸ MDBA, Murray–Darling Basin Compliance Compact Assurance Report 2019, 2019.

⁹⁰⁹ *ibid.*, p. 4.

⁹¹⁰ *ibid.*, p. 5.

⁹¹¹ *ibid.*, pp.5–6.

⁹¹² *ibid.*, pp.40–41.

⁹¹³ *ibid.*, p. 4.

considered most important by Victorian irrigators.⁹¹⁴ This work showed the main information pieces of interest to irrigators were on the availability of water to buy and what the ‘real time’ market price was (see box 10.4 for further details).

DELWP has since embarked on a second round of consultation on transparency issues to ‘ask water users and irrigators about what details they are comfortable sharing to ensure the correct balance between transparency and privacy has been struck’. Consultation is currently open and DELWP intends to release a report on findings in July 2020.⁹¹⁵

Box 10.4: What kind of transparency do stakeholders want? Evidence from Victoria

Victoria’s ‘Closing the Loop—Water market transparency’⁹¹⁶ report identified that people were concerned with transparency beyond just knowing who owns the water, and that transparency to them meant more than this. Some areas in which Victoria heard more transparency would be useful included:

- market concentration in both allocation and entitlements
- reasons for temporary allocation trade and to be able to see leases, forwards, carryover parking and transfers between accounts of same owner and actual allocation trades on spot market
- river operations such as identifying who owns what water in dams and how much water is allocated to deliver water
- insights on irrigation demand and activity and how much is then committed to use
- how much allocation is held by the environment, privately and by corporations
- the use of carryover over time to assess trends.

People also wanted monitoring to ensure compliance against water laws, including better enforcement.

Victorian Water Register 10-year strategy

The 10-year strategy outlines DELWP’s strategy to improve users experience with the Victorian Water Register. The strategy note’s the Victorian Water Register has progressed from a single, standalone system to a partnership across seven Victorian government and water sector organisations and is a collection of several interdependent systems.⁹¹⁷ According to the strategy:

This includes improving consistency, accuracy and completeness, as well as the opportunity to deliver new insights via integration with related data (such as climate or agricultural production).⁹¹⁸

The strategy recognises the changing needs and expectations of Victorian Water Register users, where increased population and climate change are increasing pressure on water

⁹¹⁴ Department of Environment, Land, Water and Planning (Victoria), *Water market transparency—options paper*, www.engage.vic.gov.au/download_file/20690/2913, 2019, viewed 26 June 2020.

⁹¹⁵ Department of Environment, Land, Water and Planning (Victoria), *Water market transparency*, www.engage.vic.gov.au/water-market-transparency, viewed 26 June 2020.

⁹¹⁶ Department of Environment, Land, Water and Planning (Victoria), *Closing the Loop report—Water Market transparency*, 2019, www.engage.vic.gov.au/download_file/23337/2913.

⁹¹⁷ Department of Environment, Land, Water and Planning (Victoria), *Victorian Water Register 10 Year Strategy 2019—2028*, 2019, www.waterregister.vic.gov.au/10-year-strategy, viewed 26 June 2020.

⁹¹⁸ *ibid.*

resources. This pressure is recognised as a critical driver for improving the register so that water resources can be managed effectively and efficiently.

The 10-year strategy outlines that legislative amendments will be considered to ‘streamline the transfer process and enable transactions to be lodged and processed electronically’.⁹¹⁹

The strategy also recognises that improving access to data and information will assist water users in knowing when and how to engage in water markets and support better decisions, and identifies ‘providing an interface that can be navigated easily and quickly, and processes that are clear and efficient’ as a desired outcome.⁹²⁰

Innovative digital technologies to deliver user-orientated water market information

DELWP has released the Water Market Match app to allow water users to access Victorian Water Register information across a range of digital devices⁹²¹, providing users with information on ‘Seasonal Determinations, Water Market Prices, Trading Limits and Spill declarations’ and the ability to set up customised notifications and alerts.⁹²²

In New South Wales, WaterNSW has added the ‘Water Insights Portal’ to its webpage, which is intended to provide users with ‘timely information in a visual manner to help you make informed water planning decisions’.⁹²³ As at May 2020, this includes a dashboard which consolidates key water resource information, allows users to access real-time information on surface water (including major rivers), major dam levels, dam inflows and groundwater and WaterLive, a mobile phone application. The latter allows users to access real-time data of interest to them and setup push notifications for when new, relevant data is added to WaterNSW’s ‘Real-Time Water system’, in addition to featuring interactive maps and multiple app-customisability options.

The Water Act requires Basin States and some IIOs to provide information to BOM. BOM consolidates this information and provides a dashboard showing the volume of water traded and volume weighted average prices. The dashboard was one outcome from the National Water Market System, the same initiative which looked to create a common register.

Current criticisms of BOM’s data are mostly related to the accuracy of the data which BOM receives from the trade forms lodged with the states and consequently flows through to BOM’s data quality.⁹²⁴

For example, entitlement trades data include a mix of entitlement ownership transfers, changes to entitlement water volumes, IIO transformations (although the ‘core’ water right holder hasn’t changed) and some leases. The allocation trades data also consists of a variety of water product types, with forwards, options, transfers between a single owner’s licences, shorter-term leases, and trades for environmental flows all included.

Although BOM provides some transparency over IIO internal trades, there are concerns that this data is not reliable because:

⁹¹⁹ *ibid*, p. 6.

⁹²⁰ *ibid*, p. 6.

⁹²¹ Department of Environment, Land, Water and Planning (Victoria), *Water market app now available*, 2019, www.water.vic.gov.au/media-releases/2019/water-market-app-now-available, viewed 26 June 2020.

⁹²² Department of Environment, Land, Water and Planning (Victoria), *Water Market Watch App*, 2019, www.waterregister.vic.gov.au/water-trading/water-market-watch-app, viewed 26 June 2020.

⁹²³ WaterNSW, *Customer Newsletter*, 2019, www.waternsw.com.au/_data/assets/pdf_file/0006/148749/Regulated-Newsletter-September-2019.pdf, viewed 26 June 2020.

⁹²⁴ Almond Board of Australia, *op. cit.*, p. 7; Commonwealth Environmental Water Holder, *op. cit.*, p. 5.

- the Water Regulations 2008 (Cth) do not specify the requirements relating to trade of irrigation right well enough, which leads to different interpretations taken by the IIOs in what they provide the BOM⁹²⁵
- corrections or updates to Basin State registers are not always adequately captured in revisions to BOM data, or may take considerable time to be revised.⁹²⁶

BOM has recently progressed to near real-time reporting, and has started publishing Water Reporting Summaries for Basin Catchments on a fortnightly basis.⁹²⁷ These summaries are the first phase of the larger project to deliver more detailed water reports in the Basin at a near real-time frequency.

Marsden Jacob Associates (Marsden Jacob) received a grant through the Business Research and Innovation Initiative (BRII) to investigate the potential to develop a viable water market information platform.⁹²⁸ The BRII challenge was to improve the transparency and reliability of water market information.

Through their scoping work, Marsden Jacob discovered that there was strong demand for a service that aggregates and analyses water market information and presents this information in an easier to understand and customisable way.⁹²⁹ Marsden Jacob found in their interviews that many market participants made trading decisions that were not always well informed, because the information available was time consuming and challenging to cleanse and analyse.⁹³⁰

Marsden Jacob developed the proposal for Waterflow, an app which collects and presents water market information from various sources in one place. The app was launched in 2019 and collates market information, including buy and sell offers from selected broker websites, and makes them available in one place. The app also offers market commentary and intends to 'save water participants many hours researching water prices, availability and rule considerations'.⁹³¹ In April 2020, Waterflow added Ruralco Water Brokers to its buy and sell listings, bringing the total number of participating broker firms to seven.⁹³²

DELWP have also begun releasing more information in response to its 2019 transparency consultation process. Most recently, DELWP published three new dashboards which show available water by owner type, allocation trade scatter plot, and trade opportunity and limits insights. DELWP has added new dashboards for allocation trades, available water and trade opportunities with the aim of increasing transparency and the level of information available for these areas.⁹³³ The allocation trades dashboard visualises insights on approved allocation trades in table and chart format. The allocation trades dashboards only includes what DELWP consider to be 'commercial' trades, which are defined as non-zero dollar

⁹²⁵ *Water Regulations 2008 (Cth)*—Category E includes rural water utilities, and they are required to provide data under 6b which states 'Trades or leases of Australian water access entitlements and irrigation rights'. There is no mention of temporary trade of irrigation rights in 6c which just states 'Trades of Australian water allocations'. Category E persons are required to provide information under 6c, but the definition may be distorting the reliability of this information.

⁹²⁶ MDBA, *Water Trade Price Reporting under Basin Plan, Part 1: Basin State processes and procedures for collecting water trade price information*, 2019, p. 7.

⁹²⁷ Bureau of Meteorology, *Water Reporting Summaries for MDB Catchments*, 2020, www.bom.gov.au/water/nrtwreporting/, viewed 26 June 2020.

⁹²⁸ Australian Government, 2020, www.business.gov.au/grants-and-programs/business-research-and-innovation-initiative/customer-stories/mja-waterflow, viewed 22 June 2020.

⁹²⁹ Marsden Jacob Associates, *Water Market Information Platform Feasibility Report*, 2017.

⁹³⁰ *ibid.*

⁹³¹ Australian Government, 2020, www.business.gov.au/grants-and-programs/business-research-and-innovation-initiative/customer-stories/mja-waterflow, viewed 22 June 2020.

⁹³² Participating brokers are: RuralCo, Waterpool, National Water Brokers, Wilks Water, H2OX, Key Water, and Elders. See Waterflow, 2020, Twitter, [www.twitter.com/WaterflowAU/status/1247410821866516481](https://twitter.com/WaterflowAU/status/1247410821866516481), viewed 22 June 2020.

⁹³³ Department of Environment, Land, Water and Planning (Victoria), *New market insights to increase transparency*, 2020, www.waterregister.vic.gov.au/about/news/318-new-market-insights-to-increase-transparency, viewed 26 June 2020.

trades. The available water dashboard extends the functionality of ‘available by owner type’ information to each trading zone rather than simply being available at a water system level. The trade opportunities dashboard adds detailed information on inter-valley trade opportunities in the current year and provides insights on the way these opportunities have changed over time and what factors have influenced them.

10.4. ACCC’s preliminary assessment of information transparency and current deficiencies

In order for water markets to allocate water resources effectively, stakeholders, including irrigators and other users who may have less capacity to spend resources on gathering information, need to be able to actively participate in the market. As water markets mature, participants need to be able to assess trading rules, water availability, current market trends, market products and other water policies that impact both supply and demand. This information needs to be easy to understand and available in one place.

The complexity of the system and lack of transparency of fundamental market information has given rise to a market which allows certain kinds of participants (for example, investors and brokers) to benefit from their ability to better harness fragmented information sources, at the expense of other participants such as irrigators and indigenous groups, who in many cases are now reliant on intermediaries for market information.

The ACCC considers that the main issues in the registry data are:

- difficulty in building a comprehensive view of registered trades, as information dispersed across several state websites
- lack of consistent legislative underpinning of what should be collected and published—other than NWI and Basin Plan obligations on price and compatibility
- the historical development of trading has meant that systems are not set up to capture information on the mature market which now exists
- lack of timeliness and inconsistency in timeliness
- lack of product identification which leads to traders misreporting, for example, reporting a zero dollar trade price when recording a forward contract
- IIO internal trades are not required to be reported to register, and therefore the registers show an incomplete picture of trading
- states developing their own trade processes and instructions for submitting trade applications.

Price reporting is the most important issue

Inaccurate and incomplete price recording on trade forms is perhaps the most significant issue for information publication by the registers or any other sources relying on register data. Basin States’ inconsistent approaches to water accounting and facilitating the trade of different water products and the absence of price information verification practices contribute to unreliable water pricing information. While sellers themselves are subject to trading rule 12.48 of the BPWTR requiring them to disclose price to the approval authorities, there is no subsequent obligation on the states to collect this information, and enforcement of this rule by MDBA (who is responsible for Basin Plan compliance) has proved challenging.⁹³⁴

While the accuracy of pricing information could be improved through more rigorous trade processing methods, the data also needs to be made available to the market in a more

⁹³⁴ MDBA, *Water Trade Price Reporting under Basin Plan, Part 1: Basin State processes and procedures for collecting water trade price information*, 2019, p. 2.

timely fashion. As briefly explored in chapter 9, the lags from when a trade was struck between water market participants to when pricing information is published by the Basin States contribute to price uncertainty in water markets. This issue is particularly relevant to financial contracts which exist outside of the register processes such as forward contracts—whereby the struck date may be months before the trade application form is lodged.

Fragmentation makes it difficult to know what the current market price is and how much water is available for trade

The ACCC's preliminary view is that improving the information transparency is essential for ensuring water markets work effectively and efficiently. Market participants will have greater confidence in water markets and would be more likely to trade if they have access to accurate, timely and relevant data on trade volume and prices.⁹³⁵

Assessing market depth is difficult when buy and sell offers are dispersed across a range of broker and exchange websites, and some not published at all. The ACCC does however note that a substantial number of trades are conducted on open platforms, such as Waterexchange and H2OX.

While exchanges and brokers do provide market information either publicly or to their members, there is no obligation on them to do so. There is also no overarching obligation that applies to all trades and all brokers in relation to record keeping. This has created a situation in which the information published by exchanges and brokers differs in format and timeliness, and can be difficult to navigate (as demonstrated in box 10.5 below). The lack of record keeping obligations also creates concerns around the ability for TAAs to verify transactions.

Box 10.5: A snapshot of water market information in Murrumbidgee

On 9 June 2020, the ACCC recorded a cross-section of information pertaining to current water allocation trade buy and sell offers as well as recent matches for the Murrumbidgee trading zone. While the ACCC intends to undertake more detailed analysis of water market information availability in its final report, this case-study provides an overview of a random sample taken from the market.

This information was sourced from the public websites of H2OX, Key Water, Waterpool, Waterexchange, Wilks Water and Elders, all of which are either water market exchanges or brokers who publish offers via an online bulletin board service.

H2OX does not allow access to the market spread without registering as a user, while Elders and Waterpool had no visible current bids or offers in the zone at the time of recording. This may reflect that the sample was taken on 9 June, near the end of the water year when trading is less active.

Waterexchange had the highest number of buy and sell offers. The difference in price between average volume-weighted bids and average volume-weighted offers on Waterexchange was the smallest out of the three exchanges that did have data available on the market spread.

Waterexchange also listed buy and sell offers inclusive and exclusive of trade approval authority processing fees. Several purchase offers were made at a negative price when trade approval authority processing fees were excluded, but this price balanced to zero when these fees were included. Purchase offers for a zero price may reflect trade for carryover parking or other secondary water products, but this was unclear from the

⁹³⁵ Vertessy, op. cit., p. 96.

information available on the website.

Key Water had the largest volume of water available for sale from sellers and willing to be bought from purchasers. Its volume-weighted average offer price was the highest of these three exchanges at \$661.58/ML. The volume-weighted average bid price was concentrated near \$200/ML on all three exchanges while the volume-weighted average offer price varied by up to \$258.89/ML, with Waterexchange recording the lowest at \$402.69/ML.

Table 10.9: Murrumbidgee temporary allocation market spread summary

	Average Volume-Weighted Bid Price (\$/ML)	Average Volume-Weighted Offer Price (\$/ML)	Total Bid Volume (ML)	Total Offer Volume (ML)
Waterexchange	218.60	402.69	897.0	317.8
Key Water	199.05	661.58	2640.0	793.0
Wilks Water	200.00	547.94	100.0	587.2

Both Waterexchange and Elders appear to update their recent matches frequently, with the most recent matches on Waterexchange occurring at a higher price than those on Elders relative to the volume being exchanged. Wilks Water's recent matches were updated less recently than either of these two, with its fifth most recent available match having occurred a month and a half before the date of recording.

Waterflow—which, as mentioned in section 10.3.4, aggregates exchange information—did not include trades made through Elders on 9 June in its 'last five trades' section but did feature trades made through Waterexchange on the same day. H2OX only publicly lists its most recent trade which in this case was conducted on 5 June, with 503.8 ML of water traded at \$220/ML. Key Water only lists the price of its most recent trade, which was \$233/ML, whereas while Waterpool lists all of its trades, none occurred in the Murrumbidgee zone during the 2019-20 water year. This reflects that the majority of Waterpool trading activity occurs in Victorian zones.

Table 10.10: Last five Murrumbidgee temporary allocation matches by exchange or broker

	Average Volume-Weighted Match Price (\$)	Last Match	2nd Last Match	3rd Last Match	4th Last Match	5th Last Match
Waterexchange	230.26	9 June	5 June	5 June	5 June	5 June
Elders	190.11	9 June	5 June	5 June	5 June	4 June
Wilks Water	215.93	29 May	28 May	27 May	27 May	26 April

According to the most recent estimates from BOM on 9 June, the Murrumbidgee zone was at 47.13 per cent of its total storage capacity with Blowering Dam and Burrinjuck Dam filled at 50.72 per cent and 41.42 per cent of their full capacities, respectively. This was consistent with data collected from MDBA who estimated the zone was at 47 per cent of its capacity with the respective dams at 50 per cent and 41 per cent of their capacity. The difference between the storage estimates of BOM, MDBA and WaterNSW's Insights portal on the same day was 5451 ML for Blowering Dam and 1031ML Burrinjuck Dam with average estimates of 825 150 ML and 425 323 ML, respectively.

Market depth has been identified as an information gap for some time. While the ACCC has concerns about what this means for market efficiency, there have been recent improvements in this space. The Waterflow app and website aim to bring these offers together into one place, similar to that of websites for the housing or car sales markets. Waterflow does not facilitate the trade itself, but redirects the potential buyer or seller to the relevant broker or exchange website.

Based on its analysis to date, the ACCC considers the main issues regarding information on buyer and seller offers are:

- dispersion of offers across multiple platforms, while some are not published at all⁹³⁶
- a lack of regulation for brokers and exchanges means there are no obligations on brokers and exchanges to publish information and stakeholders may not trust information on these websites and consider they may not represent the 'whole picture'⁹³⁷
- a lack of linkage between exchange and broker bids and offer data and Basin State register data means that it is difficult to trace how buy and sell offers 'turn into' actual approved trades.

Further, the key 'disconnects' which impede the flow of information to end-users are:

- data on the type of trade (forward, spot, carryover parking, etc.) and the 'struck date' of trades is held by brokers and exchanges, and not forwarded on to trade approval authorities or reported in historical trade data
- data such as the date trades are submitted, the number of refused trades, the lodging party and lodgement pathway (for example, online portal, email, paper lodgement) is held by trade approval authorities and is also generally not reported (except to some extent in Victoria), making it challenging to undertake independent reviews of trade approval services and to understand how water markets and markets for trade services are developing
- data on trade within IIOs is minimal, meaning that large segments of markets are almost completely opaque to outside parties.

State-specific legislation is a significant driver of transparency issues

State-specific legislation results in differing water rights and terminology, and trading is set up differently in each state water management act. These underlying differences mean that terminology, types of trade, and trade approval processes can all differ across Basin States, resulting in complexity for water users and differences in trade approval fees.

With the exception of Victoria, state legislation does not provide a mandate for approval authorities or water registers to provide information services. This creates a tension for these Basin States; the more they try to respond to stakeholders' needs for improved data and greater transparency, the more they are stepping outside their mandated roles, which may make it difficult to justify time and resources needed to deliver these services. The ACCC's preliminary view is that other Basin States should implement the approach already taken in Victoria, and clearly mandate a more expanded role for trade approval authorities and water registers which better fits with market participants' needs and expectations. The ACCC however considers that legislative change, while a necessary step, will not alone be sufficient to solve transparency issues.

⁹³⁶ Peer-to-peer trading, or trading through some brokers will not appear online as 'bids' or 'offers'.

⁹³⁷ The Robinvale Table Grape Growers Advocacy Group, *Submission to the Murray–Darling Basin Inquiry*, January 2020, p. 5, and Almond Board of Australia, *Submission to the Murray–Darling Basin inquiry*, March 2020, p. 16.

10.4.1. Secondary information can be difficult to access and interpret

Market participants need information which allows them to understand the broader context in which markets operate and the impacts or outcomes associated with trading decisions. The ACCC's analysis to date shows this information can be difficult to access and interpret.

Market rules are distributed across various documents, making it a time consuming task to find and assess relevant information, particularly if someone is trading in a zone they are not familiar with. Ability to dedicate time to deciphering these documents varies considerably between market participants, and the level of complexity of policy information differs across states.

Allocation policies are different in each state

While the policies themselves differ, for instance, New South Wales are known to be less conservative than Victoria and South Australia⁹³⁸, where the policies can be found and how well announcements are communicated also differs.

The ACCC understands that water sharing arrangements can be found in the following documents across the states:

- Operation Manuals (Water Plan) in Queensland
- Water Sharing Plans in New South Wales
- Water Resource Plans in Victoria
- Water Allocation Plans in South Australia.

Allocation announcements are then usually made available on the following websites:

- in Queensland, Sunwater⁹³⁹ or Department of Natural Resources, Mines and Energy⁹⁴⁰ publish the announcements
- in New South Wales, the announcements are published by the New South Wales Government⁹⁴¹
- in Victoria (called seasonal determinations), are published by the Northern Victoria Resource Manager⁹⁴²
- in South Australia, the Department for Environment and Water publishes announcements.⁹⁴³

The ACCC notes there are concerns about how the decisions enabled by the sharing plans are being made, particularly in New South Wales. A perceived change in volumes being allocated and a lack of transparency over how decisions are made led some stakeholders to believe there was a change in policy in the sharing plans.⁹⁴⁴ The ACCC notes that the National Water Commission considered there was a need in 2009 to improve the transparency of water plans by clearly setting out the trade-offs which take place between

⁹³⁸ See section 12.3 for a broader discussion of states' allocation policies.

⁹³⁹ Sunwater, 2019, www.sunwater.com.au/customer/announced-allocations/, viewed 22 June 2020.

⁹⁴⁰ Business Queensland, www.business.qld.gov.au/industries/mining-energy-water/water/authorisations/announced-entitlements, viewed 22 June 2020.

⁹⁴¹ Department of Planning, Industry and Environment (NSW), www.industry.nsw.gov.au/water/allocations-availability/allocations/statements, viewed 22 June 2020.

⁹⁴² Goulburn-Murray Water, 2020, www.nvrm.net.au/seasonal-determinations/current, viewed 22 June 2020.

⁹⁴³ Department for Environment and Water (South Australia), www.environment.sa.gov.au/topics/river-murray/water-allocations-and-announcements, viewed 22 June 2020.

⁹⁴⁴ Coleambally Irrigation Co-operative Limited, op. cit., p. 6.

the competing users, and to better communicate this to stakeholders.⁹⁴⁵ This issue is explored further in section 13.2.

New South Wales carryover policies can be hidden within water sharing plans

The ACCC's preliminary view is that Victoria and South Australia have both invested in providing clearer information on their carryover policies by consolidating information into a information sheet on their website.⁹⁴⁶ However, for New South Wales, and particularly in the Northern Basin, this information is only found in the Water Sharing Plans, which has complex language.⁹⁴⁷

Trading rules can be dispersed across multiple documents

The interaction of BPWTR, state legislation (and subordinate regulations, protocols, orders and sharing plans), the *Water Act* including Schedule D of the Basin Agreement (which itself is a Schedule of the Act) and the protocols made under it can make it difficult to navigate to understand 'how, where and when can I trade my water'.

In New South Wales, trading rules are based on water sharing regions, and as such, there are multiple documents which govern trade in New South Wales and interstate trade in the Southern Basin and Border Rivers. Whereas Victoria has a set of rules which apply to all declared systems.⁹⁴⁸

There are intermediaries who provide information services to irrigators, and as explored in chapter 13, New South Wales and Victoria have been progressing improvements in this regard to show more information about IVT accounts and trade opportunities and limits.⁹⁴⁹

The ACCC however considers there would be value in better collating and simplifying this information, following an approach similar to Victoria.

10.4.2. Summing up: water markets have evolved beyond the original National Water Initiative commitments

While the states committed voluntarily through the NWI to improving water register information, they remain bound by their legislative underpinnings, such as differing terminology, different trade types, different trade rules and different data collection and publication requirements.

The Water Act further provides no mandate on states to collect, store and publish consistent information. This has resulted in the states developing their own approaches to water entitlement frameworks, trading, recording and publication. Therefore, even if Basin States met NWI commitments to having compatible registers and timely information flows, there is still the need to better capture data on the different water market products which have been introduced post-NWI. Water markets have evolved beyond the NWI's more binary

⁹⁴⁵ NWC, *Australian Water Reform 2009: Second biennial assessment of progress in implementation of the National Water Initiative*, 2009, p. 15.

⁹⁴⁶ Department of Environment, Land, Water and Planning (Victoria), www.waterregister.vic.gov.au/water-entitlements/carryover/carryover-rules, viewed 22 June 2020; Department for Environment and Water (South Australia), www.environment.sa.gov.au/topics/river-murray/about-river-murray/water-allocation-and-carryover/south-australian-private-carryover, viewed 22 June 2020.

⁹⁴⁷ For example *Water Sharing Plan for the Belubula Regulated River Water Source 2012*, Part 9, division 1, cl. 45, and *Water Sharing Plan for the Lachlan Regulated River Water Source 2012*, Part 9, division 1, cl. 55.

⁹⁴⁸ Department of Environment, Land, Water and Planning (Victoria), <https://waterregister.vic.gov.au/water-trading/trading-rules>, viewed 22 June 2020.

⁹⁴⁹ WaterNSW, 2020, <https://www.waternsw.com.au/customer-service/ordering-trading-and-pricing/trading/murrumbidgee>, viewed 22 June 2020. ; Department of Environment, Land, Water and Planning (Victoria), <https://waterregister.vic.gov.au/water-trading/allocation-trading>, viewed 22 June 2020.

conception of just two markets (temporary/water allocation and permanent/water access entitlements).⁹⁵⁰

The ACCC's preliminary assessment is that the quality of water register data would greatly improve if state water legislation clearly mandated the collection, verification and recording of information such as price, trade type, product type, agent/broker name and date of agreement. As a market participant, the only currently practicable method to differentiate between a 'commercial trade' and a related-party transfer is to remove zero dollar trades from the data, however the ACCC does not consider this an effective way to classify transfer types.

The ACCC broadly agrees with the Productivity Commission's assessment of progress in implementing the NWI vision as it applies to water markets and transparency:

*Overall, much has been achieved. Reforms have mainly been progressed through incremental steps, which has led to a somewhat complex trading environment. For example, efforts have been made to make the different arrangements of each MDB jurisdiction work together better, rather than to enforce uniformity.*⁹⁵¹

The ACCC's preliminary view is that water markets are now reaching the point where both opportunity and necessity to reform trading processes to deliver more transparency are aligning:

- governments have largely settled key aspects of setting the 'cap' aspect of the 'cap-and-trade' system: even though the 'gap' is not yet 'fully bridged', and differing views remain on the final portion of water recovery, many water resource plans have been accredited by the MDBA and there is less need for states to focus on the 'cap' aspect, leaving more room to focus on the 'trade' aspect (section 12.2 explores the extraction cap (Sustainable Diversion Limit) further)
- new digital tools are reducing the costs of information provision and allowing for user-centric delivery models
- water markets have matured to the point of developing products which do not neatly fit into the simple 'allocation/entitlement trade' paradigm envisaged under NWI commitments.

In certain zones in the Basin, water traded in from other zones and states forms a significant proportion of water account credits (see section 3.3). These types of trades and water use highlight the need for harmonisation across zones.

Questions for stakeholders

- What information do you think is critical to your ability to make water trading and investment decisions?
- How do transparency and data quality issues impact your trading activity?
- Do you agree with the ACCC's preliminary analysis of the key transparency issues? Is anything missing?

⁹⁵⁰ The NWI does envisage different products developing over time, but NWI actions are couched in terms of 'temporary' versus 'permanent' markets and there is no specific action or commitment to provide clear information on different water market products.

⁹⁵¹ Productivity Commission, 2018, *National Water Reform*, Report no. 87, 2017, p. 118.

11. Solutions to improve trade processes, transaction costs and information

Key points

The ACCC's preliminary findings indicate that while trade-related services are crucial to market functioning, current provision of trade-related services produces several adverse impacts on transactions costs and transparency, which the ACCC considers may be hindering the efficiency of water markets:

- Trade approval processes and costs are too complex and vary considerably depending on the context of individual trades. Trade approval processes and the accuracy and availability of water market data need to be improved, simplified and standardised across states and trading zones, particularly in the Southern Connected Basin. Standards and agreed processes need to be consistent and mandated, not aspirational or voluntary.
- Improved integration is needed between private exchanges, public approval authorities and water registers, along with better integration of irrigation infrastructure operator registers with broader water accounting, trade processing, and information frameworks.
- Water market information needs to be available in one place, be easily understood, be made available quickly, and in a way that users can easily customise. There should be greater use of innovative digital technologies to deliver water market information in 'user-centric' ways.

The ACCC notes that service providers are already aware of many of these shortcomings, and that there have been recent and promising developments by way of enhanced integration between IIOs, exchanges and approval authorities, integration between water authorities and registers, interstate file sharing, registry upgrades, and new technology trials in other Australian water markets, which together go part way towards addressing the needs identified above. Movement toward greater digitisation and integration, and timelier information provision is already underway.

However, significant steps remain and key decisions on direction are yet to be made.

- The ACCC's preliminary view is that there are 'small wins' which could be implemented in the near term, and some medium- to long-term reforms which could help to address the issues identified in chapters 8, 9 and 10 (as well as conduct issues).
- The ACCC is also considering a range of options which entail more significant change, but which may have the potential to considerably improve the 'user experience' of engaging in trade, while at the same time delivering better quality information in a more timely manner to market participants.
- The ACCC acknowledges, however, that the solutions discussed in this chapter are not likely, in isolation, to resolve all market issues and that other reforms proposed in other Parts of this report will be essential to the effectiveness of the proposed solutions. Some solutions are also more interdependent and therefore reliant on other changes, while others are able to support a more flexible approach.
- The ACCC seeks feedback on this suite of options aimed at improving trade processing, transparency and transaction costs.

11.1. Overview of issues—what needs to be fixed?

The ACCC's preliminary analysis has identified the following key problems:

- Trade processes are too complex:
 - Some trades require multiple application forms, approvals and registration: Interstate trades require form lodgement in both relevant states, and trades into and out of irrigation networks require at least two forms and the approval of multiple approval authorities.
 - Inconsistent terminology and differences in the underlying legislative framework can make interstate trade confusing
 - Complicated trading rules and their dispersed publication may be impeding efficient trading as those engaging in the market may not be fully aware of all trading rules
- Processing times and approval fees differ across states, which advantages some market participants over others:
 - *Differences in systems can slow down interstate trade:* While Victoria has automated most of its temporary trade processing, other states continue to rely on manual trade processing (although online lodgement is possible). These manual processes can slow down trade, and particularly impact interstate trading. Applications in each state are not subject to the same set of assessment criteria and this may also impact trade processing times.
 - *Differences in trade approval fees can distort market activity:* government approval fees for water allocation trade in South Australia are significantly higher than in Victoria and New South Wales, and brokers and exchanges have reported to the ACCC that they provide services (such as aggregation services) to assist clients to avoid or reduce approval authority fees.⁹⁵² Further, some IOs have higher approval fees for trades out of their network compared to trades into their network (see chapter 9).
- Limited access to timely and reliable water market information.

One key concern the ACCC heard from stakeholders was that it can be difficult to find the 'source of truth' for many different kinds of information.⁹⁵³ This problem arises when there are multiple sources for the same information (for example, multiple derivations of the current 'average' price), where pieces of related information are spread across multiple sources (for example, current buy and sell offers are spread across multiple intermediary websites and some may not be online at all), or where information is hard to find (for example, details of water allocation policies are often set out in water resource plans which are not 'user friendly'). The ACCC's preliminary assessment is that there are several key reasons for these problems:

- *Fragmented information:* Transactional information for trades of Tradeable Water Rights (TWR) is recorded on many separate registers or systems, held by many different entities, including Basin States, IOs and exchanges. Different information is published from each of the states' registers and these can be difficult to engage with (see section 10.4).⁹⁵⁴
- *Inconsistent and unreliable information:* some key pieces of information may be published by multiple sources, but updated at different times or measure things slightly

⁹⁵² H2OX, Submission to the Murray–Darling Basin, February 2020, p. 9.

⁹⁵³ Murray Valley Winegrowers, Submission to the Murray–Darling Basin inquiry, February 2020, p. 3.

⁹⁵⁴ The ACCC acknowledges recent initiatives to improve transparency, as discussed in chapter 10.

different—resulting in inconsistent information. For example, BOM trading data may not precisely match what has been published by state register websites.

- *Information gaps:* Information collected by trade approval authorities varies depending on the type of trade. Insufficient information is collected to identify the development of new water products. Key market information such as the ‘struck date’ and the type of trade are also missing. IIOs may not record price data at all for internal trades (see section 10.4).
- *Trade forms do not adequately capture all relevant trading data:* Contractual arrangements are separate to trade approval processes. This means authorities do not have oversight or access to trading data within contracts, meaning such data is not routinely captured, and does not serve to verify trade information reported on trade application forms (that is, no evidence is provided that the true price of a trade is reported) (see section 10.4).
- *Poor quality price data:* Stakeholders are concerned about the high proportion of trades which are reported as having a price of zero dollars. There are several reasons why traders report zero dollars, some less legitimate than others. The existing Basin Plan Water Trading Rules (BPWTR) obligation for prices of water access rights to be reported by sellers⁹⁵⁵ is poorly understood by market participants.⁹⁵⁶ Further, it can be confusing to report price for new products (e.g. forwards and carryover parking), and correct reporting of price is difficult to enforce because approval authorities have no mandate to gather evidence on prices paid.
- *Information asymmetries:* The fragmented nature of trade-related services have enabled some entities to collect more market information than others, particularly about buy and sell offers in different zones, how prices differ according to trade type (for example, regular or ‘spot’ allocation trades versus forward allocation trades) and the ‘struck date’ of trades. This is particularly concerning in light of the fact that some brokers operate both as service providers and as trading principals (as discussed in chapter 6). Information asymmetries can also create or help sustain imbalances between large and small traders who compete with each other in water markets.

In sum, the problems identified above have created a fragmented and sometimes inconsistent picture of water trade information, with differences in the accuracy and timeliness of information across trading zones and states. This causes transaction costs to be unequally distributed across traders and at times can lead to poor decision-making. For example, where trading decisions are made based on calculations of average prices rather than the local current market prices, or where inter-zone price comparisons are affected by a range of quality issues in the underlying datasets. The fragmented approach to trade processing has resulted in delayed processing times for trades across state borders, which can alter trading and investment decisions. For example, a water user may need to invest in on-farm storage or a different portfolio of water rights because inter-zone / interstate trades take too long to be helpful for managing high variability or unexpected changes in water demand.

The ACCC’s preliminary assessment is that these problems give rise to four main needs which solutions need to meet:

- *Trade processing needs:*
 - Improve consistency of terminology across the states.
 - Simplify trading rules.

⁹⁵⁵ The obligation extends to all persons disposing of a water access right; the term “sellers” is used here for simplicity.

⁹⁵⁶ Deloitte, Water Trade Price Reporting under Basin Plan, Part 2: Independent assurance report of individual trades, 2019, p. 2.

- Reduce administrative burdens, both on applicants and trade approval authorities.
- *Need to reduce and harmonise transactions costs:*
 - Improve trade processing times, particularly for interstate trade.
 - Streamline trade processing, and reduce scope for errors.
 - Harmonise trade approval fees for the same trade type across jurisdictions.
- *Transparency needs:*
 - Improve the quality of public information (for example, via automated error checking).
 - Improve access to public information.
 - Improve timeliness of information.
 - Address information asymmetries (limiting the potential negative impacts of private information).
- *Need to improve regulatory oversight:*
 - Improve potential to monitor trader and water market intermediary behaviour.
 - Reduce cost of obtaining market information and increasing the cost of deliberately misreporting information, thereby reducing the scope and incentive for traders or intermediaries to engage in misconduct.

The ACCC recognises that Basin States currently have a number of initiatives in progress to improve trade approval processes⁹⁵⁷, upgrade water registers⁹⁵⁸, and provide timelier, more accurate and more ‘user-friendly’ data and information to the public.⁹⁵⁹ While the ACCC supports these initiatives, it considers a broader approach is required to improve trade approval and water information sharing processes across the Basin.

The ACCC also recognises that solutions discussed in this part are inter-connected with solutions canvassed in other Parts of this report.

11.2. Short- and medium-term solutions to address informational and transaction cost problems stemming from trade-related services

11.2.1. ‘Small wins’: improving transparency and data accuracy within the existing trade framework

The ACCC’s preliminary view is that a technological solution can be developed to improve trade processing and the availability of water market information, although various changes are needed to support its implementation. The ACCC has identified some short-term solutions (some of which were identified by MDBA Audit Report) which could create some ‘small wins’, with only minor changes needed to the existing trade framework.

The ACCC’s preliminary view is that the following ‘small wins’ should be implemented by the Basin States:

⁹⁵⁷ For example, Victoria, New South Wales and South Australia have been working together through the MDBA-facilitated Trade Working Group to identify commonalities and share progress of changes. SA is completely overhauling their system, due for completion in 2021, and New South Wales are making improvements as well.

⁹⁵⁸ For example, South Australia is modernising its water registry and is expected to improve its future trade processing capability (see appendix C).

⁹⁵⁹ See section 10.3.4 which provides examples of customisable apps being developed by New South Wales and Victoria, and the Waterflow water information platform.

Increase interoperability and harmonisation by continuing current work towards consistent terminology and data structures

The ACCC acknowledges that the Basin States have made recent progress to improve interoperability, modernise registries and participated in information sharing working groups. The ACCC supports these steps and encourages further progress, but also considers there is scope to better align initiatives and to deliver solutions which operate across jurisdictions, rather than having different entities make progress at different paces and towards individual goals. The states should work towards consistent terminology and data structures.

Improve information provided to the Bureau of Meteorology

The ACCC's preliminary view is that three key changes are needed to improve the usefulness of water market data collected and reported by the Bureau of Meteorology under the Water Regulations 2008 (Cth) as a reliable source of up-to-date market information, as opposed to its usefulness for aggregate water accounting purposes:

- Basin States should improve trade data validation and quality checking processes before providing data to BOM.
- BOM to improve metadata to allow users of BOM information products to better understand where revisions or updates have occurred.
- Update the Water Regulations 2008 (Cth) to more clearly specify data reporting requirements for trade of irrigation right (the ACCC recognises this requires regulatory change and therefore is likely to take longer than the above two aspects).

See also preliminary recommendations below in relation to a water market information platform.

Trade forms should capture reason for trade or trade type, trade source, lodgement pathway and lodging party

The ACCC's preliminary view is that the information made available on contractual leases⁹⁶⁰ (not registered leases), forwards, carryover parking and potentially new derivatives, is insufficient. It is currently difficult to ascertain how commonplace these trade types are, but Marsden Jacob have recently estimated that around 5 to 30 per cent of the allocation market are secondary market products.⁹⁶¹ Trade forms need to be updated to require market participants to identify the type of trade or reason for the trade (e.g. transfer between own accounts, spot, forward, carryover parking, option). Information captured should be sufficient to distinguish transfers between a trader's own accounts and trade with related parties from 'real' commercial trades, and to identify different types of commercial and non-commercial trades.

Further, the ACCC also recommends collection of data on:

- Trade source (lodging party to declare whether the trade was matched on an exchange, via a broker, occurred via direct negotiations between buyer and seller)
- Lodgement pathway (for example, paper application, emailed application, online portal⁹⁶²)

⁹⁶⁰ That is, where 'leases' are given effect to via a series of water allocation trades from lessor to lessee, as allocations accrue to the 'leased' entitlement. This is different to a registered lease of an entitlement, under which the benefits of the entitlement are transferred to the lessor for the period of the lease.

⁹⁶¹ Marsden Jacob Associates, Murray–Darling Basin Water Market Products Scoping Study Milestone 2—Plain English Brief, 2020, p. 4. Available at: <https://www.mdba.gov.au/sites/default/files/pubs/Murray%E2%80%93Darling%20Basin%20Water%20Market%20Products%20Scoping%20Study%20-%20brochure.pdf>.

⁹⁶² In the case where there are multiple online portals—such as in Victoria—this should extend to identifying *which* online portal was used.

- Lodging party (for example, where a trade was lodged by an intermediary on behalf of a client, the name and/or ID number of the intermediary).

The ACCC's preliminary view is that Basin States could adopt an approach similar to the Victorian Water Portal, which collects data on lodging party and lodgement method (for example, whether the trade was lodged via the Broker Portal or API, the *MyWater* portal, or applications made directly to water corporations), and now publishes names of brokers registered to use the portal. This could be expanded to report trading statistics by broker.

The ACCC considers these changes will:

- aid price discovery for innovative water market products and assist the development of new products (particularly by generating more reliable statistics on uptake and pricing for new products)
 - this is particularly important in relation to carryover parking trades, in that carryover parking is a proxy market for carryover eligibility, and as such prices can be expected to differ markedly from temporary trades (e.g. water allocation spot and forward markets). At present, there is very limited data on willingness to pay for access to carryover, making it difficult for that market to operate efficiently
- improve information on trade between the consumptive and non-consumptive pools, and allow improved understanding of the trading activities of environmental water holders
- aid any efforts to monitor market activity and trade processing, including enabling identification of systematic differences in trading activity, price, trade approval times and trade approval outcome depending on product type, lodgement pathway (particularly online versus offline), and lodging party
 - this ties in closely with options to regulate intermediary and trader conduct, discussed in chapter 7
- improve the quality of water market information more generally—for example, by allowing more accurate and up-to-date estimates of average prices for temporary trade (spot market).

Remove the ability for zero dollar trades to be approved or recorded unless certain conditions are met (as exception).

Action is needed to tighten and harmonise rules governing when reporting \$0 as the trade value is appropriate, what evidence needs to be supplied to substantiate a 'true' zero dollar trade, and to provide more information to the market about the reasons for these trades. The ACCC considers part of this could be addressed by improving knowledge of price reporting obligations, and better reconciling trade types being conducted in the market with what is required to be recorded by approval authorities and registers.

For example, applicants should be required to declare the reason for a zero dollar trade – if a reason is not provided, the trade form should be treated as invalid.

Creating more mandatory data fields in trade forms and moving trade forms online will assist in implementing this change.

11.2.2. Medium term outcomes: improving transparency and data accuracy with some more significant policy or system changes

The ACCC has also identified a range of medium term solutions, which like the ‘small wins’ would work to support any new technological solutions (discussed in 11.3.1 to 11.3.8). The ACCC’s preliminary view is that all of these medium-term options should be adopted.

Each Basin State should have a clear and standardised legislative mandate to keep a register to record all entitlement trades and all allocation trades.

The ACCC’s preliminary view is that the specification of state registers roles and functions need to be standardised (such as requiring each state to maintain a separate entitlement, entitlement trade, allocation trade, water use register), along with standardisation of information collection on trade forms (this ties to section 8.7 standardising trade processes).

All trading information should be required to be stored on a register, not just within water management systems where the purpose of the information is how it affects ownership and water account balances. The ACCC understands that some states already have a prescribed role to collect and store this information, but recognises a need to standardise and mandate this role.

Each state’s water management law should clearly specify water market information roles for water registers

There should be a clear legislative mandate for Basin State agencies to provide information services based on registry data, with clear publication requirements that should be specified in delegate legislation so they can be changed from time to time as needed.

Irrigation Infrastructure Operators should be required to establish and maintain standardised registers and publish trade data

As discussed in section 4.1, IIOs in New South Wales and South Australia are among the largest holders of water access entitlement in the Southern Connected Basin. The ACCC considers IIOs should make data on trade within, into and out of their network publicly available to support decision-making for trading water into and out of IIO networks where it is economic and productive.

The ACCC’s preliminary view is that substantially improving the accuracy and completeness of market data in relation to trade involving IIOs, will require IIOs to establish and maintain comparable registers for both temporary and permanent trades, within, out and into their networks. While the ACCC understands that individual and aggregate trade data is currently reported by some IIOs to the BOM, and some information is annually reported to the ACCC, mandating standards for IIO registers and trade data reporting will assist this information collection process and also increase transparency.

The ACCC considers that the framework in Victoria, where the VWR is a partnership between DELWP and the authorities, provides a sound example of what could be achieved in the other states. However, the ACCC acknowledges that IIOs in New South Wales and SA are not government agencies, and therefore that public-private partnerships are needed in these cases to deliver an integrated approach to trade approvals and water information.

The ACCC is also mindful that this would require investment in IIO IT systems, and that some IIOs currently have much more advanced record-keeping processes and IT systems than others. The ACCC seeks feedback on the merits of developing a customisable IT application that has been designed to capture and report data in a standardised manner, consistent with reporting requirements and other relevant legislation (in particular, privacy legislation). The ACCC notes the submission of Coleambally Irrigation Co-operative Ltd

(CICL), which identifies that the existing National Irrigation Corporations Water Entitlement Register (NICWER) could form the basis of such a standardised registry framework for IIOs:

CICL is a member of National Irrigation Corporations Water Entitlement Register (NICWER). This is a national register which includes a publically searchable facility, where entitlements which are not captured on the statutory Government registers can be accessed, like a title search or Water Access Licence search (applicable to NICWER members) and encourages the ACCC to consider this register as an option for other Irrigation Corporations. The register can be accessed at <http://www.nicwer.com.au>.⁹⁶³

Currently CICL is the only NICWER member within the Basin. The ACCC seeks feedback from other IIOs on the whether NICWER could form the basis of a registry and trade approval IT system that could be used by all non-government IIOs within the Basin.

The ACCC notes that, in line with NWI principles for costs recovery, since the benefits of these reforms will accrue to market participants generally, and possibly entitlement holders more broadly, costs should be borne by market participants generally (rather than, for example, customers of a particular IIO who may need to update their registers).

Questions for stakeholders

- Do you consider the publication of IIO trading data (internal and external) would be of benefit to all water traders?
- Would a customisable IT application be an efficient solution for standardisation of IIO registers and trading data? Would the National Irrigation Corporations Water Entitlement Register form a useful basis for this?

Standards for trade processes and reporting requirements should be implemented

For any new technological solution to improve trading in the Basin, trade approval processes first should be improved, simplified and standardised (as much as possible) across states and trading zones, particularly in the Southern Connected Basin. There is a need to establish a clear and comprehensive trade processing and market reporting framework governing all entities who process trades—including brokers who provide matching services, exchanges, IIOs and Basin State approval authorities:

- Standards and agreed processes for processing trade applications and recording and disseminating trade data should be mandated and consistent across jurisdictions. These should apply to all IIOs and Basin State approval authorities. Any agreed standards and processes should be mandated and be specific, expanding on the original NWI commitments to establish institutional and regulatory arrangements to facilitate intrastate and interstate trade. For example, standards for classifying trade types will need to be developed and adopted uniformly by the states. Standards should also be regularly reviewed and updated to account for technological and process improvements.
- There should be standardised record-keeping and continuous disclosure rules placed on exchanges and brokers, requiring buy and sell offers to be presented on websites in a consistent and timely manner (as discussed in section 10.4).
- The framework for water accounting should be consistent across the states. For instance, while an allocation trade in Victoria is from an Allocation Bank Account to another (or to interstate), in New South Wales an allocation trade is from a WAL. While practically this has little difference for the traders (except for fees in setting up a WAL), it

⁹⁶³ Coleambally Irrigation Co-operative Limited, Submission to the Murray–Darling Basin inquiry, February 2020, pp. 8–9.

can make the frameworks confusing and likely creates delays in interstate trading and continues to be a block in developing harmonised solutions to interstate trading.

- The Basin States should work towards consistent tradeable water rights frameworks.
- The ACCC considers that ABNs or another common identifier for trading parties should be introduced across the Basin to improve trade processing. The identifier would need to have mutual recognition across the states, and in conjunction with other solutions, would work to remove the need to submit trade applications in both origin and destination states. Further, individual transactions should also be assigned a single identifier which is recognised across jurisdictional boundaries.
- The ACCC considers Basin Plan water trading rule 12.48 should be revised to require prices to be reported for all tradeable water rights, including irrigation rights and water delivery rights, and not only water access rights. It should also include a clear obligation on all TAAs to collect, record and publish this information.
- Improved integration is needed between private exchanges and public approval authorities and water registers, and to better integrate irrigation infrastructure operator systems with broader water accounting, trade processing, and information frameworks. The ACCC understands that there are some current arrangements in place between exchanges and approval authorities (for example, Sunwater and Waterexchange in Queensland⁹⁶⁴, and the Victorian Water Register and various brokers and exchanges⁹⁶⁵). The ACCC considers there is value in exploring how these types of arrangements could be expanded.

Standardised trade processing across the states by implementing the above changes should result in consistent trade application fees, processing times and publication of trading data. However, the ACCC recognises this will affect states' approaches to cost recovery.⁹⁶⁶

There is value in requiring contracts for leases, forwards, and carryover parking to be reported to registers and/or annotate allocation trades conducted under a contract

The ACCC considers that the current method for recording of trades associated with secondary products such as leases, forwards, and carryover parking is reducing the quality of the rest of the allocation trade data. The actual arrangements in place are opaque, with little and delayed information ending up on trade forms and on the public registers.

The ACCC's Retail Electricity Pricing inquiry found a similar issue in the wholesale electricity market, where trades conducted on the NEM or as derivatives on the ASX were publicly available, but over-the-counter trades (OTCs) were not.⁹⁶⁷ The ACCC found that these contracts were opaque, with only the parties involved knowing the details of the arrangement.

⁹⁶⁴ Sunwater, New water trading platform a win for regional Queensland, media release, 18 September 2019. Available at: <https://www.sunwater.com.au/2019/09/18/new-water-trading-platform-a-win-for-regional-queensland/>.

⁹⁶⁵ The VWR broker portal and broker API—for more information see: <https://waterregister.vic.gov.au/about/news/313-water-brokers-accessing-the-online-broker-portal>.

⁹⁶⁶ See section 9.2.1 for a preliminary analysis on how trade values compare to the costs for maintaining water registers and processing trade approval applications in New South Wales, Victoria and South Australia.

⁹⁶⁷ ACCC, Restoring electricity affordability and Australia's competitive advantage, Retail Electricity Pricing Inquiry—Final Report, 2018, p. 106. The ACCC recommended that: 'The NEL should be amended so as to require the reporting of all over-the-counter (OTC) trades to a repository administered by the AER. Reported OTC trades should then be disclosed publicly in a de-identified format that facilitates the dissemination of important market information without unintentionally revealing the parties involved. The requirement should be implemented to align with (or be eligible for) any OTC reporting requirements under the NEG. The AER, AEMC and AEMO should have access to the underlying contract information, including the identity of trading partners.'

While the ACCC understands that the temporary and permanent TWR trades that give effect to these contractual arrangements are reported to the approval authorities (and in some instances also registers) already through seeking approval of the trade, for the reasons discussed in section 10.4 this is not providing the market with sufficient information about these arrangements. The ACCC proposes a similar approach to that developed in REPI; that the underlying contract information be made available to the register and stored on a central repository. The ACCC's preliminary view is that there may be merit in creating the ability to register contracts with approval authorities and annotate allocation trades conducted pursuant to a contract with an identifier such that all allocation trades arising under one contract can be identified together. The ACCC does not propose that contract details be made publicly available; the intent is to be able to identify the 'collection' of trades which all take place under a particular contractual arrangement, in order to better understand trading activity.

The ACCC notes that this approach may be costly and burdensome on parties. It is therefore necessary that this increased transparency provides substantial benefits.

The ACCC considers that this approach could benefit river operators by providing early indication of delivery demand in valleys where the forward is to be delivered. This forward demand information could also be helpful for market participants to understand current and future pricing by understanding the amount of water already committed for the year to forward contracts.

Different types of entitlement trades and allocation trades need to be better identified through a new and standardised 'dealings' framework

While better recording of trade type was identified above as a 'small-win', the ACCC considers that in the medium term, there should be an agreement on a set of 'dealings' enabled across the Basin. This will better support information transparency and ease of trading (such as, there will be a separate form for trades between someone's own account which will not ask for a price to be recorded).

Questions for stakeholders

- What market information do you use before entering into a contract for a secondary market product? Would you be more likely to use secondary market products if there was more information available on them, for instance, if the registers published current registered contact prices?
- Do you consider that the Basin Plan Water Trading Rules (BPWTR) should be updated to include requirements on Trade Approval Authorities to collect more information on trades?
- Do you consider that price reporting obligations on sellers under section 12.48 of the BPWTR are well understood?
- Do you consider that section 12.50 of the BPWTR, which applies to states to make water allocation announcement generally available is sufficient? Would you support extending this obligation to require consistency across the states' announcements?
- Do you consider that each state should make available, in one place, the following:
 - how much has been allocated to entitlement holders
 - what the current carryover limit is applying to each zone, with clearly explained reasoning if there are any differences
- historical trading information, with sufficient detail to understand what products are being traded and for what price

- current buy and sell offers to understand market depth and current pricing
- trading and carryover policies and rules.

11.3. Options for longer term major technological change

There are various models which could be adopted to improve consistency across state registers. This ranges from just improving what BOM collect and publish by updating the regulations⁹⁶⁸, improving interoperability between approval authorities and registers but maintaining separate State-based registers, right through to a Distributed Ledger (DLT) with smart contracts to facilitate trade and record all registry information, or moving to different types of centralised solutions.

As discussed above, all of these options requires improvements to the existing state registers to increase consistency across the Basin. Civic Ledger estimate that some 15 000 business rules would need to be coded in a DLT solution.⁹⁶⁹ Thus, these technological solutions should build on the ‘small wins’ identified in section 11.2 above.

Further, these options mostly focus on improvements to temporary markets. However, as discussed in section 8.6.2, entitlement trade processes in New South Wales and Queensland are more complex than for the other states as there is also some interaction with the land registry services in each state.

The ACCC is considering the following longer-term options for addressing transparency and data quality issues:

- an *open digital protocol* for enhanced interoperability between Basin State registers, with the ability to securely transmit data, interface with private exchanges and execute instructions, and automate collection, cleaning and publishing of water market information.
- a *single water market information platform* for publishing water availability and trade information
- a *National Electricity Market (NEM) type approach for water* with a spot market and real-time automated matching of buyer and seller offers
- a *single exchange platform for posting trade offers and matching buyers and sellers* (but still submitting trade application forms to the different State approval authorities underneath, who maintain their separate registers)
- an ASX-like approach of a *multiple exchanges with a single clearinghouse for administering trading* (with connections via interoperability protocols between multiple exchanges, the single clearinghouse, and multiple Basin State registers)
- a *single clearinghouse with Distributed Ledger Technology (DLT)* which administers trade through smart contracts and also records all registry information
- a *single common register* (that is, all water accounting for both trade and delivery (use) accounted for in the same, single system)
- a *single portal for lodging trade applications*, linking via interoperability protocols to existing trade approval authorities and water registers.

Each of these options is discussed briefly below. Some of these have been tried in the past, some have been proposed by stakeholders through this inquiry, some are solutions which

⁹⁶⁸ Water Regulations 2008 (Cth).

⁹⁶⁹ Civic Ledger, Submission to the Murray–Darling Basin Inquiry, January 2020, p. 3.

the states are already working towards and others arise from the ACCC's own analysis and considerations of solutions operating in other sectors.

The ACCC seeks stakeholders' feedback on these proposed options.

11.3.1. Distributed solution: open digital protocol for water market administration and water information

Option overview

This solution entails the use of an agreed protocol for all aspects of trade and has inbuilt improved interoperability and quality control. Simply put, rather than agreeing on the use of a single platform or single register as entailed in options presented below, under this approach all actors would be agreeing on a common language and set of rules when applying for trades, processing trades, and recording and dissemination of trade-related information.

Optionally, the protocol could be coupled with single portal interface(s) for (i) lodging trade approval forms and/or (ii) disseminating water market information.

Development of the digital protocol could draw on 'lessons learned' from similar digital protocols operating in other sectors (box 11.3), which could help build confidence, reduce costs (by reducing the 'learning curve' involved in developing and implementing new technologies) and avoid pitfalls. It would build on existing partial efforts towards harmonisation and standardisation, for instance the existing interoperability protocol for processing inter-state water allocation trades in the Southern Connected Basin (box 11.1) and the Victorian Water Corporation Integration Standard Interface Specification (box 11.2), the *Water Regulations 2008* (Cth) which currently regulate provision of water trade information to the Bureau of Meteorology, and the NWI national terminology for tradeable water rights.

While considerable collaborative effort would be required to construct the protocol and then ensure entities' systems are protocol-compliant, the ACCC's preliminary view is that the following draft principles for an open digital protocol for water market administration could form a useful basis:

- The Protocol should be scalable/expandable to cover as much of the trading and water accounting system as is desirable:
 - The Protocol could cover water accounting aspects that underpin trade, but which are not purely trade-related, such as how water allocation accounts should be kept (for example, specifying agreed credit and debit transaction types and guidance on how different transaction types should appear in water accounts).
- The Protocol should bring increased automation of trade approvals by allowing transmission of *instructions* for processing trades as well as *data* contained in trade applications:
 - Processing for some trades may still require human intervention, but trade approval authorities should aim to agree on a set of circumstances in which trade approvals can be automated (that is, specifying "if the specified conditions are met, then trade applications can be automatically processed; otherwise trade application processing requires human intervention).
 - Work should be done to simplify trading rules ahead of this implementation.

- The Protocol should be open in the sense that it should allow third parties to build additional services on top.⁹⁷⁰
 - Exchanges and brokers should be able to directly connect to TAAs and Register systems, similar to current VWR broker API arrangements.
 - Given all information is then captured in one place, it would allow for APIs to develop information services which drawn on the information generated by the protocol—both exchange, TAA and register data.
- The protocol should allow for increased product diversity and be adaptable to changes:
 - For example, the protocol should be able to handle various trade types and specify the different pathways, approvals, required documentation and registration.
- The Protocol should be formulated using a nested governance approach, which allows different users to control different levels of the protocol.
- The Protocol should be flexible and accommodate future changes to the regulatory environment for water markets:
 - For example, the protocol could include specification of data flows to trusted parties (for example, regulators), include in-built audit functions.
- While promoting increased standardisation of terminology, the aim should be *harmonisation* and *translation* between different contexts:
 - While State-based legislation and IIO trading rules continue to specify different types of ‘dealings’⁹⁷¹ with tradeable water rights, it may not be possible to fully standardise across all contexts; where standardisation is undesirable or impractical, the aim should be to harmonise by agreeing how terminology and processes that are context-specific can be “mapped” to an agreed Basin-wide framework for reporting (for example, if a trade originates in Queensland, the protocol can map ‘water allocation’ to ‘water entitlement’ or another commonly agreed term).
- The Protocol should be certifiable, in the sense that it should possible to certify that an individual entity’s IT systems or processes are compliant with the protocol.

⁹⁷⁰ For example, ASX is investing in Digital Asset and their Digital Asset Modelling Language (DAML) to develop a DLT platform which will allow fintechs to develop overlays that will interact its CHES Replacement.

⁹⁷¹ In the Basin water context, ‘dealing’ can be understood to encompass all the different kinds of transactions tradeable water right holders are able to take in respect of their TWR. Some ‘dealings’ are clearly different types of trades, such as transfers of ownership, leases, and change of location, while others modify the right in some way but are not clearly trades—for example subdivision or amalgamation, association or linking with a location-related right such as a works approval. Among Basin States, the term ‘dealing’ is currently most prominently used in New South Wales legislation.

Box 11.1: Interoperability protocol for processing inter-state water allocation trades in the Southern Connected Basin

Interstate trading is currently managed through file sharing arrangements in the Southern Connected Basin.

This file sharing arrangements between authorities in Victoria, New South Wales and South Australia means they are able to share the status of interstate application form with each other automatically.

This is important for interstate trading as the destination state has no other way of checking that the origin allocation bank account has a sufficient allocation balance to fulfil the trade. Therefore, the applicants must apply in both states, and the origin state will assess the application and share a state of 'pre-approved' or 'refused' with the destination state via the file transfer process.

Box 11.2: Victorian Water Corporation Integration Standard Interface Specification

As the water authorities are responsible for processing trade applications in Victoria, but are required to register this information, DELWP and the authorities have implemented file sharing arrangements to automate this process.

The water register is the central repository where water entitlement and related information is stored and managed. To facilitate the day to day operations of each authority, an interface for information exchange between the water register and water corporations is available for each water corporation to use. This is referred to as the 'standard water corporation interface'.

Data can be exchanged in two directions, either from the water corporation to the register, or from the register to the water corporation.

The standard interface consists of 13 XML files which are generated by the water register for consumption by the water corporations.

There is a scheduled data exchange process from the water register to the water corporations. Files relevant to the water corporation are stored in a folder on the water register hosted FTP server, which the water corporation then fetches from.

The exchanges allow the water corporation to synchronise their back end systems with the water register. Water corporations also send information to the register on water usage, pending water orders and spill allocation information.

Box 11.3 Digital trade processing and information flows in other sectors

Standards and protocols for trade processing, and more generally for data capture, exchange and dissemination exist in many other industries. Some examples are:

- *Personal banking* requires all financial institutions to use the same message scheme that captures and transmits data in a consistent and structured manner. For example, in order for a customer to transfer funds to an account held in another financial institution, the BSB and account number must be entered correctly. The receiving bank then knows how to automatically read the BSB and account number because the same structure is used. The use of protocols also enhances opportunities for APIs and

automation as data is structured.

- *International trade* makes use of digital certificates and an accompanying digital protocol to electronically administer phytosanitary trade requirements.⁹⁷²
- *International standards for distributed ledger technology*: Led by Standards Australia, the International Organization for Standardization (ISO) has set up an international task force working on blockchain standards for individual blockchains and also on standards governing the interoperability of separate blockchains.⁹⁷³

The ACCC considers there is significant potential to learn from adoption of digital protocols and related standards in other sectors. Lessons learned could cover 'best practice' for technical aspects, but also provide insights into governance of the protocol development and implementation, and practical guidance on how different parties with a stake in the protocol can work together. The ACCC will undertake further analysis to better understand how digital protocols work in other sectors, and welcomes stakeholder input on which examples from other sectors might yield useful insights for Basin water markets.

Merits

The current dispersed nature of trade, ownership and usage and the fragmented jurisdiction of trade approval authorities suggest there may be challenges in moving towards increasingly centralised systems. However, recent technological innovations may provide the ability to deliver increased transparency, reduced transaction costs, and increased potential to monitor trading activity (improve market integrity) through decentralised or 'distributed' solutions. The key feature of this approach is that the protocol would not entail any necessary centralisation of trade-related services, and therefore competition for these services would remain. The ACCC's preliminary view is that reform of governance arrangements could open up options to centralise and streamline trade services, which could make trade services and information flows more efficient and also facilitate improved oversight of trading activity. However, while the governance for water markets remains distributed between the states, a key merit of the distributed technological solution is that it would not create disconnects between an underlying decentralised governance structure and a centralised administrative approach. If there were to be a more centralised approach to governance, the digital protocol approach may still be warranted, but should be considered together with options to centralise trade administration and technological solutions.

The protocol requires information to only be entered once, which would be stored and shared consistently with the relevant trade approval authorities with clearly-specified rules to 'translate' between individual systems as needed. The protocol will also be able to transmit instructions regarding the sharing of water market information (data). If successfully implemented, the digital protocol would bring standardisation to trade processes and reporting, significantly improving data quality and completeness, and create a seamless information pipeline from traders, exchanges, IIOs and other data sources, through approval authorities and registers, and out to end-users.

IIO registers of irrigation rights and IIO-internal trades would be brought within this protocol, resulting in marked improvements in the capture and transmission of transaction information for trades involving IIOs.

⁹⁷² Food and Agriculture Organization of the United Nations, <https://www.ippc.int/en/ephyto/>, viewed April 2020.

⁹⁷³ Organisation for Economic Co-operation and Development (OECD), *Blockchain Technology and Corporate Governance: Technology, Markets, Regulation and Corporate Governance*, DAF/CA/CG/RD(2018)1/REV1, 2018, p. 21.

The protocol would allow for some autonomy to be retained by different entities: for example, IIOs could have autonomy over trade within their own networks, so long as their processes deliver the information as specified in the protocol for use by other stakeholders.

If the protocol is implemented together with a single portal for lodging trade applications and a single water market information portal (see also section 11.3.2 below), this option would mean that brokers or traders would only need to interact with one system when lodging trade applications and would not need to complete different forms for different states. Interstate accounts could be checked much more quickly, and there could be seamless transfer of information and data via the protocol to a user-friendly water market information portal.

Increased automation would improve trade processing times and data accuracy and consistency, by reducing the need for human intervention and the opportunity for human error in trade approval processes. The use of in-built quality control mechanisms will support improved quality and completeness of water market information (for example, mechanisms whereby a user cannot submit a trade for approval without declaring a price and/or also providing supporting evidence at the time of lodgement).

Drawbacks

Any kind of increased digitisation would need to consider the strategic misuse by market participants. Experience with the VWR broker portal and MyWater portal shows that there is potential for sophisticated software to automate trade applications, which may advantage some market participants over others.⁹⁷⁴

It is also possible that there may be some resistance to a newer technological solution from some users. For example, while Victorian traders have been able to lodge their intrastate allocation trades wholly online for a smaller fee (\$47.50) than for the paper-based process (\$89.50) since December 2013⁹⁷⁵, 15 per cent of trades during the 2018–19 water year were submitted through the paper-based process.⁹⁷⁶ Therefore, increased digitisation of trade processes may need to cater for different user preferences (for example, not rule out the option to submit trade forms in-person or on paper), and be coupled with education and guidance so that users feel comfortable using the technology.

Implementation of this distributed approach would require substantial collaboration between all parties—exchanges, IIOs, and Basin States. There is a clear need to establish clear governance frameworks for the protocol, and to address practical questions such as who is responsible for which areas of the protocol, and how to ensure all actors implement the protocol as envisaged. Given the track record of collaborative initiatives in the water sector to date, there is a risk that instead of delivering a Basin-wide, streamlined and co-ordinated trade processing and data collection system, this initiative could instead result in deadlock and derail existing stand-alone initiatives to improve specific aspects.

This approach would also require the significant investment in state and IIO registers and interfaces with private exchanges. The ACCC notes in particular that some IIOs still use paper-based records to administer water accounts and trading within their networks. However, the ACCC notes that many states are already working on digitising their trade process, and the MDBA facilitates the Trade Working Group which (among other things) is seeking to cultivate a shared approach to improvement of trade approval and registry processes, and promote the sharing of technological solutions. The TWG has been set up for the states to better understand others' requirements and hurdles in improving register

⁹⁷⁴ The ACCC is considering this issue further and intends to include further discussion on automation in its final report.

⁹⁷⁵ Water (Resource Management) Regulations Amendment Regulations 2013, S.R. No. 163/2013.

⁹⁷⁶ ACCC's preliminary analysis of data supplied by the Victorian Department of Environment, Land, Water and Planning.

interoperability. Further, some private exchanges such as WEX Water have already investing in improving their interfaces with Basin State and IIO systems.⁹⁷⁷

As the governance for water markets will remain distributed across the Basin States and IIOs, the open digital protocol in itself will not address stakeholder concerns on the variable fees charged by each state's trade approval authority or remedy discrepancies in processing times. While the protocol would deliver efficiencies in data entry through automation, trade processing would continue to be limited by the approaches implemented by each of the Basin States.

11.3.2. Single water market information platform

Option overview

Water market data reporting processes need to deliver information in ways that better meet stakeholders' needs: in particular, information needs to be available in one place, be easily understood, be made available quickly, and in a way that users can easily customise to meet their needs. There should be greater use of digital interfaces such as APIs, user-customisable alerts, and mobile apps which function in low- or unstable-connectivity environments (such as in rural areas).

The ACCC's preliminary view is that market participants would benefit from the implementation of a single digital platform for publishing water market information, which would draw together information from different sources and make it available in one place. The objective of this platform should be to provide a consistent source of core trade data that information service providers can use to provide tailored services, and to avoid perpetuating or increasing fragmentation and creation of information silos which give rise to the potential for those who hold private information to take advantage of information asymmetries.

While the role of BOM as water market information collator has improved transparency by drawing some disperse sources together, the underlying data collection continues to be problematic, resulting in data that is lacking in quality, and which therefore does not serve to instil confidence in market participants. Key datasets (for example, buy and sell offers) are also not available on this platform. Stakeholders have generally submitted to the ACCC that the existing BOM website does not meet their needs for real-time, reliable market data.⁹⁷⁸

The ACCC acknowledges that this approach is similar to what is currently being provided by Waterflow and the Victorian WaterMarket Watch app. Existing platforms however do not have full market coverage at present; for example, as of May 2020, Waterflow only receives information from seven intermediaries.

This approach is supported by the Socio-economic draft report and the Interim-Inspector General's report, which both recommend the development of a Basin-wide water resource information platform with timely information and simple descriptions of market terms, policy and rules.⁹⁷⁹

The information portal should provide:

- a 'single source of truth' for current buy and sell offers (note this would entail linking to existing exchange and broker sites—trade would not be actually conducted in this portal)
- collated historic trade data from the states and from IIOs

⁹⁷⁷ WEX Water, *Submission to the Murray–Darling Basin water markets inquiry*, 13 February 2020, p. 1.

⁹⁷⁸ See section 10.2.1 on stakeholder concerns regarding current market transparency, including the BOM website.

⁹⁷⁹ Independent Panel, *Panel report: Independent assessment of social and economic conditions in the Basin—Draft Report*, 2020, p. 2; Interim Inspector-General of Murray-Darling Basin Water Resources (IIG), *Impact of lower inflows on state shares under the Murray-Darling Basin Agreement*, 2020, p. 40.

- information on water market intermediaries and the services offered
- a simple description and definitions of water terms, policies, operational settings, rules and their implementation and changes or proposed changes to them
- information on trade processes, including information on trade application forms, trade approval fees, and how to make enquiries or complaints (note this could be provided by way of linking to trade approval authority websites)
- indicators of supply and demand, including data on storage inflows, river flows, aggregate usage statistics, water availability and climatic forecasts.

Given that there are several existing public and private information portals currently operating, the ACCC sees that there are several options for delivering a single information portal:

- Build on one of the existing portals.
- Consolidate existing portals.
- Start afresh with a new portal.

Questions for stakeholders

- Do existing information platforms (for example, BOM dashboard, Waterflow, private exchanges) meet your information needs? Please provide details of areas you consider are working well, and areas where information needs to be improved.
- What information should a single water market information portal cover?
- If a single information portal was to be adopted, what is the best way to build on existing information platforms?

Merits

A single portal for all water market information (including transaction information and also information on trading restrictions and trade opportunities, water availability, use, and other related information such as climatic conditions) would help reduce information gaps in the industry and reduce fragmentation by providing more information in one place.

Assuming all market participants are able to access the portal, it would promote a 'level-playing field' in terms of access to market-relevant information.

Drawbacks

This approach would not change existing transaction processes, and therefore would not resolve issues with:

- transaction times
- different rules in different states
- underlying data quality issues (that is, accuracy and timeliness of reported data).

The quality of the underlying register data is one of the main criticisms of the current BOM portal. Therefore, if a single information portal is contemplated, consideration should be given to implementing it as part of a suite of measures, where other complementary measures address underlying data quality issues. It is unlikely that a single portal for information could, on its own, achieve everything needed to improve transparency, increase ease of trading, improve the timeliness of published trading data and reduce all transaction costs.

It is worth noting, however, that the establishment of a single information portal may act as a catalyst for the improvement of data capture and reporting processes used by information providers. For example, the ACCC understands that the existing Waterflow platform has a set of requirements for providing data, and that Waterflow (Marsden Jacob) has undertaken considerable work to standardise and improve the data reporting processes of participating brokers and exchanges.⁹⁸⁰

11.3.3. A ‘NEM type approach’ for water: Single regulated platform for buy and sell offers plus single clearinghouse

Option overview

This option would entail:

- a spot market in which supply and demand conditions determine prices in real time;
- instant and automatic matching through the central system;
- operator acts as principal in each trade; and
- pooling of offers.

The Australian Electricity Market Operator (AEMO) operates the NEM, which is a spot pool market for selling wholesale electricity.⁹⁸¹ AEMO publishes spot pool prices in each region, and all retailers and market customers purchase their power from the spot pool market in their relevant region and pay the spot price to AEMO. The exchange operates between generators and retailers.

The NEM is designed to meet electricity generation and distribution needs in the most cost-efficient way. Its purpose is to simultaneously match electricity supply (generation) with demand in a context where there is very limited storage capacity.

Merits

A single trading platform has been strongly supported by some stakeholders as the best option to improve transparency, particularly in relation to better understanding market depth.⁹⁸²

The NEM could provide a good starting point for an option in the water markets, as it also takes into account the physical delivery of energy and has markets for ancillary services to manage demand and supply constraints. This functionality could also be useful in the water context, as a means of better integrating water trading with related water infrastructure services. (See also chapter 7 which considers related regulatory and governance options to increase market integrity.)

As market participants all interact with the market operator (AEMO in the case of the NEM), information flowing from transactions could be greatly improved.

⁹⁸⁰ Marsden Jacob Associates, Pers. Comm., 2020.

⁹⁸¹ AEMO, 2018, <https://aemo.com.au/news/how-the-national-electricity-market-works>, viewed 22 June 2020.

⁹⁸² For example: H2OX, Submission to the Murray–Darling Basin inquiry, February 2020, p. 5; Fruit Growers Victoria Ltd, Submission to the Murray–Darling Basin inquiry, February 2020, p. 2; NSW Farmers, Submission to the Murray–Darling Basin inquiry, February 2020, p. 5; Australian Dairy Industry Council, Submission to the Murray–Darling Basin inquiry, February 2020, p. 2; Yenda Producers Co-operative, Submission to the Murray–Darling Basin inquiry, January 2020, p. 4.

Drawbacks

This option would require considerable reform, including substantial change to governance frameworks, and would therefore be costly to set up and maintain. Those costs would be borne by traders. This does not appear to meet stakeholders' calls for greater transparency without increasing regulatory burden.

Real time matching and delivery is essential for electricity, but not for water. This highlights that NEM functionalities may not be appropriate in water, and careful consideration is needed to assess which aspects might be relevant, in order to avoid building functionality for which there is no demand.

Financial contracts operate separately to the NEM to manage risk of high spot prices, and these arrangements can be opaque.⁹⁸³

11.3.4. Single exchange platform for posting and matching trade offers

Option overview

This approach would entail:

- creating a single mandatory online platform for matching buyers and sellers, and
- maintaining the separate state approval authorities and registers underneath.

There are several variations on this 'single exchange' option, including:

- one exchange covering all types of trade, including both temporary and permanent products
- one exchange for temporary trade (water allocations and temporary trade of irrigation rights) and another for permanent trades (water access entitlements and permanent trade of irrigation right, including leases)
- one exchange per trade type (for example, one exchange for 'spot' trades; another for forward trades, another for carryover parking, etc.).

Merits

Many stakeholders submitted that they were supportive of a single platform for lodging and matching buy and sell offers.

The platform would help users in their price formation and discovery, and significantly improve the ability to accurately gauge market depth (if its use was mandated), because all bid and sell offers would be lodged in a single place.

By bringing together all trading activity into a single market, the platform could improve efficiency and optimise potential for water going to its best use, particularly via the use of algorithms which match the best buyer and seller combinations. If all buyers and sellers are in the one place, and all trading rules can be checked instantaneously, water will be able to be delivered to the best and highest value use.

Reporting of transaction information would be simpler, and less costly.

Having all bid and offer activity taking place in a single online space could make some regulatory oversight functions (assuming these were introduced) easier to execute, in that the regulator could access all data on buy and sell offers lodged, and trades matched on the

⁹⁸³ ACCC, Restoring electricity affordability and Australia's competitive advantage, *Retail Electricity Pricing Inquiry—Final Report*, 2018, p. 106. Where the ACCC recommended steps be taken to improve transparency of hedging contracts.

platform, in a single place. However, regulations prohibiting off-platform trade may be difficult to enforce, and the ramifications of any anti-competitive conduct on the platform may be greater in that this platform would encompass the entire (legitimate) market rather than just one segment of the market.

The technical costs to implement could be relatively low if existing platform technologies were to be used (for example, by picking one of the existing exchanges), and would not require the states to invest in systems that can integrate with the platform. However, as discussed below, the costs of mandating this platform as the only one which can be used may be significant, and are discussed below.

Drawbacks

A single platform approach would remove the current competition in matching and clearing (as undertaken by private intermediaries⁹⁸⁴) in water trade. This is one of the main drawbacks of such an approach; that is, it would create a monopoly that would likely require regulation, in a way similar what the ASX must comply with. This would require developing a framework for information collection and publication. However, it has been observed that the full benefits of price discovery per product type could be realised by a number of central exchanges – one for each product type.⁹⁸⁵

Trading on the platform would need to be mandated in order to deliver the benefits stakeholders envisage. This would remove the ability to conduct 'neighbour to neighbour' trades, effectively forcing all trading principals to use a registered intermediary (broker). The ACCC's preliminary view is that there is value in maintaining flexibility and maintain the ability to engage in peer-to-peer trade.

Basin State registers would need to be upgraded to allow for the platform to be integrated, introducing new costs. This could, however, indirectly promote greater harmonisation, as it could prompt the states to take a somewhat uniform approach to upgrades of their own registers (so as to integrate with the trading platform and clearinghouse), but would not require a common register or full interoperability. Such upgrades may go towards harmonising trade approval fees and processing times.

While technical implementation may be inexpensive, sufficient legislative change and regulation would be required, which would be costly. These costs involve:

- Cost of introducing legislation mandating that this platform is the only one which may be used to post buy and sell offers
- Costs of reducing competition for matching services, which may lead to the need for regulatory oversight of the monopoly service provider. In line with NWI principles about 'user pays' cost recovery,⁹⁸⁶ the costs of these regulatory functions would need to be recovered from water users.

Putting together the costs of increased regulation needed to mandate use of the platform, and the state register upgrades that would be required, it is likely that transactions costs for traders would increase in the near term to cover the costs of infrastructure upgrades and regulatory monitoring.

Assuming participation on the exchange was limited to brokers only, if clear rules for client-facing behaviour are not specified for brokers and well-enforced, this solution has the

⁹⁸⁴ See chapter 8, which explains that clearing services in water trading are spread across intermediaries (where there is competition) and trade approval authorities (who are local monopolies).

⁹⁸⁵ C Seidl, SA Wheeler and A Zuo, 'Treating water markets like stock markets: Key water market reform lessons in the Murray-Darling Basin', *Journal of Hydrology*, vol. 581, p. 12.

⁹⁸⁶ Council of Australian Governments, *Intergovernmental Agreement on a National Water Initiative*, 2004, paragraphs 67–68.

potential to exacerbate transparency problems between brokers and their clients, in that trading principals would have no access to the exchange and would be fully dependent on brokers.

Without changes to approval authority form requirements and improved interoperability between the registers, this option would not address the issue of lags in processing interstate trades.

The single platform would operate as a monopoly, with valuable data and interconnections to the registers. If at a future point competition were to be re-introduced for matching services, this could create an issue similar to that experienced in the e-conveyancing market, where first-mover PEXA has an advantage.⁹⁸⁷ Therefore, reducing competition via mandating a single platform for buy and sell offers may create path dependencies which shape future development.

11.3.5. An 'ASX-like approach' for water: multiple platforms for bids and single clearinghouse

Option overview

Broadly, the ASX approach would entail:

- maintaining and encouraging competition in exchange platforms for *matching* buy and sell offers
- restriction of access to the exchanges to registered users (such as brokers)
- a set of rules, similar to the ASIC market integrity rules, governing behaviour on the platforms⁹⁸⁸ and the behaviour of the exchange platform operators:⁹⁸⁹
 - optionally, limiting 'off platform' trades, and/or prohibiting lodging of bids on multiple exchanges
- a single clearinghouse for *clearing* matched trades—this would entail existing trade approval authorities delegating their trade approval role (which is part of the clearing process) to the clearinghouse operator
- automation and integration between the exchange platforms, the clearinghouse, and respective underlying state registers and trading rules.

It is worth noting that, in contrast to the expectations of some stakeholders, an ASX-like approach would not actually entail the creation of a single exchange (see chapter 8). The single exchange option is discussed above at section 11.3.4.

Merits

This option would preserve competition in matching services by continuing to allow traders to use multiple exchanges; however, there would be prohibitions on 'off-platform' trading, so all trade would go through one or other (but not more than one) of the exchanges.

⁹⁸⁷ ACCC, ACCC report on e-conveyancing market reform, 2019, pp. 4–5. Available at: <https://www.accc.gov.au/system/files/Letter%20to%20ARNECC%20Chair%20and%20state%20and%20territory%20policy%20agencies%20-%20December%202019.pdf>.

⁹⁸⁸ In relation to this option, Seidl, Wheeler and Zuo comment that "ASIC market integrity rules could provide guidance for water market changes. Institution development is particularly important for derivative type temporary products, where consideration should be given to additional water market infrastructure, such as a central exchange and clearing house, along with well-resourced market regulatory agency with competency in derivative product that monitor and enforce compliance" Seidl, Wheeler and Zuo, *op. cit.*, p. 11.

⁹⁸⁹ ASIC, <https://asic.gov.au/for-finance-professionals/market-infrastructure-licensees/licensed-and-exempt-market-operators/>, viewed 22 June 2020.

If off-platform trade and lodging the same offer on multiple exchanges were prohibited, this option could increase the ability to accurately gauge market depth, in that the sum of activity across all exchanges would comprise the entire market.

All trades would be cleared by the clearinghouse operator, which would enable harmonised trade approval fees and trade clearing processes (even though trading rules may continue to be state- or zone-specific).

A central clearinghouse could make monitoring and compliance functions easier, as the clearinghouse would be a central point through which all matched trades flow, and so some patterns of trading behaviour could be better spotted in the central clearinghouse IT systems rather than dispersed across multiple exchanges and registers. However, the clearinghouse would not necessarily capture all trading behaviour—for example, if a person trading on the exchange strategically lodged and withdrew bids (such that their bids never matched, and so are not forwarded on to the clearinghouse for clearing), this activity would not be visible in clearinghouse data.

Drawbacks

If off-platform trade were prohibited, this option would force all traders to use one or other of the exchanges, limiting the ability, for example, for farmers to trade less formally with their neighbours, and to conduct trades without the assistance of an intermediary. The ACCC's preliminary view is that such a restriction is not necessarily a good fit for the water sector, where traders are often family farms who may see value in maintaining simpler or less formal entry points into water markets.

On the other hand, if off-platform trade was not prohibited, the benefits in terms of being able to more accurately gauge market depth may be limited.

As for the single exchange option outlined above, limiting participation on the exchanges to brokers only may exacerbate transparency problems between brokers and their clients, in that trading principals would have no access to the exchange and would be fully dependent on brokers.

All Basin State water management systems would need to be linked to the clearing house to enable trades and transfer to accurately update water accounts. This would entail extra costs compared to the case where the water management roles and the trade approval roles are undertaken by the same entity (as is currently mostly the case), and may introduce opportunities for errors and accounting discrepancies.

11.3.6. Distributed Ledger Technology and smart contracts

Option overview

While many stakeholders have called for a single trading exchange⁹⁹⁰, there are concerns from industry that this would be costly to implement, require regulatory oversight and could lead to increased transaction costs for irrigators.⁹⁹¹ A centralised register approach has been tried in the past and failed to be successfully implemented.⁹⁹² An alternate approach is the application of Distributed Ledger Technology (DLT) to create a single overlay portal (such as Water Ledger⁹⁹³), along with the trade approval authorities' trading processes and

⁹⁹⁰ See 10.2.1 (Table 10.1), which details stakeholder feedback on this point.

⁹⁹¹ Australian Water Brokers Association, Submission to the Murray–Darling Basin inquiry, January 2020, p. 4.

⁹⁹² The Common Registry Solution formed part of the National Water Market Systems project, but was not completed.

⁹⁹³ Cooperative Research Centre for Developing Northern Australia, 2020, <https://crcna.com.au/news/pilot-project-taps-new-digital-water-trading-opportunities-fnq-irrigators>, viewed 16 May 2020.

independent state registers the portal interacts with, but maintains a consistent experience for traders.

The use of DLT such as Blockchain could potentially reduce the complexity of participating in water trade by the use of smart contracts, and streamline the collection and dissemination of core trading information.⁹⁹⁴ DLT does not need to be public, and can be hosted on private, secure networks which are limited to licensed participants.⁹⁹⁵

While DLT may be a new and emerging technology, DLT is being explored in South Australia in the e-conveyancing space so there is interoperability so that a transaction can be completed using two different Electronic Lodgement Networks.⁹⁹⁶ Other research has been undertaken on the use of DLT in eConveyancing.⁹⁹⁷ ASX is replacing its current CHES infrastructure with distributed ledger technology (DLT) which ASX notes will provide greater market efficiencies through better record keeping, reduced reconciliation, more timely transactions and better quality data.⁹⁹⁸ ASX notes that DLT enables near real-time access to register data⁹⁹⁹ and creates a single source of truth.¹⁰⁰⁰

This option could also potentially allow for trade limits and other limitations to be read and determined at the time someone is completing the trade (in real time). This would remove the need for individual traders to understand more complex trading rules such as certain limits and carry over rules, which can discourage some irrigators from participating in the market as they feel that more sophisticated users are able to take advantage of these rules.

This option could also be coupled with smart contracts, computer protocols that specify the agreement like a traditional contract but also automatically enforce the obligations of the contract. Given the number of parties involved in facilitating a water trade, the potential value of smart contracts could be considerable.

The ACCC understands that Civic Ledger is currently trialling water ledger in far North Queensland. RMIT's Blockchain Innovation Hub is currently working on a white paper considering the potential for blockchain technology to solve Australia's water problems. Civic Ledger also submitted to the ACCC that RMIT Blockchain Innovation Hub will be conducting a review of their pilot of Water Ledger in Northern Australia in 2020.¹⁰⁰¹ The pilot is now live¹⁰⁰² and the ACCC will be keeping abreast of the progress of the trial. The use of ERC1753¹⁰⁰³ licence technology is of particular interest to the ACCC.

As a commodity, water is used as an input and therefore can only be traded until its eventual productive use (although it may be traded several times). One thing that people have called for better transparency on is water use. There are various sources of water use information available to the market at the moment, but there is no source which links water use back to original water entitlement allocation as this is currently not possible. For example, if Person A is allocated 25 ML on WAL 111 and then trades 5 ML of this to Person B, and then Person B trades that same water to Person C, there is currently no way to show that

⁹⁹⁴ Civic Ledger, Submission to the Murray–Darling Basin inquiry, January 2020, p. 4.

⁹⁹⁵ ASX, <https://www.asx.com.au/services/technology-solution.htm>, viewed 22 June 2020.

⁹⁹⁶ Department of Planning, Transport and Infrastructure, <https://dpti.sa.gov.au/land/org/eConveyancing>, viewed 22 June 2020.

⁹⁹⁷ N Liu, R Duncan and A Chapman, 'A critical review of distributed ledger technology and its applications in real estate', *Royal Institution of Chartered Surveyors (RICS) Research*, 2020. Available at: <https://www.rics.org/globalassets/rics-website/media/knowledge/research/research-reports/rics0077-001-distributed-ledger-technology-review-report-final.pdf>.

⁹⁹⁸ ASX, 2020, www.asx.com.au/services/chess-replacement.htm, viewed 22 June 2020.

⁹⁹⁹ ASX, 2020, www.asx.com.au/services/chess-replacement.htm, viewed 22 June 2020.

¹⁰⁰⁰ ASX, 2020, www.asx.com.au/services/technology-solution.htm, viewed 22 June 2020.

¹⁰⁰¹ Civic Ledger, Submission to the Murray–Darling Basin inquiry, January 2020, p. 5.

¹⁰⁰² Cooperative Research Centre for Developing Northern Australia, 2020, <https://crcna.com.au/research/projects/improving-water-markets-and-trading-through-new-digital-technologies>, viewed 16 May 2020.

¹⁰⁰³ See <http://erc1753.org/>.

Person C's water came from Person A originally. The ACCC considers that it would be quite onerous to issue serial numbers to each ML of water under current registry arrangements, and annotation of trading parcels to include serial numbers would be cumbersome and may lead to 'information overload' rather than materially contributing to greater transparency. It could however be possible to incorporate better tracking through DLT and smart contracts.

Merits

Participants have called for a 'single source of truth', which DLT can deliver in a real-time way.

Transaction costs associated with trade approval lags would be reduced. DLT could also provide simultaneous clearing and settlement functions, meaning that the transfer of title, and of consideration paid, would all take place within the same secure system, and instantaneously (removing some counter-party risk).

A DLT approach could improve water use information as well, as the trade of water could be digitally tracked from its original allocation to entitlement through to the end user, and information flows including automated reporting could be coded into the solution, providing seamless reporting to water market participants.

Drawbacks

There would need to be improvements made to the existing state trading processes to increase consistency somewhat before a DLT solution could be implemented. Otherwise Civic Ledger estimate some 15 000 business rules would need to be coded.¹⁰⁰⁴

DLT technology is still being developed and demonstrations of water register use cases are small and have not yet been trialled within the Basin. Therefore further work is required to evaluate the merits of using DLT to underpin Basin water markets.

Enabling real-time interstate trades would require more consistent metering standards, with telemetry available on end users' meters to ensure there is water available to trade.

11.3.7. Competition and cost issues for mandated single platform solutions

The platform solutions above (with the exception of the single information portal) would generally need to be implemented across *the whole market* for the proposed benefits to eventuate. For example, if a single exchange is pursued, but traders are able to still conduct 'off-exchange' trades, then stakeholder concerns that existing exchanges provide an incomplete picture of trading activity would not be addressed. Similarly, if there is a view that *all* trades need to be processed in a central clearinghouse in order for trade approval feed and processing times to be standardised, then allowing trade processing outside of this clearinghouse would be self-defeating.

Mandating such a single platform essentially involves creating a new monopoly. The ACCC considers this would give rise to a range of problems, summarised in table 11.1. The table also notes the different likely costs involved, which would be borne by traders.

¹⁰⁰⁴ Civic Ledger, Submission to the Murray–Darling Basin inquiry, January 2020, p. 3.

Table 11.1: Competition and cost issues for mandated single platform solutions

Problem/costs	Competition and cost issues in a single platform solution
Potential for perverse incentives may require further regulation	<p>A monopoly trading platform will have incentives to earn monopoly rents, and may be able to charge above efficient pricing whilst maintaining volumes.</p> <p>A monopoly trading platform which is embedded to the state registers will have operating rules which could become proprietary information. If a new mover were to try to enter the market later, there could be issues with interoperability between the new entrant and the registers.</p>
Reduced competition in matching services	Removing competition in the market for matching services may decrease quality of service provided, as currently exchanges have incentives to be innovative and provide easy to use interfaces to encourage more trade to go through their platform.
Mandating a single platform will involve significant costs, which would be borne by industry	<p>Any single platform which is mandated will require regulation to ensure that access is being provided fairly and transparently. Also, mandating continuous reporting requirements would be required if the aim of the register is to improve transparency. This regulation will come at a cost to industry.</p> <p>Cost of setting up and implementing a single solution, mandating its use, and integrating it into state registers will be significant. These costs will again be borne by industry.</p>

11.3.8. Single common register

Option overview

A single common register would entail:

- ownership and trade for all water access rights in the Basin to be stored in a single common register
- all water account transactions (for example, announced allocation credits, usage debits, trade debits and credits) to be reported to this register at stipulated timeframes (such as on a monthly basis)—this would require reconciliation mechanisms between the central register and infrastructure operators’ systems.

The common register to be operated either by a new party to whom the Basin States delegate registrar functions, or operated jointly by the Basin States.

Merits

A single common register would mean that there would be a single point from which historical trade data would be provided. This means that differences in data quality which arise from the fact that different entities are currently responsible for different registers, would be eliminated. Market participants would not need to access multiple register websites to obtain trade data. However, given that there are now multiple service providers which provide automated feeds (for example, using APIs) with the Basin State registers, the additional benefits of this for most water market participants may be relatively small.

If a single common register is adopted, this would still enable exchanges to develop as overlays. This could mean that the current exchanges could simply interact with the single register in a similar way to what they do now, which entails limited connectivity (except in the

case of the Victorian broker portal and API), and is generally one-way (that is, exchanges can send data to the register, but the register does not update or reconcile data with the exchange).

Drawbacks

A common register approach has been attempted in the past, and was unsuccessful (see box 11.4). Adopting a common register would be complex and likely very expensive, due to the Basin consisting of multiple jurisdictions where each Basin State is responsible for administering its own (and different) water rights. Given that Basin States would still retain responsibility for administering water rights in their jurisdiction, 'outsourcing' register functions to another party would likely entail significant risks for the Basin States. On the other hand, if Basin States were to jointly operate the common register, this would entail significant and ongoing co-ordination costs.

The ACCC also considers that a single common register would not inherently solve the majority of stakeholder concerns about the timeliness and quality of transaction information, nor bring about the increased transparency stakeholders are calling for to address their underlying concerns. One key reason for this is that a common register would, in and of itself, not improve the flow of information from private trade service providers (for example, brokers and exchanges). There would also be additional work required to ensure that exchanges can directly link to the single register so that trade approvals can occur in (near-)real time. There could also be the issue of interoperability between exchanges, and whether there should be an access regime and rules around how the exchanges connect to enable buyers and sellers to match across exchanges.

Also, it is not clear that a single common register would necessarily entail a single approval authority. The ACCC notes the example of Victoria, which has one register but multiple approval authorities, according to water corporations' areas of operations. Therefore, it is not clear that a single register approach would fully streamline and harmonise trade applicants' experiences. However, as the Victorian example shows, trade approval fees could likely be harmonised across all States for the same type of trade even if there are multiple approval authorities.

Further, while differences remain in the specification of Tradeable Water Rights, it is likely that any single common register would still need to report on trades separately for each type of right (for example, share component trade in New South Wales has no equivalent in Victoria, and should continue to be clearly distinguished from other forms of entitlement trade). Therefore, problems arising from differences in terminology may remain, although the common register could provide consistent guidance and 'translation' of terminology so that all users are able to better understand such differences.

The ACCC's preliminary view is that there is also now less need for a common register, given advances in technology which allow the various registers to interact more easily through application programming interfaces (APIs) where they can send and receive information. However, as identified above, successful implementation of distributed approaches relies on a high degree of co-operation between different entities, and the evidence shows that co-operative initiatives in Basin water markets in the past have suffered from a lack of leadership, and different entities having different interests, different timeframes, and different resources to devote to achieving shared visions. These governance issues are considered further in chapter 15.

Box 11.4: National Water Market System initiative (2009)— Common Registry Solutions and Information Portal

In 2008, COAG endorsed the development of a National Water Market System (NWMS) to improve the efficiency and effectiveness of water markets by increasing the transparency of market information, reducing transaction costs and improving interoperability of state registers where water can be traded interstate.¹⁰⁰⁵ As part of the *Water for the Future* initiative, the Commonwealth Government committed to investing \$56 million into a National Water Market System in late 2009.¹⁰⁰⁶ Funding was however ceased in 2014, and it is estimated that during this time more than \$30 million was invested into the project.¹⁰⁰⁷

The NWMS was to encompass both a national information portal, while the common register component involved only New South Wales, South Australia, Western Australia, Tasmania, Northern Territory and the Australian Capital Territory. While Victoria and Queensland registries were not listed to be part of the common registry, they were flagged as being subject to enhancements as part of this same initiative. Queensland did come on board at a later stage, and Victoria was a participant despite already having relatively advanced registry systems, because it received funding to enhance interoperability with other states where there is trading between Victoria and other states.¹⁰⁰⁸ Before this time, there had already been substantial efforts made as part of the progressing the NWI objectives and actions to increase interoperability and consistency across the registries (including the 2005 working group outcomes—discussed in chapter 8).

The portal was intended to operate in real time, reducing the risk of settlement errors and providing water users with up to date information to enable fast and more efficient transactions.¹⁰⁰⁹ The common register and improved interoperability with Victoria and Queensland were intended to enable seamless data transfer between the different systems and provide more timely information to the market.

The aim of the project was to rebuild and integrate state computer systems that related to the management of water entitlements and water allocations, and it was noted that substantial components of this had been completed by the states. It was planned that this work would form a blueprint that would be distributed across the states and more broadly so the value of the work could be realised.¹⁰¹⁰

The initial agreement between the states, territories (those mentioned above) and Commonwealth was for Stream zero and represented 'the first part of a multi-stream, multi-year project to implement the CRS'.¹⁰¹¹ The agreement outlined that the NWMS will 'include Common Registry Solutions (CRS) or system upgrades for all States and Territories'.¹⁰¹² It was further stated that the CRS would replace existing water registers in New South Wales, Western Australia, South Australia, Tasmania and the Northern Territory—while improvements would be made in Victoria and Qld. In this agreement, \$5 million in funding was distributed between the states to undertake work to identify, assess and document requirements for the CRS project.

¹⁰⁰⁵ Department of Sustainability, Environment, Water, Population and Communities, (Cth), NWMS Newsletter, 2011.

¹⁰⁰⁶ Productivity Commission, *Market Mechanisms for recovering water in the Murray–Darling Basin*, 2010, p. 50.

¹⁰⁰⁷ National Water Commission (NWC), *Australia's Water Blueprint National Reform Assessment*, 2014, p. 41.

¹⁰⁰⁸ Senate Estimates Hansard, Environment and Communications Legislation Committee, 26 May 2014.

¹⁰⁰⁹ Department of Sustainability, Environment, Water, Population and Communities (Cth), *op. cit.*

¹⁰¹⁰ Senate Estimates Hansard, Environment and Communications Legislation Committee, 26 May 2014.

¹⁰¹¹ COAG, *Project Agreement for the planning and design of the Common Registry Solutions*, 2012. Available at: <http://www.federalfinancialrelations.gov.au/content/npa/environment/project-agreement/past/common-registry-solutions-PA.pdf>.

¹⁰¹² *ibid*, paragraph 2.

The second agreement¹⁰¹³, for Stream 1, included only New South Wales, Queensland and South Australia and was intended to cover the design phase of the CRS. A total of \$2.386 million was distributed between the states.

The other component of the NWMS, the information portal progressed and the NWMS website was launched in late 2010, and this portal was handed over to BOM.

What went wrong and what can be learnt from this?

The NWMS was due to be completed in June 2012, but was terminated before it was finished in 2014.¹⁰¹⁴ Precisely what progress was made in the CRS component of the NWMS is not well understood¹⁰¹⁵ or publicly documented. What is known is that when the design phase of the project was finalised, it became apparent that the remaining budget would not be sufficient to finalise the project—leading the project to be discontinued.¹⁰¹⁶

This shows that:

- while there was considerable cooperation between the states to develop the CRS, the states were not willing to persist with the initiative once the Commonwealth ceased funding the initiative (and correspondingly its leadership and co-ordination role)¹⁰¹⁷
- the amount of change required on the state systems to adopt a CRS is extensive
- some benefits from NWMS persist today; such as a better understanding of commonality between the state processes, and
- recommending the implementation of a single register system is not likely to receive traction given this past attempt.

During the project, the ability to have a single trade form for interstate trade was also assessed, where it was ultimately concluded that ‘1 form with 1 payment’ was not possible without a Common Registry System in place.

11.4. ACCC preliminary view on options to improve trade processes, transaction costs and transparency

The ACCC appreciates that trade approval processes and state registers have been the subject of past reform initiatives, with most focussed on progressing NWI objectives to increase compatibility between the states’ water registers to improve interstate trading. For example, the file sharing arrangements between Victoria, New South Wales and South Australia for interstate trade is supported by inter-operability protocols and COAG trade processing standards, and has been moderately successful. Other initiatives have had more limited success. Centralised solutions such as the National Water Market System and Common Registry Solutions project required significant reform and were ultimately abandoned by governments due to delays in their implementation and funding issues.

¹⁰¹³ COAG, Project Agreement for the detailed design of the Common Registry Solutions, 2012. Available at: <http://www.federalfinancialrelations.gov.au/content/npa/environment/project-agreement/past/common-registry-solutions-PA-superseded.pdf>.

¹⁰¹⁴ NWC, Australia’s Water Blueprint National Reform Assessment, 2014, p. 41.

¹⁰¹⁵ Productivity Commission, National Water Reform, Report, no. 87, 2017, p. 382.

¹⁰¹⁶ Senate Estimates Hansard, Environment and Communications Legislation Committee, 26 May 2014. On this point, Senator Birmingham stated: ‘A body of work on that project [that is, the NWMS] has been concluded. However, taking that to the next level was going to take an additional substantial injection of funds above and beyond what was budgeted for it. So a decision was made that those additional funds were not available and therefore a saving was taken from what was left. But that amount that was left would have been inadequate to complete the task.’

¹⁰¹⁷ While there is limited documentation of how and why the NWMS and CRS initiatives were discontinued, this is evident from the fact that these initiatives did not continue once the Commonwealth support was discontinued.

Distributed solutions to improving trade processes have generally been limited in scope (for example, the interstate trade inter-operability protocol still requires each state's trade approval authority to independently assess the feasibility of the proposed trade).

In assessing the options presented above, the ACCC has considered each option's ability to address specific existing problems and meet identified needs. The ACCC has heard from stakeholders, and has identified through its preliminary analysis, that the problems extend beyond just making more information available. Therefore, the ACCC considers that an information portal alone is unlikely to solve the suite of issues identified. The ACCC does however consider that such a portal, that encompasses both primary and secondary data identified in chapter 10, would play a very important role in improving transparency and would support any of the options proposed.

The ACCC's preliminary view is that any solution should not discourage peer-to-peer trading. In particular, the ACCC recognises that water trades may often take place in the context of rural communities where buyers and sellers are personally known to one another (for example, because they are neighbours), and does not wish to preclude buyers and sellers from agreeing to trade bilaterally without the involvement of a third party. The ACCC considers, however, that all approved trades should be registered and all historical trades should be made public (in a de-identified manner), regardless of how trading parties were matched.

Further, it is important to consider the potential for new challenges or problems to be caused by the solution. Externalities or unintended consequences created from improving the timeliness of information should also be considered, including how current market participants may strategically respond to improvements in the timeliness, quality, or quantity of information provided to maintain or establish their competitive position.

Whatever option is chosen, it should not limit the choice of water products available—an increase in the choice of water products available can deepen water markets by encouraging greater participation from potential buyers and sellers and can also provide increased flexibility to water users. Water products could include water access entitlements, water allocations, forwards, leases and option contracts.

The ACCC's preliminary view is that a suite of options working together could substantially improve information flows, increase the overall level of transparency of core and ancillary water market information and reduce trade approval times, without significantly diminishing competition in trade-related services. The key elements of this preliminary suite of options are:

- **In the short term**, implementing the 'small wins' identified at section 11.2.1 to improve data quality and information flows within existing trade application and approval processes:
 - *Agree* on a comprehensive set of transaction types, and fields for each transaction type, and *develop agreed guidance* for how price for each transaction type should be recorded, in simple 'Plain English'.¹⁰¹⁸
 - Key new fields to be added are (i) the 'struck date' (that is, date agreement to trade was made between buyer and seller) and (ii) who the *lodging party* is, if not the trading principal.

¹⁰¹⁸ For example, the work currently prepared by Marsden Jacob Associates for the MDBA included a plain English brief to describe secondary water market products. See: Marsden Jacob Associates, Murray–Darling Basin Water Market Products Scoping Study Milestone 2—Plain English Brief, 2020. Available at www.mdba.gov.au/sites/default/files/pubs/Murray%E2%80%93Darling%20Basin%20Water%20Market%20Products%20Scoping%20Study%20-%20brochure.pdf.

- *Educate* water market participants about their obligations to report price and other information correctly, and how this should be done.
- *Update* trade application forms and backend systems to ensure all relevant information can be reported on the form and captured and stored.
- **In the medium term**, Basin State governments should look to adopt the medium term outcomes identified in section 11.2.2, and the water market information platform considered at section 11.3.2.
- **Over the longer-term**, existing trade approval authorities—including both IIOs and Basin State trade approval authorities—should work together to agree on a comprehensive distributed digital protocol for (i) trade applications and processing and (ii) collection and dissemination of core and ancillary water market information.
- All Basin States should modify their legislation underpinning water registry functions, to ensure data and information capture and reporting functions have a clear mandate.
- In collaboration with IIOs in New South Wales and South Australia, agree on minimum standards for IIO registers, including ensuring that IIO trade data can seamlessly be integrated with Basin State registry data.

The ACCC acknowledges that any change to the status-quo may have unintended consequences. The ACCC also recognises states' trade approval fees are set to recover costs of processing of trade approval applications, so any changes in costs of trade approval processes will change the transactions costs of trading. Further, costs of registry functions more generally are recovered via charges levied on entitlement holders and water users, so changes to registry systems could impact costs faced by water users more generally.¹⁰¹⁹

The ACCC seeks to better understand how market participants view these options and what they consider will improve the water market in terms of transparency, regulatory oversight, price discovery, engagement, and transaction costs.

One important factor which contributes to the fragmented landscape of trade service provision is that public trade service providers are local monopolies, each operating in their separate jurisdictions. In the past, and particularly while inter-zone trade was limited, there was little need for co-ordination, and so service provision by governments developed in an inward-looking, insular way, with each entity looking mostly to its own legislation and own context, having only limited incentive to work with others. Past attempts to develop a common registry system failed due to cost overruns and technical challenges, but also due to the fundamental difficulty of applying a centralised technical solution over a distributed governance framework. Now that water markets are maturing and inter-zone trade is becoming more important, but governance is still distributed, harmonisation and co-ordination are becoming increasingly important. The ACCC is also considering whether changes to the underlying governance frameworks are warranted, one aspect of which is to consider the merits of greater centralisation. If there were to be a more centralised approach to governance, this naturally opens up options to centralise trade administration and technological solutions.

¹⁰¹⁹ See section 9.2.1 for a preliminary analysis on how trade values compare to the costs for maintaining water registers and processing trade approval applications in New South Wales, Victoria and South Australia.

Questions for stakeholders

- Do you consider that the markets for permanent trade, derivatives and temporary transfers can all be dealt with under one technological solution? Do you consider permanent trades less reliant on real-time data and would be better suited to a different solution?
- Do you agree that it is important to preserve the ability for buyers and sellers to strike 'off-market' deals, provided that all approved trades are registered and captured in historical trade data? Why or why not?
- Do you support the short- and medium-terms options proposed? Why or why not? Do you consider alternative options should be considered for implementation in the short- to medium-term? Please provide details.
- Which of the technological options presented in section 11.3 would you support? Please provide reasons supporting your preference. Are there additional technological or policy/governance solutions which should be considered for implementation over the longer term? Please provide details.

11.4.1.

11.4.1. The ACCC considers that current information collection processes would likely not be sufficient to support appropriate regulatory oversight

Chapter 7 considers the need for additional regulation and oversight of trader activity and the activities of water market intermediaries. As discussed in that chapter, the ACCC is considering several options to improve oversight, including the potential for a new market oversight role.

However, the ACCC considers that the current information base would make it challenging for a regulator to adequately observe individual trader activity (assuming such a role was created). The ACCC also considers that the current information base would make it challenging for existing regulators to properly perform their functions, such as the MDBA, and more broadly the Australian Taxation Office (ATO) and the Australian Transactions Reports and Analysis Centre (AUSTRAC). In particular, the following features make regulatory oversight difficult:

- Trade information is dispersed across authorities. One authority will know who the seller is, and the other will know who the buyer is. This creates difficulties in monitoring market for potential misconduct or market manipulation.
- No clear, consistent and mandatory identity checks for temporary trades, and ABNs and ACNs are often not recorded. This means that an individual or company may use aliases or alternative names to set up multiple accounts to conduct trades. ACCC considers a common identifier for both trades and individuals is essential to monitor the market. Identifiers for individuals could be current identifiers such as ABNs.
- Unclear roles of intermediaries, and no obligation or agreed process for reporting on an intermediary's role in a transaction. Given that intermediaries perform a wide variety of trade-related services, it may be difficult for a regulator to assess issues related to intermediaries, but creating an obligation for the intermediary to be declared in application forms may act to deter brokers from acting as principals in trades they

facilitate. Publishing information on brokers' performance, by way of audit reports similar to VWR's broker portal report, has also been suggested by stakeholders.¹⁰²⁰

Accordingly, if the ACCC ultimately recommends a particular option to improve market oversight, it will also take into account the information needed to support any new functions, and what changes would be required to make that information available as needed.

11.4.2. The ACCC's preliminary view is that publishing identifying details will not help solve market issues

The ACCC notes calls for a national water register which publicly discloses the names and other identifying details (such as addresses, ABNs, ACNs) of entitlement holders. Also, some stakeholders have called for the names and other identifying details of significant traders to be made public.¹⁰²¹

The ACCC's preliminary view is that investment to provide this kind of information is not likely to materially assist stakeholders to make trading decisions, and there are other transparency improvements which should be pursued first. The reasons for this are:

- Publication of identity details in many, if not most, cases is insufficient to classify a person or entity into classes of interest to stakeholders. For example, consider a trader name of 'Smith holding Ltd.'—in this case, the holder name provides no information on whether this entity is an irrigator or other water user. This may lead to unintentional or deliberate misuse of published information ('misinformation').
- Stakeholders may respond strategically to publication of entitlement details by taking action to 'mask' their identity (such as transferring entitlement holdings into the name of related parties with less identifiable names)—this outcome would work directly against the objective of improving transparency.

Moreover, the ACCC considers that publication of identity details may have several drawbacks or unintended negative consequences:

- Publication may be inconsistent with personal privacy laws, particularly when relating to information on individuals.
- Publication may allow certain service providers avenues to inappropriately approach individuals to pressure them to engage in trade.
- Publication may allow inappropriate targeting of individuals or entities who are perceived to be engaging in inappropriate conduct, even where the conduct is lawful.

The ACCC considers that the calls for this type of public register are strongly linked to concerns about integrity of water markets and the distribution of gains from trade or potential misconduct. These concerns lead market participants and other stakeholders to call for increased transparency about participant engagement and their conduct in water markets and in markets for trade-related services; transparency measures—even the 'full transparency' of releasing individual identity details—are considered to be part of the solution to address underlying concerns about a variety of matters, such as tying water ownership back to land ownership or placing caps on volumes held by non-land holders. The ACCC considers that a better approach is to balance transparency and privacy concerns by improving the quality, timeliness and accessibility of *de-identified* trade data, and at the same time to address concerns about misconduct or scope to 'take advantage' more directly.

¹⁰²⁰ WEX Water, *Submission to the ACCC Murray–Darling Basin water markets inquiry*, February 2020, p.11 (contained in submission to DELWP re: Water Market Transparency, 6 November 2019).

¹⁰²¹ Department of Environment, Land, Water and Planning (Victoria), *Water Market Transparency - Options paper*, 2019.

The ACCC understands that DELWP has also been progressing options in this space, and are currently conducting a survey¹⁰²² to explore the level of transparency on water ownership. The ACCC will be following this consultation closely and invites stakeholders to submit their views on transparency issues directly to the ACCC, even if they have participated in the Victorian transparency consultation in parallel.

Broader concerns about investor and intermediary conduct are discussed in chapter 5 (investors) and chapter 6 (regarding intermediaries). Possible regulatory options are set out in chapter 7.

Recognising that many market participants find it beneficial to engage water market intermediaries to provide a range of trade-related services, the ACCC's preliminary view is that transparency about the nature and scope of available services would also assist water market participants. To that end, the ACCC's preliminary view is that the following information would be beneficial:

- Access to a list of reputable/registered/authorised brokers or agents who are able to assist with trading and paperwork if needed, with clear information on which service(s) is provided by which entity, and the associated fees and charges.¹⁰²³

Questions for stakeholders

- Do you consider the identification of water right holder types (land-owner, brokers, agribusinesses, environmental water holders) in ownership, permanent and temporary trade registers would change your approach to engaging in water markets? How do you consider such a classification would be made—by account or by individual (for example, a farmer may own an ABA that is not connected to a use licence and then own another that is, in the first option that same farmer would have two classifications, in the second option he would be classified as a land-owner for both accounts).
- Do you support disclosing some ownership information for those who own more than a certain amount of entitlement in a system?¹⁰²⁴ If yes, what proportion should this be and how will this change your approach to engaging in the water market? If no, why?
- Do you support the mandatory collection of broker details in trade forms where the trade was facilitated by a broker? Do you consider that reporting (in an aggregate manner) on broker facilitated trades could increase transparency and reduce concerns about broker misconduct?

¹⁰²² Department of Environment, Land, Water and Planning (Victoria), 2020, <https://waterregister.vic.gov.au/about/news/314-further-consultation-on-water-market-transparency>, viewed 22 June 2020.

¹⁰²³ The Victorian Water Register (VWR) is now publishing a list of all brokers who are authorised to use the Broker Portal, see <https://waterregister.vic.gov.au/about/news/313-water-brokers-accessing-the-online-broker-portal>.

¹⁰²⁴ Victoria is currently consulting on this. See: <https://engage.vic.gov.au/water-market-transparency>.

Part V—Market architecture: trade, water delivery and regulatory design

This part includes three chapters on issues relating to Murray–Darling Basin water market ‘architecture’. The ACCC uses the term market architecture to refer to the rules and regulatory settings that govern water supply (allocation), storage and delivery, trading and other operational decisions. The inquiry direction specifically requires the ACCC to consider: carryover arrangements, and the management of constraints on the storage or delivery of water. The design of these rules influences water supply, the opportunity for trade, the level and location of trade, and manages the impacts of trade on other water users and the environment.

Chapter 12 provides information on some key elements of the Basin market architecture, including the key rules and current operational arrangements, the system constraints that limit trade, and where the responsibility for managing these arrangements currently sits. It then describes stakeholders’ main concerns with the arrangements that govern water supply (extractions caps and Sustainable Diversion Limits, allocations policies), storage (carryover policies), limitations on the movement of water through geographic trading rules (inter-valley trade limits), other water delivery-related issues and metering.

Chapter 13 sets out the ACCC’s preliminary assessment of the issues, building on the concerns described in the preceding chapter. The analysis focuses on identifying problems with water market functioning and design, based on the information considered to date.

Chapter 14 explores how and why the Basin market architecture might need to evolve, drawing on the common themes arising from the assessment of specific stakeholder concerns. It seeks feedback on some questions and potential options to address the issues identified by the analysis to-date.

12. Market architecture and the impacts of trade

Key Points

- Market architecture defines the supply of water in a created market, and sets the rules about what water can be traded where and when, within the river system. It defines the elements necessary to manage water resources and to create water markets, enabling trade to occur.
- In the ACCC's consultations, stakeholders expressed a range of concerns with how various aspects of market architecture managed the impacts of trade activity, including that some stakeholders:
 - raised concerns around allocation policies, metering, carryover, deliverability and conveyance losses, inter-valley trade restrictions, and tagged trades, among other issues
 - find the water market difficult to understand and interact with, and have concerns that it may be manipulated
 - are concerned that differences between jurisdictions' policies, such as metering and allocations policies, may result in unfair outcomes for some market participants
 - are concerned that geographic trade rules (including inter-valley trade limits) inadequately or inappropriately manage the impacts of trade
 - are concerned that river operations rules increase the risk of delivery shortfall and the water required for conveyance losses because of trade and the associated water deliveries.

12.1. Market architecture and the impacts of trade

This chapter describes what the ACCC means by market architecture, explains some key market architecture elements, and highlights the main stakeholder concerns with these arrangements.

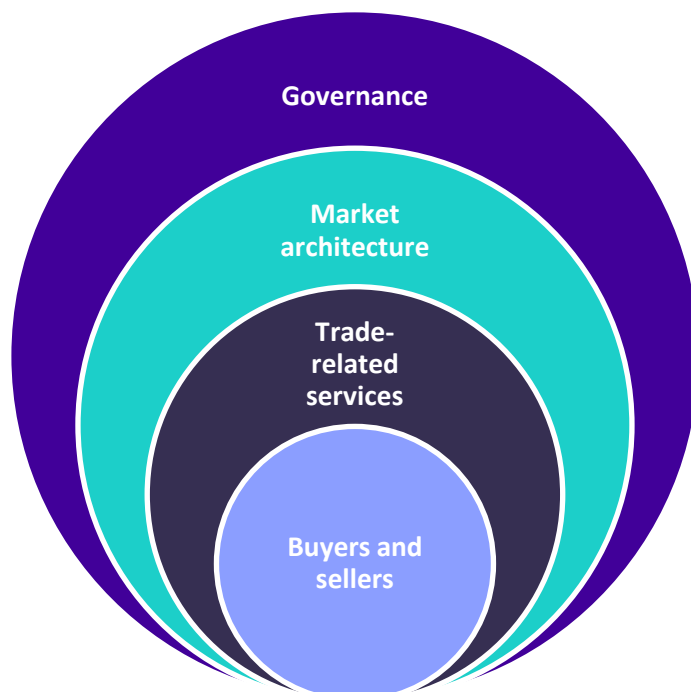
12.1.1. What is market architecture and why does it matter?

Market architecture refers to the regulatory frameworks and institutions that help enable the operation of water markets, along with the governance arrangements and the administrative or trade-related services required to conduct individual trades (see figure 12.1). Market architecture is not a defined term, and there may be differing views about the scope of the term.

Market architecture determines when and where water is available

Market architecture defines supply and sets the rules about what can be traded where and when, within the river system. Water markets are 'created markets': rules and other arrangements create or limit the supply of water, by capping the amount of water available for extraction (now achieved through Sustainable Diversion Limits (SDLs)), and establish the framework of rights or products that are traded (tradeable water rights). Allocation policies, available water determinations, carryover, geographical trade rules, river operations and metering are some key elements of Murray–Darling Basin (Basin) water market architecture.

Figure 12.1: Conceptual diagram of water market institutions



Market architecture sits within, and is informed by, the governance framework.¹⁰²⁵ Governance can be distinguished from market architecture as being more concerned with who determines the market architecture rules, the process by which those rules are set and decisions as to what trades 'should' happen (in an equity or fairness sense). For example, market architecture rules determine what trade can physically occur within system constraints, while conduct-related rules concern themselves with which participants secure the gains from trade.

As distinct from the rules that govern what and where water can be traded, trade-related services provide the administrative functions to actually give effect to individual trades within the rules or market architecture. There is a two-way relationship between the market architecture and trade-related services, as river operations, water accounting and operation of trading limits shape how trade-related services can operate in the market, but trade-related services are concerned with how individual trades are given effect.

Collectively, these institutions form the environment in which buyers and sellers come together to trade. Without market architecture, trade and water markets would not be possible.

¹⁰²⁵ Section 2.11 describes current governance arrangements. Chapter 15 discusses issues with those governance arrangements, including the importance of effective compliance and enforcement of the rules.

Basin market architecture is complex

The market architecture that allows Basin water markets to function is complex and interconnected but fragmented. Factors that contribute to this include that:

- Policy responsibility and regulatory oversight is spread across state and Commonwealth agencies. Different instruments set the rules depending on the location and issue in question.¹⁰²⁶
- River systems are characterised by physical constraints and limited storage and delivery capacity. Some rivers cross state borders and therefore require cooperation between states on their management. The Southern Connected Basin is a dynamic and interconnected system: changes to rules and systems operations in one part of the system affect other parts of the system.
- Arrangements to enable trade were overlaid on pre-existing arrangements for the allocation and extraction or delivery of water. Policy makers have managed growing trade volumes through the incremental development of rules to manage delivery and physical system characteristics.

12.1.2. Concerns with market architecture are wide-ranging

During consultation, the ACCC heard about a wide range of concerns relating to market architecture elements and the alleged impacts of trade-related activity on other water users and the environment caused by policy and rule design. Stakeholder views on these matters were sometimes in conflict and were influenced by location and extent of participation in water markets. They also reflected that current policies or rules are not always well understood.

The key elements of market architecture discussed in this chapter are:

- extractions caps (SDLs)
- allocation policies and available water determinations
- carryover
- geographical trade rules (including inter-valley trade (IVT) limits)
- river operations
- metering.

The ACCC welcomes feedback on whether this chapter has identified the main market architecture concerns, and will comment on any material additional issues in our final report.

¹⁰²⁶ Resource management, trade arrangements and system operations may be managed at: a catchment or resource level, through water resource plans; a state level, through state water management law and policies; or at a regional or Basin level, under the Water Act, Basin Plan, the Murray–Darling Basin Agreement, schedules and protocols, or the Border Rivers arrangements.

Questions for stakeholders

- Has the ACCC identified the main concerns with trade activity and Basin market architecture, and in particular, with the key elements, as set out below?
 - Extractions caps (Sustainable Diversion Limits)
 - Allocation policies and available water determinations
 - Carryover
 - Geographical trade rules (including inter-valley trade (IVT) limits)
 - River operations
 - Metering
- Are there gaps in or issues with other areas of the market architecture that you would like the ACCC to consider?

12.2. Implementation of extractions caps (Sustainable Diversion Limits)

Water markets are based on the idea of managing a scarce resource through a ‘cap-and-trade’ system (see box 2.8 in chapter 2). Once a cap on total consumptive water use is established at a sustainable level, water trading is the main mechanism used to ensure water resources are available to a range of users, and are shared fairly, sustainably and efficiently.

Basin State governments have capped the total amount of water that can be taken from the Basin’s water resources for consumptive uses. Prior to the Murray–Darling Basin Ministerial Council’s Basin-wide cap on diversions in 1995, state governments managed water use through limits in their own water management legislation. In 2012, the Murray–Darling Basin Plan (Basin Plan) introduced a new water accounting and compliance framework based on SDLs (see section 2.2). The new limits brought groundwater and interceptions by forestry, floodplain harvesting and farm dams into the cap on water use.

The amount of water available to allocate changes from year to year and depends primarily on storage levels and weather conditions. Consumptive water users hold entitlements to a share of the available pool, and are allocated water according to the allocation policies and rules for the water resource plan area. Basin States are required to give effect to SDLs in their water resource plans and allocation policies.¹⁰²⁷ Water resource plans must ensure that the permitted average take must be equal to or less than the SDL. Water resource plans also have to include rules to ensure actual water use does not exceed the permitted take.¹⁰²⁸ Water users are legally entitled to use all water allocated to consumptive uses under water resource plans, but not more.

Compliance with the SDL is assessed each year as a cumulative balance which cannot exceed 20 per cent of the long-term annual diversion limit without a reasonable excuse.¹⁰²⁹ MDBA can audit SDL compliance and publish the findings of its audit, including steps that it believes should be taken to bring the SDL resource unit back to balance. The findings of such an audit may also lead to further action being taken by MDBA to ensure compliance.¹⁰³⁰

¹⁰²⁷ *Basin Plan 2012* (Cth), s. 10.10.

¹⁰²⁸ *ibid.*

¹⁰²⁹ *Basin Plan 2012* (Cth), ss. 6.10-6.12.

¹⁰³⁰ *Basin Plan 2012* (Cth), s. 6.12(5). Note: MDBA may take additional compliance actions under sections 34, 35, 58 and 59 of the *Water Act 2007* (Cth).

From 1 July 2019, the SDL water accounting and compliance arrangements are enforceable by the MDBA. In the interim period since 2012, MDBA has been publishing Transition Period Water Take Reports that set out the consumptive take of water from the Basin under both the cap compliance reporting and the trial SDL accounts.¹⁰³¹ It also reports on environmental water held, available and used each year. Basin States provide data to the MDBA about how much water was actually taken each year compared to the annual permitted take. This is used to assess SDL compliance. Robust and transparent water accounting and compliance arrangements underpin the water market by ensuring long-term water resource management arrangements are sustainable and secure.

Environmental water

Environmental water holders now own a substantial volume of water access entitlements, often referred to as Held Environmental Water.¹⁰³² In 2004, parties to the NWI agreed 'environmental and other public benefit outcomes... be given statutory recognition and have at least the same degree of security as water access entitlements for consumptive use and be fully accounted for'.¹⁰³³ The parties further agreed to 'establishing and equipping accountable environmental water managers with the necessary authority and resources to provide sufficient water at the right times and places... to achieve the environmental and other public benefit outcomes'¹⁰³⁴ including the ability to trade water on temporary markets.¹⁰³⁵

Under the Basin Plan, the Australian Government has recovered over 2100 GL of water for the environment (long-term diversion limit equivalent volume)¹⁰³⁶, which is now owned by the Commonwealth Environmental Water Holder. The Basin Plan's water recovery builds on previous water recovery through state and Australian Government initiatives such as The Living Murray program.

Water is allocated from the available pool to entitlements owned by environmental water holders, who make decisions about when, where and how much water is used from environmental water accounts, including whether to trade it to users in the consumptive pool. Environmental water is excluded from assessing compliance with consumptive water use limits. If water is traded between environmental water holders and the consumptive pool, SDL compliance accounting methods make an adjustment to the annual permitted take limit.¹⁰³⁷

12.3. Allocation policies and available water determinations

Water access entitlements represent the ongoing right to exclusive access to a share of water. Water allocations are the volume of water that entitlement holders are granted the right to extract in a given year, usually expressed as a proportion of their total entitlement volume (figure 12.2).

The total amount of water allocated in a connected system represents the supply of water in the market. This amount will be driven by allocations (or available water determinations in

¹⁰³¹ It is anticipated that the Murray–Darling Basin Ministerial Council will make a decision to end water take reporting against the cap as the sustainable diversion limit compliance framework and water resource plans are accredited and come into effect in the 2019–20 water year. The Murray–Darling Basin Agreement will need to be amended to give effect to such a decision.

¹⁰³² *Water Act 2007* (Cth), s. 4.

¹⁰³³ Council of Australian Governments, *Intergovernmental agreement on a National Water Initiative*, 2004, www.agriculture.gov.au/water/policy/nwi, paragraph 35.

¹⁰³⁴ *ibid*, paragraph 78.

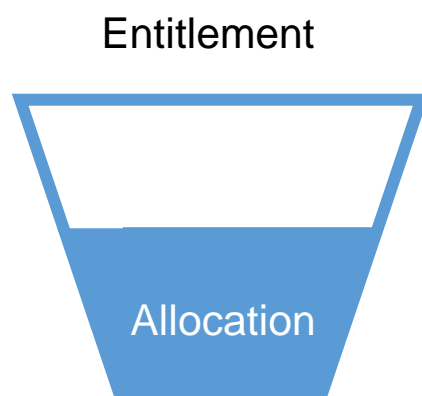
¹⁰³⁵ *ibid*, paragraph 79.

¹⁰³⁶ The Australian Government Department of Agriculture, Water and the Environment 2020, www.agriculture.gov.au/water/mdb/progress-recovery, viewed 15 June 2020.

¹⁰³⁷ *Basin Plan Act 2012* (Cth), s. 10.12(3).

New South Wales) made to the system's water sources in the current year as well as water carried over from previous years. While inflows are the primary driver of water availability and allocations, the exact level of supply in the market will ultimately be determined by the approaches taken by the MDBA and state governments to assess and allocate available water resources.¹⁰³⁸ The historical decisions made by state governments when establishing their water entitlement frameworks continue to play a significant role in influencing supply in water markets.¹⁰³⁹

Figure 12.2: Conceptual diagram of entitlements and allocations



12.3.1. The MDBA is responsible for determining bulk water availability in the River Murray System

The MDBA undertakes the bulk water resource assessment for the River Murray System—a tiered process that sets volumes aside for conveyance (this represents the water that is lost while flowing through the river system during the current year), critical human water needs (CHWN) and the conveyance reserve (which allows for delivery of the next year's CHWN)—before allocating a proportion of the shared water resource to the states (see figure 12.3).¹⁰⁴⁰ This includes determining how much of its 1850 GL total entitlement South Australia receives (including 696 GL for dilution and losses). South Australian water authorities then distribute this water to different commitments according to the River Murray Water Allocation Plan.¹⁰⁴¹ State resource managers are responsible for assessing and allocating water resources in water sources outside the River Murray System, such as in the Northern Basin.

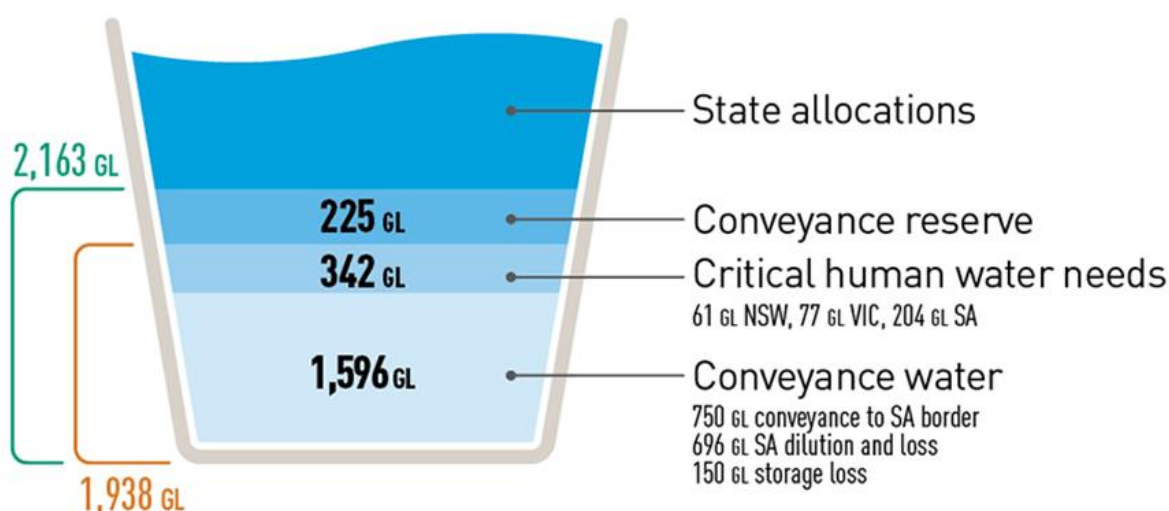
¹⁰³⁸ Murray–Darling Basin Authority, *Conveyance Losses in the River Murray System 2018–19*, 2019, www.mdba.gov.au/sites/default/files/pubs/River-murray-system-losses-report.pdf, p. 23, viewed 15 March 2019.

¹⁰³⁹ Interim Inspector-General of Murray–Darling Basin Water Resources, *Impact of lower inflows on state shares under the Murray–Darling Basin Agreement (IIG Report)*, 2020, pp. 21–22.

¹⁰⁴⁰ Murray–Darling Basin Authority 2018, www.mdba.gov.au/river-information/water-sharing/critical-human-water-needs, viewed 20 March 2020.

¹⁰⁴¹ South Australian Department for Environment and Water 2020, www.environment.sa.gov.au/topics/river-murray/about-river-murray/water-allocations-and-announcements/how-water-is-allocated, viewed 28 May 2020.

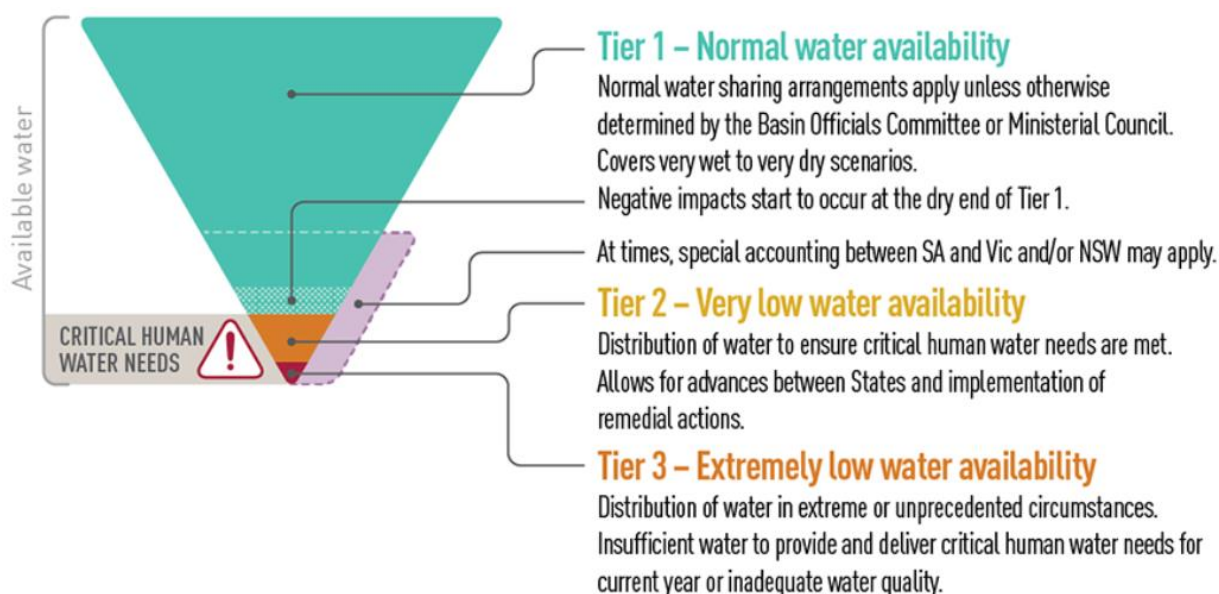
Figure 12.3: Bulk water sharing tiers in the Murray–Darling Basin



Source: Murray–Darling Basin Authority, 2018, www.mdba.gov.au/river-information/water-sharing/critical-human-water-needs, viewed 28 March 2020.

The Basin Plan includes triggers for moving between water availability tiers based on the risk to meeting and delivering CHWN in the River Murray System. Tier 2 arrangements are triggered when CHWN volumes can be met but changes to water sharing arrangements are needed to provide conveyance water and/or the conveyance reserve. Tier 3 arrangements are only triggered in extreme and unprecedented circumstances of low levels of water availability in the system and where there is an extremely high risk that water will not be available to meet CHWN in the next 12 months. Tier 3 requires an emergency response to be agreed by the Murray–Darling Basin Ministerial Council.¹⁰⁴²

Figure 12.4: Tiered system of drought management



Source: Murray–Darling Basin Authority, 2018, www.mdba.gov.au/river-information/water-sharing/critical-human-water-needs, viewed 28 March 2020.

¹⁰⁴² Murray–Darling Basin Authority, 2018, www.mdba.gov.au/river-information/water-sharing/critical-human-water-needs, viewed 28 March 2020.

Tier 2 and 3 water sharing arrangements reflect extreme dry periods and have not yet been enacted in the River Murray System. It is possible that Tier 2 water sharing arrangements may have been applied during the Millennium Drought or at least would have been forecast to occur. However, the water sharing tiers as currently defined were not in place during the Millennium Drought, and water resource assessment processes were undertaken differently at the time.

In some catchments, the relevant minister or water authority also has the ability to introduce special provisions around allocations policies and the way entitlement holders can access their water. During extreme events (such as droughts) in New South Wales, for example, the relevant minister may impose temporary water restrictions or suspend all or part of a water sharing plan (which has the effect of altering the rules of priority for making available water determination).¹⁰⁴³ Incident Response Guides establish the stages of drought criticality and possible management responses for each catchment, and generally include the ability to restrict access to carryover.¹⁰⁴⁴ These provisions and their implementation may not always be well understood by stakeholders which can undermine market confidence when they are applied.

12.3.2. State policies determine allocation of water to entitlement holders

After the MDBA has determined the amount of water available in the River Murray, Basin State water resource managers in New South Wales and Victoria determine the share of the available water in each water source to be allocated to entitlement holders. The water is allocated out according to state water management law to different classes of entitlement holders, and used for other purposes, such as reserves for future years. This generally involves examining volumes of state water held in relevant storages, inflow forecasts and other considerations at the beginning and throughout each year.

Allocation announcements (known as water allocation statements in New South Wales and South Australia and seasonal determinations in Victoria) let entitlement holders know how much they are allowed to extract. This is expressed as a proportion of water held under each entitlement type (as a percentage of each ML held). These tend to be released fortnightly and are generally published on the relevant state government agency's website.^{1046, 1047}

In Queensland, the Department of Natural Resources, Mines and Energy may make an announcement limiting the water that may be taken under a water access entitlement (referred to as a water allocation). These announcements are called announced allocations, announced entitlements or annual announced limits and occur in times of drought, low water availability or stress on water resources.¹⁰⁴⁸

¹⁰⁴³ New South Wales Department of Industry, *Extreme Events Policy*, 2018, www.industry.nsw.gov.au/_data/assets/pdf_file/0008/187703/Extreme-Events-policy.pdf, p. 5, viewed 15 June 2020.

¹⁰⁴⁴ For example: New South Wales Department of Industry, *Macquarie-Castlereagh incident response guide Schedule G*, 2018, www.industry.nsw.gov.au/_data/assets/pdf_file/0018/201906/macquarie-castlereagh-schedule-g-incident-response-guide.pdf, p. 14, viewed 15 June 2020

¹⁰⁴⁶ New South Wales Department of Planning Industry and Environment 2020, www.industry.nsw.gov.au/water/allocations-availability/allocations/how-water-is-allocated/resource-assessment-process, viewed 28 May 2020.

¹⁰⁴⁷ Northern Victoria Resource Manager 2020, www.nvrm.net.au/seasonal-determinations/how-allocations-work, viewed 28 May 2020.

¹⁰⁴⁸ Business Queensland 2020, www.business.qld.gov.au/industries/mining-energy-water/water/authorisations/announced-entitlements, viewed 28 May 2020.

12.3.3. Stakeholder hold a range of concerns about allocations policies

Concerns about the declining reliability of allocations were common

Many stakeholders had concerns that the reliability of allocations, particularly to general security entitlements in New South Wales, had been eroded.¹⁰⁴⁹ Stakeholders also argued that environmental water buybacks have impacted allocations to lower security entitlements.¹⁰⁵⁰

SunRice expressed the following concerns:

General security water entitlement holders have also seen significant erosion of their rights over the last 10 years, driven by: the increased delivery to the lower reaches of the Murray–Darling Basin of vast quantities of water purchased in the upper reaches [which] has exacerbated conveyance losses... [This] resulted in Murray and Murrumbidgee general security water right holders bearing a disproportionate impact [of reduced allocations].¹⁰⁵¹

Stakeholders raised concerns alleging governments have changed allocation policies. This includes that governments have made allocation policies more conservative, reducing the amount of water made available to irrigators, particularly those with lower security entitlements.¹⁰⁵²

Some stakeholders were concerned that allocation announcements were being made later in the season, impacting water users' ability to make business decisions and access finance early in the season. Stakeholders argued that later allocation announcements were pushing them to unwillingly increase their use of carryover to 'shore up' their early season water availability.¹⁰⁵³ This is particularly relevant to general security holders in New South Wales, who argue that these changes have had a disproportionate impact on their allocation reliability.

For example, Coleambally Irrigation Co-operative Ltd asserted there had been a shift in New South Wales allocation policies:

Post the millennium drought government allocation policy has become more conservative. Allocation announcements are based on a 99% chance of exceedance inflows (that is, low) and in addition water is being set aside to guarantee high priority needs in the next water year prior to announcing improvements in general security. For example, in the Murrumbidgee valley on 15 November 2019 350 GL, or nearly 19 percent of the volume available, was reserved for 2020/21 high priority needs.¹⁰⁵⁴

Stakeholders also expressed concerns about inconsistencies in allocation procedures between states and over time. Several stakeholders noted that more conservative approaches in Victoria had driven increased permanent horticulture plantings and environmental water holders preferring to acquire entitlements within Victoria.¹⁰⁵⁵

¹⁰⁴⁹ Murrumbidgee Valley Food and Fibre Association, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2.

National Irrigators Council Submission, Submission to the Murray–Darling Basin inquiry, January 2020, p. 10.

Deborah Arthur, Submission to the Murray–Darling Basin inquiry, February 2020, pp. 1–2.

¹⁰⁵⁰ Goulburn Murray Irrigation District Water Leadership, Submission to the Murray–Darling Basin inquiry, January 2020, pp. 2–3.

¹⁰⁵¹ SunRice, Submission to the Murray–Darling Basin inquiry, February 2020, p. 6–7.

¹⁰⁵² Murrumbidgee Valley Food and Fibre Association, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2.

¹⁰⁵³ Deborah Arthur, Submission to the Murray–Darling Basin inquiry, February 2020, p. 1.

¹⁰⁵⁴ Coleambally Irrigation Co-operative Ltd, Submission to the Murray–Darling Basin inquiry, February 2020.

¹⁰⁵⁵ Swan Hill Council, Submission to the Murray–Darling Basin inquiry, January 2020, p. 5.

Central Irrigation Trust's submission articulates a number of these concerns:

*Jurisdictional issues are significant and historical. Who owns what assets (dams and storages), who is allocated inflows from rivers and tributaries, how that is shared across jurisdictions and how that is allocated within a jurisdiction that rely on it. As well we see fluidity of the rules as conditions change (tiers of sharing) or at the whim of a Government as seen with the Goulburn Inter Valley Trade to address perceived or political state issues. Add to this the variability of inflows and it is easy to see complexity in the rules that share and allocate the resource. As we move into drier times the water sharing arrangements change, making the rules quite fluid.*¹⁰⁵⁶

Comments made by the MDBA express concerns that current rules and policies (or key inputs) may not be sufficiently dynamic or adaptable to remain fit-for-purpose in an evolving market:

*Hydrological models calibrated and validated during the late 1990s may not be reflective of current irrigation practices and farmer behaviour, and consequently may have poor predictive capacity for low-flow periods.*¹⁰⁵⁷

Some stakeholders are frustrated by the lack of clear information about allocation policies and anticipated announcements

Submissions and responses at public forums included concerns that there is insufficient information available for stakeholders to understand water allocation decisions and reasonably predict future allocation levels, particularly in New South Wales. These concerns appear to be elevated due to differences between state allocation policies, and a lack of understanding around the justification for these differences.

However other stakeholders praised state government allocation announcements as timely, accurate, useful and informative, and identified that views were often influenced by the state in which the stakeholder was based.¹⁰⁵⁸

The Australian Water Brokers' Association stated:

*The AWBA have concerns around the lack of clarity and transparency in NSW Water announcements over the past 12 months ... An announcement from August 2019 indicated how perilously close irrigators [in the Murray regulated system] were to losing all their carry over water, despite this not being communicated clearly to the market prior. Generally, Victorian [Department of Environment Land, Water and Planning's] allocation announcements and outlooks are consistent and transparent. South Australia's have improved over the past 12 months, with an increased focus on forward looking projections.*¹⁰⁵⁹

Stakeholders also expressed concerns about the increasing unpredictability of allocations and the timing of announced improvements. This relates to a perceived shift in the relationship between allocation levels and key determining factors such as storage volumes and inflows. Frequent and poorly communicated changes of government allocation policies have further undermined entitlement holders' ability to predict allocations.¹⁰⁶⁰

¹⁰⁵⁶ Central Irrigation Trust, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2.

¹⁰⁵⁷ Murray–Darling Basin Authority, Submission to the Murray–Darling Basin inquiry, February 2020, p. 11.

¹⁰⁵⁸ Central Irrigation Trust, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2.

¹⁰⁵⁹ Australian Water Brokers Association, Submission to the Murray–Darling Basin inquiry, January 2020, p. 5.

¹⁰⁶⁰ Central Irrigation Trust, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2.

Stakeholders alleged that some market participants are unfairly benefitting from early access to water availability and allocation information

The ACCC is also aware of claims that some stakeholders may have privileged access to water allocation information, allowing them to participate in insider trading and make business decisions based on information not available to other market participants.¹⁰⁶¹

The ACCC's assessment of the issues relating to water allocation policies is in section 13.2.

12.4. Carryover

'Carryover' refers to policies, rules and other mechanisms or arrangements ('carryover arrangements') that allow holding or 'banking' of water allocations issued in one water year for use or trade in subsequent water years (see box 2.1 in chapter 2). Carryover arrangements allow water users to save their unused water from wet years for use in dry years, providing the market with a key tool to manage water availability risk. Carryover policies should not contribute to increases in usage that exceed SDLs.

States are responsible for setting carryover policies, resulting in different rules across states. See table 12.1 and the sections below for a summary of state carryover policies. Some valleys in the Northern Basin use water accounting rules that remove the need for water to be carried over at the end of the water year as is common in the Southern Basin.

For example, the Namoi Valley uses continuous accounting, which involves more frequent water accounting (monthly) accounting compared to the yearly accounting in the Southern Basin. Namoi accounts are subject to maximum volume limits (200 per cent of entitlement), but there are no carryover limits and all losses are centrally managed.

St George uses capacity sharing which, in contrast to annual allocation and continuous accounting systems, does not involve centrally determined allocations. Instead, users are entitled to a percentage of storage inflows and storage capacity and user accounts are updated daily to reflect inflows, usage, storage and delivery loss deductions. Reconciliations between physical storage volumes and user storage accounts occur monthly.

¹⁰⁶¹ ACCC Murray–Darling Basin inquiry, Kerang public forum.

Table 12.1: Carryover rules summary, by Basin State¹⁰⁶²

State	Carryover rules
Qld ¹⁰⁶³	Border Rivers, Macintyre Brook and St George water supply schemes allow water to be carried forward at the end of a water year and not pooled and reset at the start of the water year. All these systems use either continuous share accounting or capacity sharing.
NSW ¹⁰⁶⁴	Carryover is mostly available for general security entitlements. There are different rules for each water source but invariably restrictions apply. These restrictions differ from each river system. Examples of restrictions include how much a person can carryover from year to year, how much water they are allowed to carry on their entitlement, or how much water they can use in a year.
Vic ¹⁰⁶⁵	<p>Carryover and spill rules differ between water systems based on the hydrology and storage capacity of each system. In Victoria's smaller systems (the Broken, Loddon and Bullarook systems), entitlement holders are limited in the amount of dam space they can use. The 100 per cent rule means entitlement holders can only hold carryover and new allocations that add up to 100 per cent of their entitlement volume in any given season.</p> <p>In Victoria's larger systems (Murray, Goulburn and Campaspe), an entitlement holder can carry over up to 100 per cent of their water share volume for both high and low reliability water shares. Spillable accounts allow these entitlement holders to make use of space in the dams when it is available to store water above 100 per cent of their entitlement volume.</p> <p>When the stored volume exceeds 100 per cent of entitlement volume, it is quarantined in spillable accounts until a low spill risk is declared. When the dam spills, water is forfeited proportionally across entitlement holders' spillable accounts. This rule has been in place since 2010 to ensure inflows that support new allocations can be captured in the dams.</p> <p>Victoria also deals with evaporation losses on carryover by deducting 5 per cent of water carried over.</p>
SA ¹⁰⁶⁶	<p>South Australia has recently completed a review into its carryover policy. The new policy now includes a 5 per cent reduction for evaporation loss on carryover water at a bulk level (rather than deducting 5 per cent from an individual's carryover volume, as per the previous policy) as well as now allowing entitlement holders to roll over excess volumes above 100 per cent for future dry years when allocations reach 100 per cent.</p> <p>Private carryover will be granted when minimum opening irrigation allocations in April are 50 per cent or less. Private carryover is allowed for up to 20 per cent of the volume of Class 3 water access entitlements held. A final water meter reading must be provided by 31 July to be eligible for carryover.</p> <p>After carryover has been announced, if conditions improve and allocations increase to 100 per cent, the total allocation (against entitlements plus carryover allocation) cannot</p>

¹⁰⁶² Carryover rules taken from water supply schemes' or governments' websites.

¹⁰⁶³ Murray–Darling Basin Authority 2020, www.mdba.gov.au/managing-water/water-markets-trade/water-markets-product-information/qld, viewed 23 March 2020.

¹⁰⁶⁴ Murray–Darling Basin Authority 2020, www.mdba.gov.au/managing-water/water-markets-trade/water-markets-product-information/nsw, viewed 1 April 2020.

¹⁰⁶⁵ Victorian Department of Environment, Land, Water and Planning, 2020, *Carryover factsheets*, www.waterregister.vic.gov.au/water-entitlements/carryover/carryover-factsheets, viewed 25 March 2020.

¹⁰⁶⁶ South Australian Department for Water and Environment, 2020, *South Australian Private Carryover*, www.environment.sa.gov.au/topics/river-murray/about-river-murray/water-allocation-and-carryover/south-australian-private-carryover, viewed 27 March 2020; Government of South Australia, 2020, *Water Allocation Plan for the River Murray Prescribed Watercourse Private Carryover*, www.naturalresources.sa.gov.au/files/sharedassets/sa_Murray-Darling_basin/water/allocation_plans/river_murray/2020_river_murray/rm-wap-consultation-private-carryover-march-2020-fact.pdf, viewed 23 June 2020.

exceed 100 per cent. If there is not enough water available in storage to meet the total carryover demand for all eligible water users, the volume of water granted to an individual will be reduced proportionally.

Australian Capital Territory manages its water resources via the *Water Resources Act 2007* and does not mention carryover in its legislation.¹⁰⁶⁸

12.4.1. Carryover was introduced to help farmers cope with the Millennium Drought

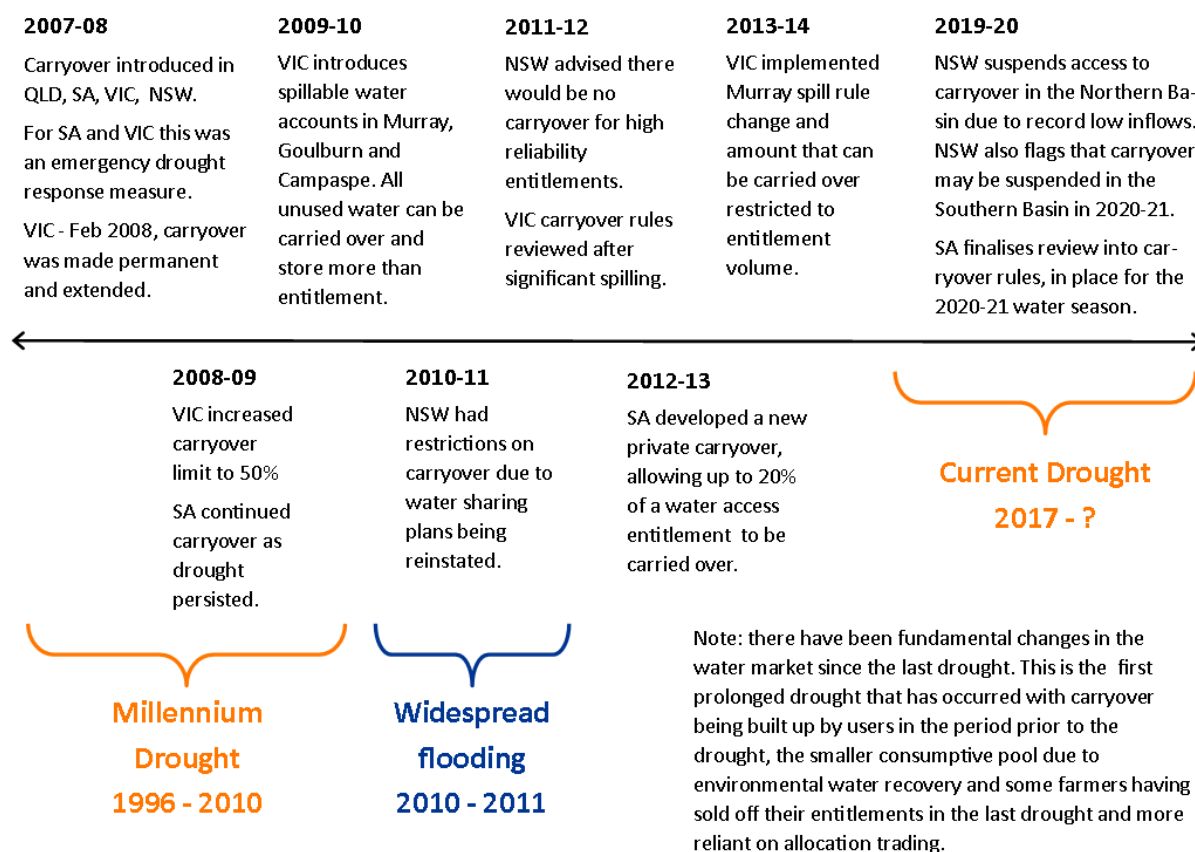
Carryover was widely introduced by states as a temporary measure during the Millennium Drought (see figure 12.5).¹⁰⁶⁹ Its aim was to help farmers deal with the impacts of the drought, allow farmers to smooth out their consumption of water across dry years and reduce the ‘use it or lose it’ mentality commonly seen with policies that resulted in users forfeiting unused water allocations at the end of the water year.

All states kept carryover following the end of the Millennium Drought to allow water users to better manage their risks, rather than relying solely on the centralised allocation decision making of state authorities over multiple years. Since the Millennium Drought, carryover has been activated in South Australia twice; in 2016–17 and 2019–20.

¹⁰⁶⁸ *Water Resources Act 2007* (ACT), www.legislation.act.gov.au/View/a/2007-19/current/PDF/2007-19.PDF.

¹⁰⁶⁹ N Hughes, M Gupta, K Rathakumar, *Lessons from the water market: The southern Murray–Darling Basin water allocation market 2000–01 to 2015–16*, Department of Agriculture, ABARES 2016, p. 22.

Figure 12.5: Carryover timeline



12.4.2. Carryover has facilitated the creation of new risk management products

Carryover has facilitated the creation of new water market products, including forward contracts and carryover ‘parking’. Carryover parking involves the renting of carryover capacity to a counterparty. In practice, this involves receiving a volume of allocations from the counterparty prior to the end of a water year and returning the net allocations to the counterparty after the start of the next water year. The provider of carryover capacity receives a fee for this service. Carryover parking operates as a proxy market for storage, reflecting that current carryover policy bundles access to storage with entitlements.

12.4.3. Stakeholders have a range of concerns about carryover and the impacts of carryover arrangements

Stakeholders find information on carryover can be hard to find and difficult to understand

Stakeholders have raised concerns about the availability and quality of information on carryover policies. Citrus Australia’s submission states:

Carryover can be somewhat confusing for growers, depending on the region. In South Australia, the amount of carryover is only announced annually, therefore it is difficult for growers to make plans any earlier. Growers must seek out this information, depending on whether it is at a local or state level.¹⁰⁷⁰

¹⁰⁷⁰ Citrus Australia, Submission to the Murray–Darling Basin inquiry, January 2020, p. 8.

There is also widespread concern about the wider level of information available, particularly around the volumes of water carried over, and its relationship with dam levels. Market participants have used dam levels to make predictions about the level of water allocations they may be likely to receive that year.¹⁰⁷¹ The Australian Farming Services' submission states:

*Prior to there being environmental water entitlements and carryover, storage volumes provided a reasonable indication of the expected seasonal opening allocations. This is no longer the case.*¹⁰⁷²

Stakeholders are concerned that the impacts of carryover on other water users are not always taken into account

Stakeholders raised concerns that use of carryover has created a range of third party impacts that are not properly accounted for in policy design, including reduced future allocations and reliability of entitlements. Concerns about impacts arise from perceptions of water carried over not contributing to storage losses, generating potentially higher conveyance losses, increasing spill risk and affecting allocations and entitlement reliability by decreasing the volumes of water that, at the end of the water year, used to be socialised back into the consumptive pool for reallocation.

An externality (or cost not taken into account) of carryover is the cost of storing the water. Losses that are not properly accounted for in carryover policies represent a cost that the user of the policy does not pay for, and are then socialised (or spread) across all other water entitlement holders. Both losses are highlighted below in Murrumbidgee Valley Food and Fibre Association's submission:

*Costs for storage and conveyance losses, including those associated with carry over and IVT trades, must be factored into all allocation trades downstream or cross valley from their original entitlement source zone in the entirely regulated Southern Connected System.*¹⁰⁷⁴

Fruit Growers Victoria's (FGVL) submission highlights the concern that carryover has increased spill risk:

*FGVL is concerned, though, that the ability to carry over 100 per cent against Victorian low reliability water share may be permitting water owners and users (including environmental holders) to hold too great a volume of water from one season to another, increasing the risk of dam spills (either physical or internally to NSW).*¹⁰⁷⁵

Stakeholders also expressed concern that carryover was reducing reliability of entitlements by having water that had previously been forfeited into the consumptive pool for allocations the following year, now being reserved in carryover. Lindsay Rogers highlights the calls for carryover to be abolished:

*All unused allocations should become part of next season's pool allocation as it used to.*¹⁰⁷⁶

¹⁰⁷¹ The Almond Board of Australia, Submission to the Murray–Darling Basin inquiry, March 2020, p. 14; Citrus Australia, Submission to the Murray–Darling Basin inquiry, January 2020, p. 6; David Morrison, Submission to the Murray–Darling Basin inquiry, January 2020, pp. 6-7.

¹⁰⁷² The Australian Farming Services, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2.

¹⁰⁷⁴ Murrumbidgee Valley Food and Fibre Association, Submission to the Murray–Darling Basin inquiry, January 2020, p. 4.

¹⁰⁷⁵ Fruit Growers Victoria Ltd, Submission to the Murray–Darling Basin inquiry, February 2020, p. 3.

¹⁰⁷⁶ Lindsay Rogers, Submission to the Murray–Darling Basin inquiry, February 2020, p. 1.

Not all stakeholders considered the concerns about impacts on allocations to be valid. Simone and Lachie Knight's submission argued that:

*Suggestions that removing carryover would result in higher allocations are flawed. They assume that irrigators would behave in the same manner without access to carryover as they do with access to carryover which is incorrect. Without access to carryover, irrigators would grow more lower gross margin crops in wet years to use up their water rather than forfeit it. The net result would be higher use of water in wet years, and reduced water availability in dry years.*¹⁰⁷⁷

Attendees to the ACCC's public forums also expressed a wide range of opinions on carryover, with a number calling for its removal altogether, but many others expressed strong support for maintaining it.

Stakeholders are concerned with the fairness of policy differences and some call for standardisation of carryover rules

Leeton Shire Council reflected the views of some stakeholders in calling for more standardisation of policies across states:

*The ability to carryover water is essential for water entitlement holders and we recommend that carryover ability is maintained in future water trading markets but with improved fairness and increased standardisation.*¹⁰⁷⁸

There have also been widespread concerns raised about third party impacts from trade conducted for carryover purposes. The MDBA's submission advocates for 'a more even playing field for all water market participants':

*As an example, there is a notable shift of traded water before the end of a given water year to the Victorian side of the river for participants to use Victoria's more generous carry-over provisions. An aligned policy on carryover would stop the need for this movement of water.*¹⁰⁷⁹

Some alleged that investors use carryover to drive up prices, so should not be able to access carryover arrangements

There was widespread concern expressed by stakeholders about carryover allowing investors to increase allocation prices in dry periods.¹⁰⁸⁰ Stakeholders allege that investors do not need to use water in the same way that irrigators do, allowing investors to use carryover to achieve sales at higher prices in drier years. This submission from Lindsay Rogers outlined these concerns:

*Carry over, causes inflation of water prices and allows speculator trading.*¹⁰⁸¹

However, other stakeholders held positive views about the outcomes from investors and non-water users accessing carryover. This submission from John Kennedy highlights the possible benefits for water users:

For example I have 100ML purchased at \$250 per ML, at the time of the agreement this was above the spot price but now sits \$600 below the spot price, all parties are benefiting from the agreement. Any major alterations [to carryover] will mean that

¹⁰⁷⁷ Simone and Lachie Knight, Submission to the Murray–Darling Basin inquiry, January, p. 3.

¹⁰⁷⁸ Leeton Shire Council, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2.

¹⁰⁷⁹ Murray–Darling Basin Authority, Submission to the Murray–Darling Basin inquiry, February 2020, p. 11.

¹⁰⁸⁰ Goulburn Murray Irrigation District Water Leadership, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2; National Irrigators Council, Submission to the Murray–Darling Basin inquiry, January 2020, p. 15.

¹⁰⁸¹ Lindsay Rogers, Submission to the Murray–Darling Basin inquiry, February 2020, p. 1.

*these products will disappear and grower's ability to secure forward sales will also disappear.*¹⁰⁸²

Stakeholders require changes to be made with appropriate consultation and signalling to the market

Stakeholders raised concerns about changes in carryover policies and that these changes are not always properly consulted on. Fruit Growers Victoria's submission advocated that:

*If a decision were taken to limit carryover provisions attached to entitlement, then these changes should only be introduced after significant consultation and an incremental implementation period.*¹⁰⁸³

Concerns and issues with carryover are assessed further in section 13.4.

12.5. Geographical trade rules (including inter-valley trade restrictions and tagged trades)

Geographical trade rules operate to limit trade to manage water supply considerations and adverse trade impacts on the environment and other entitlement holders. These trade rules include trading zones, IVT account limits, tagged accounts and the Barmah Choke trade limit, which are discussed in more detail in sections 2.6, 3.2.1 and 3.2.2, with additional information provided in appendix D and appendix E. Box 12.1 provides a brief history of geographic trade rules in the Basin.

Box 12.1: A brief history of geographic trade rules in the Murray–Darling Basin

Prior to the 1990s, very limited trading occurred mostly during periods of droughts. In 1994, the Council of Australian Governments agreed to establish the goal of water moving to its highest valued use by promoting interstate trade.

Under the National Water Initiative (NWI) in 2004, states agreed to the immediate removal of barriers to 'temporary' or allocation trade and to impose a 4 per cent limit of entitlement trade out of irrigation areas, with a move to full and open trade by 2014 at the latest.¹⁰⁸⁴

The *Water Act 2007* (Cth) applied the principles taken from the NWI as Commonwealth law, through Schedule 3 (Basin Water Markets and Trade Objectives and Principles), and provided for the making of the Murray–Darling Basin Plan, including the Basin Plan Water Trading Rules.¹⁰⁸⁵

The Basin Plan Water Trading Rules commenced in 2014, and seek to reduce restrictions on trade, improve transparency and access to information, and improve market confidence through a more effective water market.¹⁰⁸⁶ These rules operate alongside existing state and federal legislation and policies.

¹⁰⁸² John Kennedy, Submission to the Murray–Darling Basin inquiry, February 2020, p. 2.

¹⁰⁸³ Fruit Growers Victoria Ltd, Submission to the Murray–Darling Basin inquiry, February 2020, p. 3.

¹⁰⁸⁴ *Intergovernmental agreement on a National Water Initiative*.

¹⁰⁸⁵ *Water Act 2007* (Cth).

¹⁰⁸⁶ *Basin Plan 2012* (Cth), Chapter 12—Water Trading Rules.

12.5.1. Trading between valleys, zones and states

Trade that changes the location of where water is extracted (such as inter-valley or interstate trade) represents a challenge for river operators as there may be impacts on other water users or the environment requiring assessment. This is especially so in the case for trades of water access entitlements because these rights are ongoing or perpetual in nature.

The development of different entitlement frameworks in each state has resulted in significant differences in water access entitlements between jurisdictions. This means that to move an entitlement from one valley or zone to another, assuming there is sufficient hydrological connectivity, the underlying characteristics such as reliability must be considered and any physical losses in transporting water from one location to another must be accounted for.

To mitigate this, states have used tagged trade and exchange rate trade, discussed in more detail in appendix D. Legacy issues with tagged trade are also discussed in this appendix.

12.5.2. Inter-valley transfer account operation

In order to allow trade and to manage river system constraints, externalities such as conveyance losses, and uncertainty around demand, the river system was divided into trading zones (see also section 2.6.1 for a map of trading zones in the Southern Connected Basin). These trading zones represent valleys, which form the geographical areas covered by the inter-valley transfer accounts (IVT accounts) which are used to track a valley's obligation to deliver water to another valley. Trading limits are defined with reference to these IVT account balances and also sometimes with reference to other underlying operational constraints (discussed further below).¹⁰⁹⁰

IVT accounts represent the volume owed by a valley to the Murray and are managed by the states. The purpose of limits on IVT account balances is to safeguard hydrological integrity by:

- ensuring there is sufficient supply as a result of trade into the valley to meet demand (balance cannot drop below zero)
- protecting the reliability of other entitlement holders if water spills and cannot be allocated or held in reserve for future years (maximum balance limits).

When water is traded into a valley, river operators need to ensure there is sufficient water to meet the new commitment. If an IVT account balance goes negative (or the Murray owes water to the valley), there is in theory insufficient water available to meet in-valley commitments.

Basin governments also put limits on the maximum account balance that can accumulate in a particular valley account. The IVT limit protects both origin and destination valley users. In a wet year, the IVT limit prevents IVT water sitting in the origin valley storage taking up airspace and displacing inflows which would be used to provide allocation to origin valley entitlement holders. IVT limits also protect destination valley users by reducing the risk of IVT water spilling. In dry conditions, IVT limits protect origin valley entitlement holders by putting an upper limit on additional conveyance losses accrued in delivering IVT water, which are borne by origin valley entitlement holders because the losses are socialised.

¹⁰⁹⁰ The *Adjusting Valley Accounts and State Transfer Accounts protocol* requires MDBA to maintain valley accounts for the tributaries of the River Murray.

There are three major IVT accounts in the Southern Connected Basin: the Murrumbidgee, Goulburn and Lower Darling IVT accounts.¹⁰⁹¹ Separate arrangements manage the trade of water from the Upper Murray through the Barmah Choke¹⁰⁹², and the New South Wales to Victoria trade limit. These are discussed in more detail in appendix E.

The IVT accounts track water owed from one valley to another. They are “directional” in nature: every time water is traded out of a tributary, an obligation is created to deliver the water to another downstream valley. Trades out of a tributary increase the account balance; trades in decrease the balance.

IVT account balances are also reduced when water is supplied to the Murray following a request or ‘call’ by river operators, or by ‘backtrade’. For example, 50 GL traded out of the Goulburn to the Murray will create an account balance of 50 GL. If the operators ‘called’ 20 GL for delivery in the Murray, the IVT account balance would be reduced to 30 GL. If a further 10 GL is backtraded from the Murray to the Goulburn, the account balance would be further reduced to 20 GL.

12.5.3. Stakeholders are concerned inter-valley trade rules are complicated, possibly unfair and may not achieve their objectives

Stakeholders say information on inter-valley trade rules can be hard to find and difficult to understand

Many stakeholders expressed confusion about IVT rules and operations, the purpose of IVT account balance limits and when IVT-related trade restrictions are in place. There is widespread confusion around when IVTs are open, IVT rules and their operation.¹⁰⁹³ Leeton Shire Council highlighted this confusion:

The current rules on triggers for opening and closing of inter-valley trades are generally not well understood and better communication/education is required.¹⁰⁹⁴

However, other stakeholders noted that increasing the level of information may not be sufficient, given considerable stakeholder concerns around the accessibility of information and the difficulty in finding information. WEX Water Pty Ltd (Waterexchange) observed that:

*Overall, there is an extraordinary amount of water market information and data available to irrigators at present, and there is no clear evidence that additional data is required. We believe most irrigators do not have the time available to research/analyse/interpret all the information currently available for just one particular input. This is the role of brokers to interpret and advise accordingly.*¹⁰⁹⁵

Some perceive the current operation of inter-valley trade rules to be unfair, open to manipulation and lacking integrity

Stakeholders have concerns that some water market participants are advantaged over others by the current rules due to certain loopholes. Loopholes can allow participants to circumvent restrictions, by using grandfathered tagged accounts¹⁰⁹⁶ to deliver water when

¹⁰⁹¹ There are also a number of smaller IVT accounts that operate between river systems across the Basin, including trade between the Queensland and New South Wales Border Rivers systems; between the Peel and Namoi river systems in New South Wales; and the accounts which manage trade to and from the Lower Darling, Campaspe, Loddon and Broken river valleys into the Murray system.

¹⁰⁹² The Murray–Darling Basin Authority keeps a trade account for the Barmah Choke but it is not considered an IVT account.

¹⁰⁹³ The Almond Board of Australia, Submission to the Murray–Darling Basin inquiry, March 2020, p. 18.

¹⁰⁹⁴ Leeton Shire Council, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2.

¹⁰⁹⁵ WEX Water Pty Ltd (Waterexchange), Submission to the Murray–Darling Basin inquiry, February 2020, p. 13.

¹⁰⁹⁶ Grandfathered tags refer to tagged water access entitlement established prior to 22 October 2010, which are able to circumvent IVT limits because of the exemption afforded by Basin Plan water trading rule 12.23.

trade restrictions are in place. Grandfathered tags are the major concern, as water can be ordered to these accounts even when a trade restriction is in place which can increase IVT account balances above the IVT account limits.

Goulburn Murray Irrigation District Water Leadership submitted that:

*It is essential that IVT is driven by transparent river hydrology, and that loopholes to bypass IVT limits, such as tagged accounts, are closed.*¹⁰⁹⁷

There are also concerns that certain market participants are able to manipulate IVT limits. The Victorian Farmers Federation Sunraysia Branch submission states:

*IVT, market interference, transparency v privacy... They [Irrigators] want a working balance between transparency and privacy, but they want any possibility of market manipulation prevented.*¹⁰⁹⁸

Stakeholders have alleged that some brokers and large water users in particular have an advantage in being able to obtain information on trade openings that is difficult for smaller market participants to gather.¹⁰⁹⁹ An example given by Barossa Infrastructure Ltd is:

*[IVTs are] more complex with different rules and constraints and physical limitations of what water can be delivered and when (e.g. the Barmah Choke). This additional complexity can be managed by larger players, and those of the size of [Barossa Infrastructure Ltd] (11GL), with the help of brokers and other advisers, but clearly excludes the smaller player partly through the cost of the transaction and partly the risk of delivery from not understanding the 'rules'.*¹¹⁰⁰

Stakeholders have raised concerns that current processes for trade when there are IVT openings are not appropriate or fair. One stakeholder's submission highlighted the opaqueness of New South Wales's trade processes, and questioned the reliability of email as a form of receipt for time sensitive trade applications.

Stakeholders allege that 'first come, first served' processing of trade applications, as used in IVT applications, is also open to manipulation by automated programs that 'scrape' data to determine when a limit will open, or to submit multiple applications for different volumes to increase the chance of success. Sophisticated market participants are alleged to have used strategies to 'close down' trade (and then withheld water) in order to benefit from price premium in destination markets.¹¹⁰¹

GoFarm's submission highlights these concerns:

*Currently, the 'fastest finger' wins when trading windows open, with water brokers often jostling to reserve all available intervalley trade volumes. This process favours a few and disadvantages many.*¹¹⁰²

¹⁰⁹⁷ Goulburn Murray Irrigation District Water Leadership, Submission to the Murray–Darling Basin inquiry, January 2020, p. 3.

¹⁰⁹⁸ Victorian Farmers Federation Sunraysia Branch, Submission to the Murray–Darling Basin inquiry, January 2020, p. 6.

¹⁰⁹⁹ New South Wales Irrigators Council, Submission to the Murray–Darling Basin inquiry, January 2020, p. 2; SunRice, Submission to the Murray–Darling Basin inquiry, February 2020, p. 11.

¹¹⁰⁰ Barossa Infrastructure Ltd, Submission to the Murray–Darling Basin inquiry, January 2020, pp. 3–4.

¹¹⁰¹ Robinvale Table Graper Growers Advocacy Group, Submission to the Murray–Darling Basin inquiry, January 2020, p. 25.

¹¹⁰² GoFarm Australia, Submission to the Murray–Darling Basin inquiry, February 2020, p. 3.

Stakeholders have a range of concerns with the design of inter-valley trade rules and whether inter-valley trade limits are achieving their objectives

Stakeholders have raised concerns that current IVT account balance limits are not appropriate, don't reflect the underlying hydrological constraints and are regularly exceeded. Central Irrigation Trust's submission highlights this concern:

*Are the trade limits supported by evidence or are they in fact a barrier to trade. As both the Murrumbidgee and Goulburn Valley have seen their limits exceeded by 100% for a number of years it would suggest that such limits are conservative or artificial.*¹¹⁰³

The ability to circumvent IVT account limits, is said to be putting increasing pressure on the river system. This can be observed from the alleged increasing environmental side effects, highlighted by the Victorian Farmers Federation's submission:

*However, the Basin Plan Act (2012), under Clause 12.23 creates an exemption from the IVT for tagged water accounts that were established prior to 22nd October 2010. This means irrigators who had dual accounts prior to 2010 are able to push IVT accounts beyond their upper limits which can cause third party impacts and environmental damage.*¹¹⁰⁴

Stakeholders also have raised concerns that IVT limits are becoming increasingly binding.¹¹⁰⁵ Murrumbidgee Irrigation Limited (MI) articulated this concern in its submission and noted specific rules which it considered needed reviewing:

*There are several rules that are unnecessarily restrictive on Murrumbidgee water users and an impediment to trade between connected systems. MI has been actively seeking a review of these rules to determine if they can be relaxed or removed. In particular, the 100GL Murray-Murrumbidgee [Inter] Valley Trade (IVT) limit, the Barmah Choke trade restrictions, and pre-2010 Tagged Trade exemptions. These rules were all drafted in a pre-trade environment and prior to any concept of held environmental water or the Murray Darling Basin Plan.*¹¹⁰⁶

In summary, stakeholders are concerned that IVT limits do not effectively manage externalities such as environmental damage, the potential for inter-valley trade to increase conveyance losses or reduce entitlement reliability for other water users in the tributary.

The ACCC's preliminary assessment of concerns and issues with inter-valley trade rules and limits and tagged trades is in section 13.4.

12.6. River operations (including deliverability and conveyance losses)

River operations dictate the delivery of water and the ability of water users to access water when they need it and, as such, play a critical role in the operation of water markets.

¹¹⁰³ Central Irrigation Trust, Submission to the Murray–Darling Basin inquiry, January 2020, p. 3.

¹¹⁰⁴ Victorian Farmers Federation, Submission to the Murray–Darling Basin inquiry, February 2020, p. 7.

¹¹⁰⁵ Citrus Australia, Submission to the Murray–Darling Basin inquiry, January 2020, p. 12.

¹¹⁰⁶ Murrumbidgee Irrigation Limited, Submission to the Murray–Darling Basin inquiry, February 2020, p. 1.

12.6.1. MDBA operates the River Murray System under the Murray–Darling Basin Agreement

The MDBA operates the River Murray System on behalf of New South Wales, Victoria and South Australia.¹¹⁰⁷ This river operations role involves determining the volumes of water to be released from storages to meet Basin State needs. The MDBA directs the relevant State Constructing Authority (Goulburn-Murray Water, WaterNSW and South Australia Water) responsible for operating the storages to undertake the required operation.¹¹⁰⁸

Downstream of the South Australian border the River Murray is operated by the South Australian Government. Tributary systems which contribute inflows to the River Murray System (including the Goulburn and Murrumbidgee) and river systems in the Northern Basin are operated by the relevant state agencies. New South Wales is responsible for the Lower Darling, however the MDBA is able to call on water from the Menindee Lakes System based on the volume of water available in the system.

The Basin Officials Committee (BOC) is responsible for high-level river operating decisions.¹¹⁰⁹ The BOC sets the 'Objectives and outcomes for river operations in the River Murray System' a document which specifies, among others, the following objectives for the MDBA:

To operate the River Murray System efficiently and effectively in order to deliver State water entitlements [and]

To maximise the water available to the Southern Basin States, after providing for operating commitments in the River Murray System.

To achieve these objectives, BOC has identified that the MDBA must achieve the following outcomes:

- to achieve the conservation of water and minimise losses
- delivery of authorised water orders to Southern Basin States, unless prevented by physical constraints.¹¹¹⁰

A fundamental challenge for the MDBA in meeting these objectives and operating the River Murray System to achieve the outcomes is that they are often in conflict, requiring the MDBA to balance competing risks and make decisions based on collaboration and professional judgments.¹¹¹¹

¹¹⁰⁷ The text of the Murray-Darling Basin Agreement forms Schedule 1 of the *Water Act 2007* (Cth) and provides operating rules for the MDBA to follow and be audited against each year and sets out the MDBA's responsibilities for operating the river. Murray–Darling Basin Authority, 2019, *River Murray Operations*, www.mdba.gov.au/river-murray-system/river-murray-operations, viewed 20 March 2020.

¹¹⁰⁸ Murray–Darling Basin Authority, 2020. *Joint Management of the River Murray*, www.mdba.gov.au/river-murray-system/river-murray-operations/joint-management-river-murray, viewed 20 March 2020.

¹¹⁰⁹ Murray–Darling Basin Authority 2019, www.mdba.gov.au/about-us/governance/basin-officials-committee, viewed 3 June 2020.

¹¹¹⁰ Basin Officials Committee, 2019, *Objectives and outcomes for river operations in the River Murray System*, www.mdba.gov.au/sites/default/files/pubs/Objectives-and-outcomes-for-river-operations-in-the-RMS-2019.PDF, p. 10, viewed 23 June 2020.

¹¹¹¹ Murray–Darling Basin Authority, *Conveyance Losses in the River Murray System 2018-19*, pp. 40–41.

For example, releasing water (and making other operational decisions) to ensure it is available to downstream water users may require higher than ideal flow rates when demand for water is high and high flows are damaging to the environment. While a decision to release water ensures that downstream demands are met and water delivery shortfalls are avoided, it may result in:

- increased conveyance losses (especially where overbank transfers¹¹¹² occur)
- environmental damage, and
- increased risk of spills from storages.

Where the MDBA is unable to meet all Basin State water needs in the River Murray System, there will be insufficient water available for water users, resulting in a water delivery shortfall. The MDBA also monitors and assesses the conveyance losses incurred as a result of operating the River Murray System, incorporating these losses into its bulk water resource assessment, with implications for supply in the market.

The MDBA river operations target further objectives and outcomes relating to the management of River Murray Operations assets, people and communities, environment, and communication and information management. Environmental objectives and outcomes require the MDBA ‘to contribute to the protection of and, where possible, restoration of priority environmental assets and ecosystem functions within the River Murray System’.¹¹¹³ However, these river operations objectives and outcomes do not extend to tributaries to the River Murray (such as the Goulburn or Murrumbidgee). While the MDBA can call on deliveries from IVT water, the operation of these rivers is the responsibility of the relevant states.

12.6.2. Stakeholders are concerned about delivery risk and managing capacity constraints

Stakeholders highlighted alleged flaws in the market design relating to the delivery of water, resulting from the failure to appropriately address a number of negative consequences of water trade and water deliveries. Stakeholders were also concerned that increasing trade and changing delivery patterns are having negative impacts on other water users, the environment, and their communities.

A commonly expressed view was that the trade of water downstream (particularly to permanent plantations in the Lower Murray) and delivering that water downstream are creating ‘third party impacts’.¹¹¹⁴ This is linked to a concern that trade is facilitating water use patterns which demand water to be delivered in increasingly concentrated locations and time periods. Because of the existence of capacity constraints (which limit the volume of water that can be delivered downstream) and the long delivery times from upstream storages (which inhibit the ability for river operators to respond to surges in demand), increasing peaks in the demand for water delivery increases the risk that insufficient water can be made available for all consumptive users (and hence resulting in a delivery shortfall). Further concerns relate to higher volumes being delivered through the system to mitigate delivery shortfall risk resulting in increased conveyance losses and environmental damage.

These concerns reveal issues in the way Basin arrangements for delivery of traded water interact with water markets and volumes traded between trading zones or valleys. The disconnect between the realities of the physical system and the rules governing water

¹¹¹² Overbank transfers occur when water is delivered downstream at a flow rate which exceeds the channel capacity of a river reach, resulting in water flowing over the banks of the river.

¹¹¹³ Basin Officials Committee, *Objectives and outcomes for river operations in the River Murray System*, 2019, p. 11.

¹¹¹⁴ NSW Farmers’ Association, Submission to the Murray–Darling Basin inquiry, February 2020.

markets includes concerns about congestion in river delivery capacity and perceptions of 'excess' plantings of particular crop types (with the same water demand schedule).

Concerns about the deliverability of water, conveyance losses and environmental damage stemming from delivery are assessed in section 13.5.

Stakeholders are concerned about increased delivery shortfall risk

Stakeholders, including government agencies and river operators, raised concerns about a perceived reduction in the ability of river operators to continue delivering water to downstream users.¹¹¹⁵ This was often expressed as a concern about the elevated risk of water delivery 'shortfalls'. These concerns relate to a perception that the capacity for the river system to deliver water downstream is being exhausted or exceeded during times of peak demand, posing a risk that downstream water users may not be able to have water delivered when they need it.

The New South Wales Irrigators' Council noted their concerns that this would affect the reliability and accessibility of water allocated to entitlement holders:

One key example [of externalities arising from the market] is the growing concern around 'deliverability'... There is growing concern that the river system simply cannot deliver the required volume of water to all water users (agricultural, environmental, and domestic) [as] a result of increasing downstream demand [both consumptive and environmental], and a declining capacity of the river... The consequence for irrigation farmers is a risk to both the reliability of water entitlements, and risk to the accessibility of allocations. The risk to reliability is a result of substantial losses in the system reducing the total water balance; and the risk to accessibility is a result of the physical capacity of the system to deliver desired volumes of water.¹¹¹⁶

Stakeholders are concerned that trade-related deliveries are leading to environmental degradation

Stakeholders argue that there are environmental and social impacts arising from the delivery of water downstream due to trade, through environmentally sensitive and capacity constrained stretches of the river. In particular, stakeholders raised concerns about the environmental degradation of the Barmah-Millewa Forests and the Goulburn River (in the form of bank erosion, and other issues), and flooding of private land impacting landholders to meet downstream demands (including environmental watering demands). The Goulburn Valley Environmental Group commented that:

Substantial environmental damage is being experienced by rivers due to high summer flows (IVT's) needed to deliver increased traded allocations to downstream developments. High flows and sandbar inundation have social impact on campers, fishing and local communities.¹¹¹⁷

¹¹¹⁵ NSW Farmers' Association, Submission to the Murray–Darling Basin inquiry, February 2020; Swan Hill Council, Submission to the Murray–Darling Basin inquiry, January 2020, p. 7.

¹¹¹⁶ New South Wales Irrigators Council, Submission to the Murray–Darling Basin inquiry, January 2020, pp. 9–10.

¹¹¹⁷ Goulburn Valley Environment Group Inc., Submission to the Murray–Darling Basin inquiry, February 2020, p. 2.

Similarly, NSW Farmers noted concerns about bank erosion, and raised the view that a flow-on impact of this environmental degradation is reduced delivery capacity through the Barmah Choke:

*The erosion of the river banks along the Barmah Choke caused by increased flows have reduced the flow capacity of the Barmah Choke and caused detrimental environmental outcomes for the riparian environment.*¹¹¹⁸

Murrumbidgee Valley Food and Fibre Association submission articulated concerns about the river operations practices and the impact of increased deliveries out of the Goulburn and the Murrumbidgee:

*We have witnessed one river, the Lower Darling, and its regulatory storage, The MLS [Menindee Lakes Storage], rapidly and inappropriately drained and the other major river, the Murray and its major tributaries, the Murrumbidgee and the Goulburn, being pushed way too hard in order to deliver downstream commitments and causing equal and opposite damage by flooding and salting in places like the Barmah Choke and the country around Lake Victoria.*¹¹¹⁹

Stakeholders were concerned in particular about perceived environmental damage and increased losses associated with overbank transfers through the Barmah Choke in 2018–19 and flooding of the Barmah–Millewa Forests.¹¹²⁰ A case study on river operations in 2018–19 is included in box 13.1.

There was some stakeholder confusion and unease with the delivery arrangements for environmental water, with some arguing that environmental water holders face different delivery rules than consumptive users, though specific rule differences were not identified.¹¹²¹ The Interim Inspector General's report noted that conveyance loss accounting for environmental water is not well understood.¹¹²²

Stakeholders are concerned that trade arrangements do not adequately account for conveyance loss impacts, potentially affecting reliability

Stakeholders argued, particularly at forums in the mid-Murray, that conveyance losses are not appropriately accounted for when considering water trades.¹¹²³ Stakeholders are concerned that the movement of water via trade to locations further away from storages increases conveyance losses, with alleged flow-on effects in the form of reduced water availability and allocation levels. Stakeholders stressed the disproportionate impact they perceived this has on general security entitlement holders. Bega Cheese highlighted this view in their submission:

*The high in-river delivery [flow rates] also resulted in a significant increase in conveyance losses (GMW have reported 1000GL?) due to evaporation and seepage in the river system. These losses are paid for from the allocation pool and reduce access to productive users.*¹¹²⁴

¹¹¹⁸ NSW Farmers' Association, Submission to the Murray–Darling Basin inquiry, February 2020, p. 6.

¹¹¹⁹ Murrumbidgee Valley Food and Fibre Association, Submission to the Murray–Darling Basin inquiry, January 2020, p. 5.

¹¹²⁰ Fruit Growers Victoria Ltd, Submission to the Murray–Darling Basin inquiry, February 2020, p. 4; NSW Farmers' Association, Submission to the Murray–Darling Basin inquiry, February 2020, p. 6.

¹¹²¹ ACCC Murray–Darling Basin inquiry, Deniliquin public forum.

¹¹²² Interim Inspector General of Murray Darling Basin Water Resources, *IIG Report*, p. 26.

¹¹²³ ACCC Murray–Darling Basin inquiry, Griffith, Kerang, Deniliquin public forums.

¹¹²⁴ Bega Cheese, Submission to the Murray–Darling Basin inquiry, February 2020, p. 4.

The Environmental Farmers' Network drew out the potential market distorting effect of this issue:

*Another third party impact is the market failure to include water delivery losses as transfers downstream occur. This has the effect of distorting the market to the disadvantage of upstream irrigation areas.*¹¹²⁵

Stakeholders complained frequently about a lack of clarity in how conveyance losses are accounted for

A number of stakeholders also raised potential issues with the information available to water market participants regarding the delivery of water and accounting for conveyance losses.¹¹²⁶ These concerns encompassed a lack of transparency in both MDBA and Basin State water resource assessment processes, including identifying who is 'paying for' conveyance losses, and providing clarity on river operating decisions and rules for environmental water delivery.

The submission from Goulburn Murray Irrigation District Water Leadership group highlights a call, commonly heard, for conveyance losses to be factored into the market:

*In any other market, freight costs are factored into the cost of the product. Water should be no different. Conveyance losses must be factored into all allocation trades downstream from their entitlement source zone.*¹¹²⁷

12.7. Metering

Metering is an important tool enabling water managers to measure how much water is flowing through the system and how much water is being taken out. Accurately measuring water take is critical to maintaining the value and integrity of the water frameworks.

Measuring flows and accounting for extractions occurs at both a bulk and retail level. Metering at a retail level refers to meters installed on private diverters' farms and Irrigation Infrastructure Operators' (IIOs) off-take points. Retail meters are in the process of being upgraded to meters with +/- 5 per cent accuracy, although this must balance benefit and cost particularly for smaller users.¹¹²⁹

While frequent metering does allow for more accurate allocation account balances, Basin States generally use metering information for their compliance and enforcement programs rather than in trading processes. The ACCC's views on Basin States' metering programs across the Murray–Darling Basin are explored in section 13.6.

12.7.1. Basin governments have committed to improving metering coverage and standards

As part of the 2018 Basin Plan Compliance Compact, Basin States agreed to move to ensure that new and replacement non-urban water meters comply with the Australian Standard for non-urban water meters (AS4747).¹¹³⁰ Water authorities in each state are responsible for the installation, maintenance and operation of meters.¹¹³¹ Basin State

¹¹²⁵ Environmental Farmers' Network, Submission to the Murray–Darling Basin inquiry, January 2020, p. 1.

¹¹²⁶ National Irrigators Council Submission, Submission to the Murray–Darling Basin inquiry, January 2020, p. 9.

¹¹²⁷ Goulburn Murray Irrigation District Water Leadership, Submission to the Murray–Darling Basin inquiry, January 2020, p. 3.

¹¹²⁹ An agreement between Australian Government New South Wales, Victoria, Queensland, South Australia, Australian Capital Territory, *Basin Compliance Compact*, 2018, <https://www.mdba.gov.au/sites/default/files/pubs/Basin-Compliance-Compact-12-December-2018.pdf>, p. 6.

¹¹³⁰ *Basin Compliance Compact*, 2018.

¹¹³¹ Murray–Darling Basin Authority 2019, www.mdba.gov.au/river-murray-system/river-murray-operations, viewed 20 March 2020.

Governments set their metering policies, based on a cost-benefit, risk-based approach¹¹³², and are primarily responsible for enforcing metering at the retail level.

In New South Wales, IIOs generally have meters (or gauging stations) at specified off-take points, where they are allowed to take water from the river and the IIO is then responsible for metering customers within their irrigation network. The New South Wales Government does not impose requirements for the standard of meters that IIOs' customers use to take water from the IIOs' water service infrastructure.

The MDBA is responsible for assessing and enforcing compliance with SDLs (see section 12.2). Each year, Basin State governments report water use information to MDBA. To verify that the information reported is accurate, MDBA has commenced auditing state information collection processes, including metering arrangements at the retail level. However, if issues are identified, there are limited actions that the MDBA can take given states set metering requirements in their own jurisdictions, although the MDBA will take action against illegal water take where there is an accredited water resource plan, if a Basin State is failing to do so effectively.¹¹³³ This is discussed more in section 13.6. Box 12.2, below, briefly describes metering approaches in Southern Basin States.

Box 12.2: Metering in the Southern Murray–Darling Basin

The Basin States have inconsistent approaches to metering, which can influence water market participants' confidence in markets.¹¹³⁴

New South Wales requires water use to be recorded within 24 hours of the water was taken¹¹³⁵, for the records to be kept for five years¹¹³⁶ and prohibits the taking of water when there is insufficient water allocation.¹¹³⁷ While New South Wales has had a preference for telemetry metering since 2013¹¹³⁸, it only started to phase in mandatory telemetry in late 2019.¹¹³⁹

Similarly, Victoria has a zero tolerance policy to unauthorised water take¹¹⁴⁰ and recommends the use of telemetry metering when the net cost of automation is lower than the cost of manual meter reading¹¹⁴¹, a role undertaken by the rural water corporations that are also responsible for updating water use in the Victorian Water Register.

In contrast, South Australia currently considers automated metering bears a significant cost burden to its water users¹¹⁴² and water users are only required to balance their water

¹¹³² *Basin Compliance Compact*, 2018, p. 5.

¹¹³³ *Basin Compliance Compact*, 2018, p. 2.

¹¹³⁴ Australian Water Brokers Association, Submission to the Murray–Darling Basin inquiry, January 2020, p. 8; SunRice, Submission to the Murray–Darling Basin inquiry, February 2020, p. 10; Productivity Commission, 'National Water Reform issues paper', 2020, p. 15.

¹¹³⁵ *Water Management (General) Regulations 2018* (NSW), s. 244.

¹¹³⁶ *Water Management (General) Regulations 2018* (NSW), s. 238.

¹¹³⁷ *Water Management 2000* (New South Wales), s. 60C.

¹¹³⁸ New South Wales Department of Primary Industries, 2013, *NSW metering implementation plan*, www.water.nsw.gov.au/_data/assets/pdf_file/0003/547257/metering_nsw_metering_implementation_plan.pdf, pp. 14–15, viewed 25 June 2020.

¹¹³⁹ New South Wales Department of Industry, 2018, *NSW Non-Urban Water Metering Policy*, www.industry.nsw.gov.au/_data/assets/pdf_file/0017/205442/NSW-non-urban-water-metering-policy.pdf, p. 16, viewed 25 June 2020.

¹¹⁴⁰ *Water Act 1989* (VIC), s. 33E; Neville, L (Minister for Water), Zero tolerance of unauthorised water take in Victoria, media release, Victorian Government, 1 May 2020.

¹¹⁴¹ Victorian Department of Environmental, Land, Water and Planning, 2020, *Victorian Non-Urban Water Metering Policy*, p. 11.

¹¹⁴² South Australian Department for Environment and Water, *Metering Improvement Plan*, 2019, www.environment.sa.gov.au/files/sharedassets/public/water/metering/metering-improvement-plan-sa-dec19-gen.pdf, p. 17, viewed 25 June 2020.

accounts quarterly.¹¹⁴³ Meter reads are provided by the water user.¹¹⁴⁴

While frequent metering does allow for more accurate allocation account balances, Basin States generally use metering information for their compliance and enforcement programs rather than in trading processes. The ACCC's views on Basin States' metering programs across the Murray–Darling Basin are explored in section 13.6.

12.7.2. Stakeholders are concerned about a lack of consistency in metering and water accounting requirements across the Basin

Stakeholders are concerned about differences in metering policies across the Basin and there have been calls for consistent metering requirements across jurisdictions. Swan Hill Council argued for:

*Compliance, metering and regulation to be uniformly implemented throughout the Murray Darling Basin.*¹¹⁵⁶

Stakeholders are worried that an absence of effective and widespread metering leads to significant third party effects by allowing those not adequately metered to take more water, reducing flows of water downstream. Stakeholders raised concerns about the alleged lack of metering in the Northern Basin. Green Dymension highlighted these concerns and argued:

*All irrigators must have a meter on their property to record all water usage. There are irrigators who do not have meters in NSW/QLD/VIC who take water from the Murray Darling.*¹¹⁵⁷

There were also allegations that certain sectors are exempt from metering. Jim Pratley stated:

*Some parts of the MDB are not metered and so manipulation seems easier. Some water users are able to avoid close and public scrutiny, notably the mining industry. Monitoring of the whole system is thus difficult.*¹¹⁵⁸

Citrus Australia stated that their growers feel that there are illegal activities occurring, alleging that:

*People [are] pumping into unregulated dams, due to lack of sufficient metering and monitoring by the NSW Government.*¹¹⁵⁹

The Ricegrowers' Association of Australia highlighted concerns with market impacts of differences in water accounting policies between jurisdictions, stating that:

In some parts of the southern Basin market, such as South Australia, deficits are permitted to accrue in allocation accounts. The account holders only need bring their balance back to zero at the end of the quarter or at the end of the water year. This gives these accounts an unfair market advantage, as they can freely use water that is not theirs and are then able to replace it by buying water at cheaper non-peak

¹¹⁴³ *ibid*, p. 17.

¹¹⁴⁴ South Australian Department for Environment and Water, 2017, *Water reporting*, www.environment.sa.gov.au/topics/water/water-licences-and-permits/water-reporting, viewed 8 May 2020.

¹¹⁵⁶ Swan Hill Council, Submission to the Murray–Darling Basin inquiry, January 2020, p. 8.

¹¹⁵⁷ Green Dymension, Submission to the Murray–Darling Basin inquiry, January 2020, p. 4.

¹¹⁵⁸ Jim Pratley, Submission to the Murray–Darling Basin inquiry, January 2020, p. 1; Citrus Australia, Submission to the Murray–Darling Basin inquiry, January 2020, p. 12.

¹¹⁵⁹ Citrus Australia, Submission to the Murray–Darling Basin inquiry, January 2020, p. 16.

*times of the season. This is completely at odds with the NSW and Victorian systems, where allocation accounts deficits are not permitted.*¹¹⁶⁰

Concerns and issues relating to metering are unpacked further in section 13.6.

12.8. Summary

In summary, this chapter outlines the key rules and current operational arrangements, the system constraints that limit trade, and where the responsibility for managing arrangements currently sits. This chapter also describes stakeholders' main concerns with the different rules and regulatory settings. Building from this, the next chapter analyses stakeholder concerns and issues with the market architecture in more detail.

¹¹⁶⁰ Ricegrowers' Association of Australia, Submission to the Murray–Darling Basin inquiry, 13 February 2020, p. 10.

13. Assessing market architecture elements

Key Points

- Water trade, carryover, changing land use patterns and environmental water delivery are changing where and when water is being used. Water users and the environment can be negatively affected, and it is harder for river operators to anticipate water needs and for policy makers to design optimal policy settings.
- The rules, policies and arrangements that make up the market architecture are interrelated, with changes in one policy area having flow on impacts to other areas.
- Basin market architecture is complex, lacking in transparency and fragmented. These characteristics create a range of problems:
 - individual stakeholders find it difficult to find relevant information, understand key rules and policies, establish the materiality and main drivers of perceived issues, place trust in institutions and have confidence that issues are being well-managed.
- Basin governments take different approaches on key rules and policies, such as metering, carryover and allocations—which may create market distortions or inefficient incentives to trade and undermine confidence in the market’s integrity.
- How the market architecture deals with the hydrological characteristics of the river system and manages the impacts of trade contributes to evident and emerging issues including (among others):
 - increasing risks of delivery shortfall (reflecting unpriced or bundled on-river delivery capacity)
 - proxy markets for storage in the form of trade for carryover ‘parking’, reflecting that carryover is tied to entitlements rather than specified as a separate storage right
 - increasingly binding inter-valley trade (IVT) limits but with some ability to circumvent those limits
 - a need to better protect the environment and other water users from the unintended impacts of moving water throughout the system.
- These issues demonstrate problems with market design because they produce less than optimal outcomes, including that they:
 - create unpriced impacts on other water users or the environment
 - limit trade activity
 - point to ‘missing markets’ for storage and on-river delivery capacity that are likely to result in less effective operational, investment and trading decisions and the inefficient allocation of scarce resources.
- However, estimating trade’s role in creating or increasing these issues is challenging. Further work to understand the materiality of the role of trade activity in these issues will help inform the ACCC’s views on necessary reforms.
- Water storage and delivery capacity are limited and valuable resources but they are not priced into the market architecture currently, likely resulting in inefficient allocation of those resources and the generation of externalities.
- Basin market architecture continues to evolve, even while the inquiry is underway. Basin governments and the Murray–Darling Basin Authority (MDBA) have commenced a range of projects and reviews to better understand some of the same issues discussed in this chapter and to design appropriate responses.

13.1. Basin markets are maturing, and outgrowing the architecture in several ways

This chapter explains the ACCC's preliminary assessment of key market architecture issues that are the focus of stakeholder concerns and sets out where the ACCC sees water market or trade-related issues arising.

Across the Basin, the physical system and natural constraints have shaped trade, water delivery and system operation arrangements. The market architecture, through tools like allocations policies and inter-valley transfer (IVT) limits, attempts to replicate these physical constraints in managing how water is stored and delivered and any potential impacts on the environment and on water users. These rules and policies that make up the market architecture are interrelated and interdependent, with changes in one policy area having flow on impacts to other areas.

At this preliminary stage of analysis, the ACCC has identified that there are some key areas, where market design issues or trade-related impacts are emerging or show potential to develop.

The ACCC's preliminary view is that the market architecture is showing signs of strain as the market has outgrown its original design, frameworks and governance arrangements. Trade and carryover volumes are increasing the concentration of water use in specific places, times and for certain uses. Policies have not kept up with market developments and there are now a number of issues emerging that need to be addressed. These issues include:

- increasing risks of delivery shortfall (reflecting unpriced or bundled on-river delivery capacity)
- proxy markets for storage in the form of trade for carryover 'parking', reflecting that carryover is tied to entitlements rather than specified as a separate storage right
- increasingly binding inter-valley trade (IVT) limits but with some ability to circumvent those limits
- a need to better protect the environment and other water users from the unintended impacts of moving water throughout the system.

Information gaps, policy interrelationships and the complexity of analysis required has made responding to these issues challenging. Basin State governments and the Murray–Darling Basin Authority (MDBA) have commenced a range of projects to better understand and address key issues, such as the investigation of deliverability risks in the lower Murray and the review of the Goulburn to Murray trade rule (see section 13.1.5).¹¹⁶¹

Building on these preliminary views, the ACCC considers there are now three major reasons for a different approach to market architecture:

- some of the assumptions on which the current architecture rests need to be re-assessed
- some of the mechanisms are not working as well as envisaged, or are having unintended consequences

¹¹⁶¹ The Murray–Darling Basin Authority has published information on the delivery shortfall risks work: MDBA, *Understanding water delivery shortfall risks*, 2020, at www.mdba.gov.au/river-murray-system/river-murray-operations/understanding-water-delivery-shortfall-risks.

The Victorian Government has made information on its review of the Goulburn to Murray Trade Rule available on the Victorian Water Register website: Department of Environment, Land, Water and Planning (Victoria), *Goulburn to Murray trade review*, 2020, at www.waterregister.vic.gov.au/water-trading/trading-rules/goulburn-to-murray-trade-review, viewed 25 June 2020.

- it is clear that not all stakeholders understand sufficiently how these policies work or why the outcomes are changing, which is undermining confidence that the policies and the institutions who manage them are working as intended.

13.1.1. Trade arrangements have developed as ‘add-ons’ to existing water management frameworks

The rules and arrangements that permit water trade and create water markets are relatively recent additions to Basin governments’ water resources management laws and policies, which have developed within each Basin State over the last 100 years.

Over the last several decades, Basin governments have implemented wide-ranging reforms to their water management frameworks, with the aim of sustainably managing water resources. This includes statutory allocation and entitlement frameworks, frameworks for water planning and water resource accounting, best practice pricing for water delivery and use, and integrated management of environmental needs.¹¹⁶² These broader elements of the architecture establish a framework for access to water even in the absence of markets.

Improvements to these policies and rules to respond to and support market activity to date have been incremental at best. This is partly because the focus of recent water reform efforts has been on getting the ‘cap’ part of the ‘cap-and-trade’ system sorted out, to address over-allocation and set sustainable limits on water use.

Meanwhile, water markets have evolved significantly in scale and complexity in recent years (see chapter 3, sections 3.1 and 3.3), and the volumes now being traded (particularly between valleys) are far exceeding the volumes anticipated when many of the rules governing trade were introduced. As noted by the MDBA in its submission to the issues paper for this inquiry:

*Water management practices in the Basin have evolved over the last 100 years, while the development of water markets only dates to the 1980s. This has meant that trade policy has developed as an adjunct to water management. There is a question if existing market design within current water management constraints can meet emerging challenges. For example, growth in trade is actively changing delivery and use patterns, while water management practices remain relatively static.*¹¹⁶³

Similar concerns were raised in 2013 in the Review of Schedule D of the Murray–Darling Basin Agreement. The review stated that ‘since the introduction of Schedule D, water trading in the Basin and the surrounding institutional arrangements have evolved considerably, and will continue to do so in the future’, which raised the fundamental question of whether the purpose, scope and coverage of the Schedule remain appropriate. Significant evolution has been observed in water markets since 2013, while no wholesale review of the market architecture has occurred.

Because of the way trade arrangements in the Basin have developed, policy has focused on addressing problems as they emerge and has sometimes lacked coordination. An example of this is carryover, where different states have different policies which have been amended as problems emerged. As a result, there are a range of policies and trade and operational rules that may diverge and may not be ‘fit for purpose’ to manage the increasing volumes of trade.

As trading rules evolve, governments’ concerns about impinging on the existing or legacy rights of water holders have meant there have been exemptions granted from the operation of measures designed to standardise arrangements (such as can be seen with the treatment

¹¹⁶² For example see Council of Australian Governments, *Intergovernmental agreement on a National Water Initiative*, 2004.

¹¹⁶³ Murray Darling Basin Authority, Submission to the Murray–Darling Basin inquiry, 13 February 2020, p. 11.

of grandfathered tagged entitlement trades under Basin Plan water trading rule 12.23). These exemptions add to the complexity of the current rules and make it difficult for governments to implement simple and consistent policy solutions.

13.1.2. Market operation is not well integrated with management of system constraints and characteristics

As explained in section 2.6 of this Report, water trading does not usually result in delivery of water at the time of trade. It is important to recognise that entitlements and allocations do not ordinarily specify that the water user must draw down any particular portion of the water on any set days or in any set seasons of the year; and rights are generally not traded with any stipulation about when, by date or season, the buyer must access the water available under that right. For instance, a party that has bought an allocation is free to seek to draw it down over that year as it wishes, or in subsequent years, subject to carryover rules.

One important implication of this is that when parties trade water access rights, water is not physically moved between the parties or between storages. Following a trade, the location of the party holding the call on the supplier may have moved. So when trade occurs, it is the parties' right to access water available that changes rather than the physical movement of water. This is important because rules governing trade between zones or valleys are generally specified with a view to ensuring the future obligations to supply water users at different locations do not change 'too much'.

Water markets have developed in the context of the natural and built infrastructure used to control, store and deliver water. Various physical system characteristics have implications for water markets because they constrain when, where and how much water can be delivered to water users. The Northern Basin is characterised by limited interconnectivity and trade between water sources and there are relatively few storages. In the Southern Basin, storages and other infrastructure allows water managers to regulate flows through the timing of releases. However, there are still limits in the Southern Basin regarding delivery capacity and storages.

River operators have to plan ahead to ensure enough water is available to meet demand, which is influenced by seasonal factors and cropping trends. River operators also have to manage delivering water through constraints, with limited opportunities to control water along the river to meet demand at a given time by varying flow rates or moderating flow volumes.

Appendix F discusses River Murray system constraints and the longer term trends which will increase the challenges for river operations.

The Barmah Choke is the main capacity constraint in the Southern Murray–Darling Basin

The Barmah Choke is a narrow section of the River Murray that runs through the Barmah–Millewa Forest forming a natural constriction point. It is located just above where the Goulburn River joins the River Murray. During summer and autumn, river operators limit flows through the Barmah Choke in order to keep flows within the river channel.¹¹⁶⁴ If the constraint is exceeded, this will result in overbank flows, potentially flooding the adjacent forest, resulting in high conveyance losses and potentially environmental damage. Capacity

¹¹⁶⁴ There are several relevant flow limits reported in relation to the Barmah Choke. 7000 ML/day is the limitation on flow which is applied downstream of Picnic Point, and is reported here www.mdba.gov.au/managing-water/water-markets-trade/barmah-choke. 9200 ML/day is reported in the Capacity Panel report. 8000 ML/day is reported in the Conveyance Losses in the River Murray System, 2018-19 report. The lack of clear and consistent information on a critical constraint point for River Murray operations is an example of market information and transparency that could be improved.

through the Choke is also decreasing over time. Currently it is at 9200 megalitres (ML) a day¹¹⁶⁵, with other sources stating even lower figures.¹¹⁶⁶

A trade restriction is in place at the Barmah Choke to protect water delivery to existing entitlement holders and for environmental reasons. The restriction means that there is 'no net trade' through the Choke, and trade of water allocations from upstream to downstream is only allowed when there has been a matching trade in the opposite direction ('back trade').

There are existing pieces of infrastructure that may be used to circumvent the Barmah Choke, however these also have limited capacity and may just move the current environmental impacts to other reaches of the river system. These, and other constraints in the river system, are discussed in appendix F.

13.1.3. Conflicting operating objectives for the River Murray system pose challenges and require trade-offs

As discussed in chapter 12 (section 12.6), the MDBA must balance competing and at times conflicting objectives of running the river to maximise the water available and reduce losses, but also deliver water to the Basin States (and reduce shortfall risk). The case study at box 13.1 highlights these trade-offs by examining river operations in 2018–19 and how these decisions affected conveyance losses.

These trade-offs arise because river operators in the Basin are awarded significant discretion in their storage management and delivery decisions, without clearly specified parameters such as prescribed flow limits. In being guided by non-binding objectives and outcomes with no clearly listed priority, river operators are required to decide which objectives to prioritise. By prioritising minimising delivery risk over the minimisation of losses (and possibly environmental health in connected river systems, see section 13.5.2), river operators may be inadvertently benefiting downstream water users at the expense of other users and the environment.

The market architecture elements relevant to deliverability and conveyance losses are addressed in more detail in section 13.5.

¹¹⁶⁵ Independent Panel for Capacity Project Review, *Report to Murray Darling Basin Ministerial Council*, 2019, p. 10, at www.mdba.gov.au/sites/default/files/pubs/ipcpr-minco-final-report-2019.pdf.

¹¹⁶⁶ The MDBA's Conveyance Losses Report states a flow capacity of just over 8000 ML/day:

MDBA, *Losses in the River Murray System 2018–19*, March 2019, p. 41 at

www.mdba.gov.au/sites/default/files/pubs/River-murray-system-losses-report.pdf, viewed 26 June 2020

The MDBA's 2019-20 Annual Operating Outlook reports channel capacity of approximately 7000 ML/day:

MDBA, *River Murray System Annual Operating Outlook*, July 2019, <https://www.mdba.gov.au/sites/default/files/pubs/River-Murray-system-Annual-Operating-Outlook-2019-20.pdf>, p 41.

Box 13.1: River operations and increased conveyance losses in 2018-19

Stakeholders expressed particular concern around the overbank transfers through the Barmah–Millewa forests during 2018–19, and the resulting high conveyance losses and environmental damage.

In 2018–19, climate conditions and significant volumes delivered along the system prompted the MDBA to revise its initial conveyance loss estimate upwards. These conditions also led to low inflows to Lake Victoria, meaning that the MDBA was required to manage the risk of water delivery shortfalls downstream of Lake Victoria through overbank transfers from Hume Dam. Higher than normal conveyance losses occurred from these overbank transfers as a result of the dry antecedent conditions¹¹⁶⁷ in the Barmah–Millewa forests (partly because of low inflow from the Ovens River). The MDBA’s decision to undertake these transfers in spring was to avoid making deliveries through the heat of summer when conveyance losses would have been higher. This decision increased the risk of spills from Lake Victoria (if late spring rains had led to significant inflows).¹¹⁶⁸

MDBA river operations staff consulted with Basin State governments on the trade-off between increased conveyance losses and risk of storage spills or elevated water delivery shortfall risks. The ACCC understands that Basin State governments indicated they were willing to incur additional conveyance losses when faced with the threat of water delivery shortfalls and potentially having to impose restrictions on extractions. This is ultimately what the MDBA decided to do, and reveals that while the decision on timing of releases was a primarily technical concern, the decision-making process on how to address it was essentially a political one. This reflects the nature of the MDBA’s river operating functions, which are not bound by strict rules but guided by objectives, principles, collaboration and professional judgement.

Conveyance losses in 2018–19 (of 1039 GL) were both higher than average, and higher than years with similar operational strategies.¹¹⁶⁹ The higher losses were partially because of the timing, magnitude and duration of overbank transfers, as well as the existing antecedent conditions in the Barmah–Millewa Forests.¹¹⁷⁰ The proportional impact of the increase in conveyance losses from the overbank transfers is likely to be small in relation to overall losses incurred in the Southern Basin during that year; described by the MDBA as ‘in the order of tens of GL’ compared to ‘a few thousand’ GL of inflows.¹¹⁷¹ It is important to note, that a substantial volume of conveyance water is required to operate the River Murray system regardless of trading activity (including delivering water to users upstream, as well as downstream of the Barmah Choke), with incremental loss because of net trade downstream likely to make up a very small proportion of total conveyance losses (with the total conveyance losses being 1039 GL).

Analysis of conveyance losses incurred in 2018–19 provides good insight into the challenges of river operations and balancing the risks of water delivery shortfalls, conveyance losses and spill risks. Ultimately, despite stakeholder concerns, climatic factors were the primary

¹¹⁶⁷ Antecedent conditions refers to the relative ‘wetness’ or ‘dryness’ of catchments and floodplain environment bordering the river channel.

MDBA, *Conveyance Losses in the River Murray System 2018–19*, 2019, at <https://www.mdba.gov.au/sites/default/files/pubs/River-murray-system-losses-report.pdf>, viewed 26 June 2020.

¹¹⁶⁸ MDBA, *Conveyance Losses in the River Murray System 2018–19*, 2019, at <https://www.mdba.gov.au/sites/default/files/pubs/River-murray-system-losses-report.pdf>, viewed 26 June 2020.

¹¹⁶⁹ ACCC analysis of MDBA data.

¹¹⁷⁰ MDBA, *Conveyance Losses in the River Murray System 2018–19*, 2019, at <https://www.mdba.gov.au/sites/default/files/pubs/River-murray-system-losses-report.pdf>, viewed 26 June 2020.

¹¹⁷¹ ACCC discussions with MDBA.

driver of high conveyance losses in 2018–19. While overbank flows were incurred intentionally by the MDBA, incurring the associated conveyance losses was considered a necessary operational decision to avoid the perceived greater impact of a water delivery shortfall.

Some stakeholders at forums and through submissions indicated a belief that increased conveyance losses because of overbank transfers in 2018–19 were the result of environmental watering activities, and should have thus been debited from environmental water holders' accounts. Other stakeholders indicated a belief that this event directly led to a 400 GL impact on conveyance losses.¹¹⁷² These misconceptions reveal the potential for improved market confidence through better communication and information availability regarding river operations decision-making.

13.1.4. Rules and policies interact and changes need to consider flow on effects

The component rules and policies that make up the market architecture interact and affect each other. The ACCC has found that at times when analysing or assessing potential changes to these policy settings, the potential flow on effects to other parts of the market and the physical environment have not always been taken into account.

The interaction between carryover, trade and river operations can create unforeseen side effects such as spills from storage

Trade and carryover both impact the storage capacity available in dams in unforeseen ways. In Victoria in 2012–13 and 2013–14, large volumes of carryover water stored in dams and large amounts of interstate trade into Victoria, also taking up storage in dams, resulted in significant storage spills. This is because the space that would have been free in the dam was occupied by water that had been carried over or traded in, and was unable to capture the new inflows of water, resulting in spillage. As a result of this, rules regarding carryover and spills in Victoria as well as limits for New South Wales to Victoria interstate trade were introduced (see section 13.3.6).

Carryover can also have an impact on river operations by changing the timing of water use. Trade and carryover appear to be concentrating water demand in certain zones and times, as discussed in section 3.3. Because the right to have water delivered is generally guaranteed and on-river delivery capacity is finite, this can pose challenges for river operators to meet demand for water.

Sustainable Diversion Limits, carryover, entitlement reliability and allocation policies influence the amount of water available for use, trade or carried over. The overall volume of available water in a water source is contingent on inflows, which are generated by rainfall and catchment runoff.¹¹⁷⁸ However, governments' policies and decisions determine the available volume of supply of water into the market that can be extracted, traded or carried over. The total level of water allowed to be taken across the Basin, and in each valley, are limited by Sustainable Diversion Limits (see section 12.2).

Allocation policies and entitlement frameworks determine how and when available water resources are distributed to entitlement holders, the volume of water different entitlement holders have access to, and when they are granted this access (determined by the timing of allocation announcements, section 13.2.4).

¹¹⁷² Fruit Growers Victoria Ltd submission, Submission to the Murray–Darling Basin inquiry, 13 February 2020, p. 4.

¹¹⁷⁸ Interim Inspector General of Murray Darling Basin Water Resources, *Impact of lower inflows on state shares under the Murray–Darling Basin Agreement*, 2020, p. 7 at https://www.igmdb.gov.au/sites/default/files/documents/iig_final_report.pdf.

Further, the volume of water held as carryover also affects the total consumptive pool of water. Carryover policies dictate the classes of entitlement holder who are allowed to access carryover, the volumes allowed to be carried over and other factors relating to how carryover water is handled. Because of this, carryover policies influence the volumes of water available as supply in the market, particularly early in the irrigation season.

Trade rules can also play a role in influencing water supply in particular water sources, particularly in the Southern Basin where water can generally be traded between sources. Rules such as IVT limits and the New South Wales to Victoria interstate spill risk trade rule establish when water can be traded between different water sources. While this does not affect the total level of supply in the Basin, it can influence timing and volume supply available in particular valleys by limiting trade between valleys in unforeseen ways.

River operations and geographical trading rules interact and counter-balance shortfall risk and trade opportunities

River operators have a responsibility to meet downstream demand and minimise shortfall risk. They do this by 'calling out' (or ordering) water from IVT accounts to meet demand and minimise shortfall risk. The ability to deliver water from IVT accounts can increase flexibility of river operators in meeting downstream water demands and can help alleviate shortfall risk. However if they do so at too high a rate (either as an overall total volume or in a way that results in a too high flow rate), they may impact entitlement holders in the destination and origin valleys, and result in environmental damage.

River operators are constrained by physical system constraints such as the Barmah Choke, long delivery times and significant variability and uncertainty about conditions facing river operators delivering from upstream River Murray storages (the Hume and the Dartmouth). This increases an inherent risk that not all water demands will be able to be met when required; resulting in a water delivery shortfall. Delivering water at flow rates above channel capacity will result in overbank transfers, leading to increased conveyance losses and potentially environmental damage.

13.1.5. Governments have started to consider emerging issues and address system issues and constraints

The Australian and Basin State governments have acknowledged many of the legitimate concerns highlighted by stakeholders above, and a number of work streams are underway to address identified issues.

Removing barriers to trade

The MDBA, in conjunction with Basin States, is also undertaking the Trade Adjustment Project, which involves trialling a series of modified or new processes for adjusting Basin States' bulk water accounts to match volumes of water traded between states. The aim of the trials is to reduce the frequency of water trade closures and increase opportunities for interstate water trades for the benefit of water market participants. With the significant growth in interstate trade seen in recent years, rules such as the New South Wales to Victoria trade limit have the potential to be triggered and close trade more often.¹¹⁷⁹

Inter-jurisdictional work on delivery shortfall risks

There is a number of groups and projects across different levels of government investigating delivery shortfall risks. In 2018, the Basin Officials Committee (BOC) established a Capacity Policy Working Group which is now responsible for the full breadth of capacity and delivery

¹¹⁷⁹ MDBA, *Bulk Water Trade Adjustment Trials*, MDBA, Canberra, 2019, www.mdba.gov.au/managing-water/water-markets-trade/interstate-water-trade/bulk-water-trade-adjustments-trials viewed 20 March 2020.

risk issues and to better coordinate effort across the MDBA and jurisdictions. The group is made up of representatives from Victoria, South Australia, New South Wales and the Commonwealth and is chaired by the MDBA.

Following a Ministerial Council direction in December 2018, the Capacity Policy Working Group was tasked with managing the Capacity and Delivery Shortfall Project. The project was established to produce improved modelling of the likelihood of delivery shortfalls in the River Murray, and the impact of different factors that affect delivery risks, and considering the impacts of recent changes in consumptive use and assumptions about the future delivery of environmental water.

The Capacity Panel was established in response to a request by the Ministerial Council in August 2019 and was initially tasked with reviewing the Capacity and Delivery Shortfall Project work plan.¹¹⁸⁰ Their work has been expanded to identify interim precautionary measures that can be immediately implemented to limit increases of extractions in the River Murray by the next Ministerial Council meeting (now occurring in June 2020).

The MDBA also has a number of ongoing work streams relating to delivery and capacity issues, and the Conveyance Losses in the River Murray system report. The report on conveyance losses was published for the first time in March 2019 for the 2018–19 water year, but is planned to become an annual publication. The MDBA is also working with state governments to develop shortfall response plans, so that responses to actual shortfalls are managed effectively to minimise impact on water users.

Victorian Government review of the Goulburn to Murray trade rule

The Victorian Government has also begun introducing measures aimed at addressing delivery issues, because of concerns about significant risks of water availability shortfalls in dry conditions from increased permanent plantings in the Southern Basin.¹¹⁸¹

The Victorian Government announced a review into the Goulburn to Murray trade rule because of concerns about the environmental impact of high deliveries from the Goulburn to the Murray over the last two summers. As part of this, the three actions to ‘reduce the risk to the lower Goulburn environment this year and get the market settings right for Goulburn to Murray trade for the future’ were announced:

- interim operational regime to reduce summer flows in the Goulburn
- from December 2019, treating all trades (including tagged trades) consistently with rules for IVT and Basin Plan water trading rules
- public consultation into long-term options to change the current Goulburn to Murray trade rule to maximise trade opportunities within environmental thresholds.¹¹⁸²

While the Victorian Government is taking steps to manage impacts arising from increased deliveries on the Goulburn, because of the need to address deliverability issues from a whole-of-system perspective and the likely flow on effects of any potential solution, a collaborative approach will be required to effectively address the related issues of high flow rates, deliverability risk and environmental impacts. For example, any policy decisions restricting the delivery of water from the Goulburn into the Murray would make it increasingly difficult to meet irrigator demand in the downstream Murray, exacerbating the risk of delivery shortfalls.

¹¹⁸⁰ MDBA, ‘Murray–Darling Ministerial Council, media release, 4 August 2019.

¹¹⁸¹ Aither, *Water supply and demand in the southern Murray–Darling Basin: An assessment of future water availability and permanent horticulture irrigation water demand*, 2019, https://waterregister.vic.gov.au/images/documents/Water-Supply-and-Demand-Report_Aither_FINAL.pdf, viewed 26 June 2020.

¹¹⁸² Lisa Neville, Victorian Minister for Water, Inter Valley Trade Changes To Protect Our Waterways, Victorian Government, 20 August 2019.

13.2. Water Allocation Policies

The ACCC's assessment of stakeholder concerns about allocation-related issues has focused on understanding the water market impacts, including analysing the potential impacts from trade activity on allocations. In this interim report, the ACCC is not making specific recommendations concerning the design of allocation policies or to recommend that Basin States change their allocation policies or entitlement frameworks. The assessment here focuses on the importance of clear and transparent policy information and communication to water users which supports informed water use decision making and market confidence (section 10.2.2).

Allocation policies influence water markets by setting when and how much water is supplied to the market. In theory, supply, along with demand for water, sets the price for water. The differences in allocation policies are tied to the characteristics of the entitlement framework, which contributes to differing prices across different entitlement classes. Differences between entitlement types may contribute to different cropping mixes or practices in different areas, though past cropping patterns have also influenced government decisions on allocations and entitlements.

Stakeholders were concerned that differences between states in allocations policies and the timing of allocation announcements have resulted in some classes of entitlement holders being more significantly affected by alleged impacts, with those less affected being relatively advantaged. This section provides a preliminary assessment of some of the key factors that influence water allocation announcements, and stakeholders' perceptions of these.

The ACCC's analysis to date has focused on considering whether:

- changes or trends in allocations were related to trade impacts
- differences in allocation policies and timing provided some water market participants with a relative advantage over others
- improved information and processes could help stakeholders better understand the relationship between trade and allocations.

This section will focus on the history and evolution of allocations and entitlements. Like most elements of water market architecture, entitlements and allocations and their policies gradually evolved to solve other problems with water management.¹¹⁸³

The ACCC's analysis revealed the crucial importance of clear and transparent communication of allocation decisions to stakeholders, the absence of which may damage market confidence. The ACCC preliminary assessment also found that while changes to inflows have been the primary driver of reduced allocations in recent years, unclear messaging and shifts in the relationship between storage volumes and allocations may have contributed to stakeholder concerns about other drivers.

13.2.1. Allocations have been influenced by States' historical issuing of entitlements and different risk demand profile of states

Water licences were given out largely on demand until the 1970s and 1980s when widespread environmental problems from the over-extraction of water became clear.¹¹⁸⁴ During this time, water licences were linked to the land, were area based (not volumetric)¹¹⁸⁵ and had previously not been traded apart from a few instances during severe droughts.

¹¹⁸³ National Water Commission, *Water markets in Australia—a short history*, 2011, Canberra.

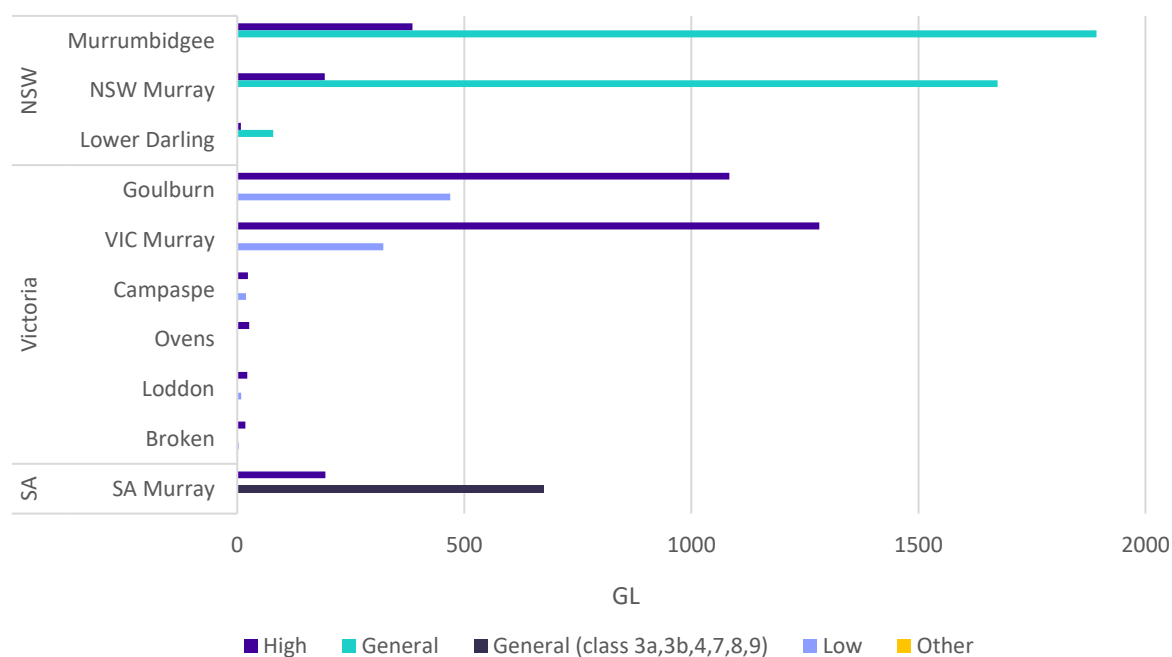
¹¹⁸⁴ *ibid.*

¹¹⁸⁵ As impacts of over allocation began to emerge, governments began replacing area based licenses with volumetric limited licenses and also stopped issuing licenses National Water Commission—2011—Water markets in Australia a short history

Many of the issues raised by stakeholders about differences in allocations between states along the River Murray, are because of the differences between how states decided to issue volumetric entitlements originally in the 1960s and 1980s. Victoria and South Australia stopped issuing licences during the 1960s, whereas New South Wales adopted a full embargo on new licences in 1981.¹¹⁸⁶

As noted in section 13.1.4, differences in state entitlement frameworks and allocation policies influence the supply of water to the market and can have (both intended and unintended) consequences. New South Wales initially decided to issue a larger number of water entitlements, with the majority of these in the form of general security entitlements. The larger volume of lower reliability entitlements aligned with irrigator preferences to suit the prevalence of annual cropping (such as rice and cotton) and climatic conditions at the time. In contrast, the Victorian Government’s decision to limit the volume of entitlements on issue was partly driven by wanting to maintain reliability of water for permanent plantings.¹¹⁸⁷ This can be seen in figure 13.1, which reveals the predominance of general security entitlements in New South Wales and high reliability entitlements in Victoria.

Figure 13.1: Nominal volume of water access entitlements on issue in the Southern Connected Basin, by water system and reliability, 2018–19



Source: Bureau of Meteorology.

While these decisions around establishing the entitlement framework were partly a response to irrigator preferences based on existing cropping mixes in these states, it is likely that they have further entrenched the preference for certain crop types in these states. This is because water users interested in developing permanent plantations (which need water every year) would be attracted to the predictability of allocations offered by Victorian high reliability entitlements, while annual croppers would be attracted to the higher allocation volatility nature of New South Wales general security entitlements. While New South Wales high security entitlements offer very reliable allocations, there is only a relatively limited

¹¹⁸⁶ National Water Commission, *Water markets in Australia—a short history*, 2011, Canberra, p. 37.

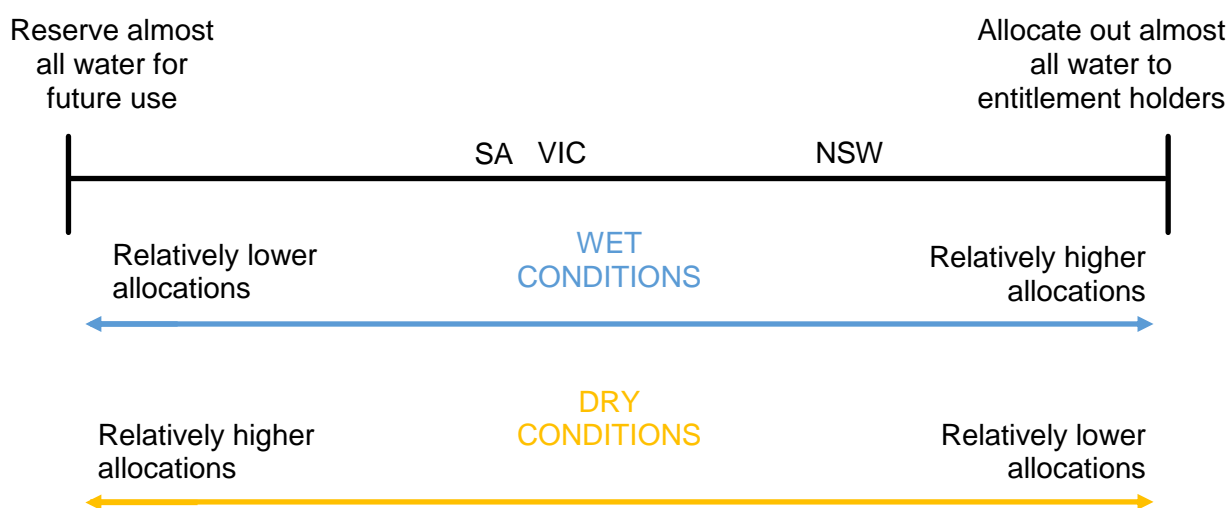
¹¹⁸⁷ Interim Inspector General of Murray Darling Basin Water Resources, *Impact of lower inflows on state shares under the Murray–Darling Basin Agreement*, 2020, https://www.igmdb.gov.au/sites/default/files/documents/iig_final_report.pdf, p. 21.

volume of this entitlement type on offer, compared to Victorian high reliability entitlements.¹¹⁸⁸

The choice of how much water to reserve for future use against how much water to allocate out is a risk-based decision, based on inflow predictions. Over the last 20 years, New South Wales has also allocated a greater proportion of available water resources to entitlement holders¹¹⁸⁹, giving them greater flexibility to choose whether to increase production in the immediate term, or store water for future years (via carryover, for GS entitlement holders). Victoria and South Australia have more conservative allocation policies, thus ensuring that the water supply is more stable, with greater volumes available for allocation in drier years but less allocated out in wet years.¹¹⁹⁰

Figure 13.2 shows the trade-off between the two different allocation policy approaches. This can be thought of as a sliding scale where at one end almost all water is reserved for future years, and at the other end almost all water is allocated out. The increased stability and certainty offered by more conservative allocation policies may assist in some planning decisions, and the ability to access finance based on anticipated allocations. This is contrasted against allocation policies which allocate a greater proportion of water, which offer increased flexibility and more fully assign the risk of variation in water availability to water users.¹¹⁹¹

Figure 13.2: Allocation policies of states



Source: ACCC.

Note: This diagram is only illustrative and is not based on actual data.

¹¹⁸⁸ ACCC analysis based on the entitlements on issue in the Basin, data supplied by the Bureau of Meteorology.

¹¹⁸⁹ Interim Inspector General of Murray Darling Basin Water Resources, *Impact of lower inflows on state shares under the Murray–Darling Basin Agreement*, 2020, at https://www.igmdb.gov.au/sites/default/files/documents/iig_final_report.pdf, viewed 25 June 2020.

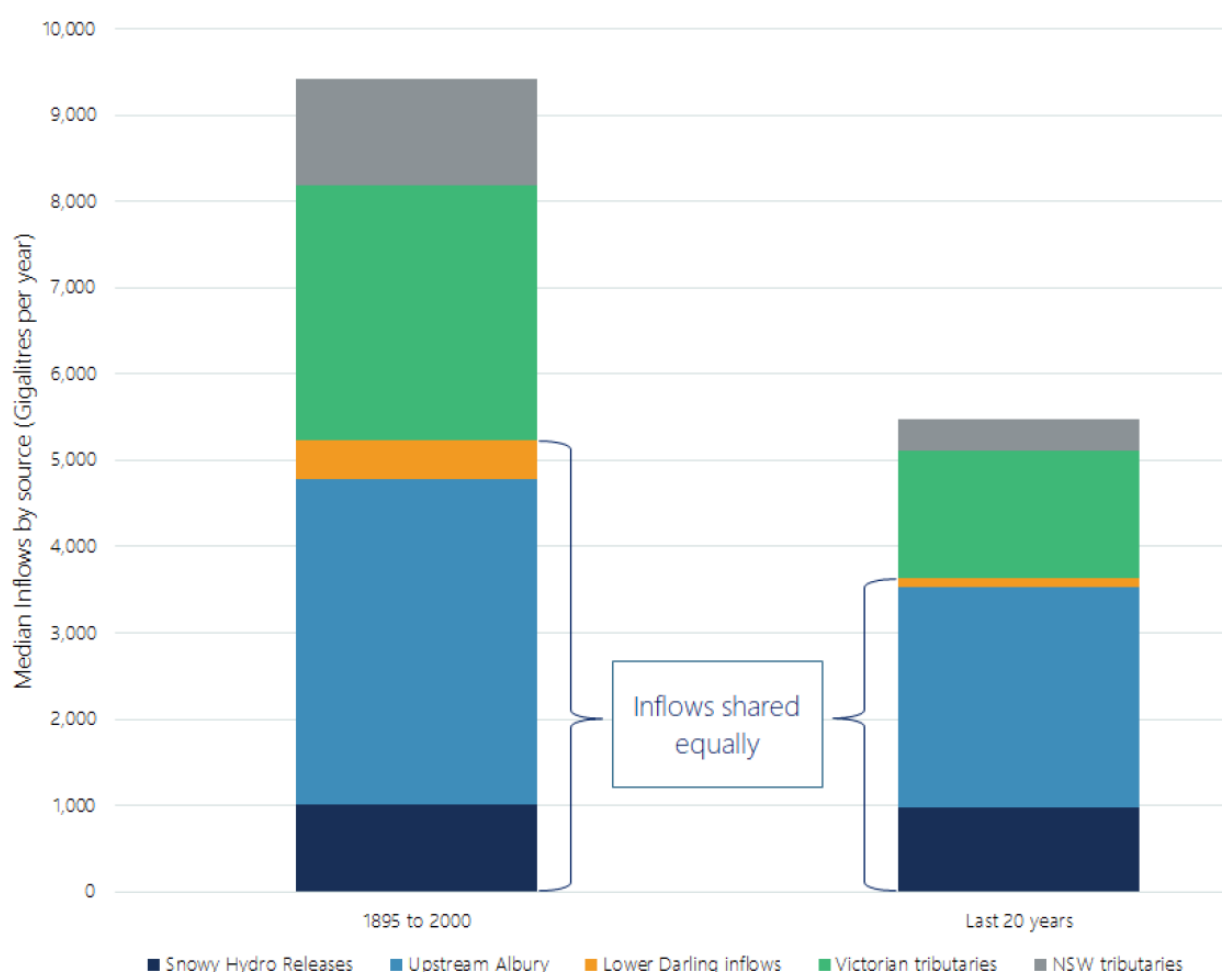
¹¹⁹⁰ Interim Inspector General of Murray Darling Basin Water Resources, *Impact of lower inflows on state shares under the Murray–Darling Basin Agreement*, 2020, at https://www.igmdb.gov.au/sites/default/files/documents/iig_final_report.pdf, viewed 25 June 2020.

¹¹⁹¹ Under the National Water Initiative (NWI) in 2004, Basin States agreed that water access entitlement holders are to bear the risks of reduced or less reliable water allocations because of seasonal or long term changes in climate and periodic natural events like bushfires and drought. However, governments are to bear the risk of reductions arising from changes in government policy. See Intergovernmental Agreement on a National Water Initiative, 2004, <https://www.agriculture.gov.au/water/policy/nwi>, viewed 3 June 2020.

13.2.2. Shifts in allocations are primarily driven by climate trends, but policies often lack clarity and consistency

As noted by the report of the Interim Inspector General (IIG), the most significant driver of reduced allocations for Southern Basin entitlement holders has been reduced inflows. This is particularly acute in New South Wales, where median inflows from the states tributaries over the last 20 years are almost two-thirds lower than the previous century (see figure 13.3 below). The report notes that irrigation expanded rapidly in a relatively wet period during the 1990s, and that many water users’ memories of water availability may have been formed during this period, which had less frequent dry years than the period since. The IIG Report also identified that dry periods in the Darling and the Murray are increasingly occurring at the same time.¹¹⁹²

Figure 13.3: Change in River Murray system inflows, 1895 to 2000 and last 20 years¹¹⁹³



The approach to water allocation policies taken by the New South Wales Government (explained in sections 12.3.2 and 13.2.1), as well as extremely dry conditions in recent years, has resulted in no general security allocation for New South Wales Murray entitlement holders in the last several years. Lower than expected inflows in the New South Wales

¹¹⁹² Interim Inspector General of Murray Darling Basin Water Resources, *Impact of lower inflows on state shares under the Murray–Darling Basin Agreement*, 2020, p. 7 at https://www.igmdb.gov.au/sites/default/files/documents/iig_final_report.pdf, viewed 16 June 2020.

¹¹⁹³ Impact of lower inflows on state shares under the Murray–Darling Basin Agreement, Interim Inspector-General of Murray-Darling Basin Water Resources, 2020, based on MDBA data.

Murray led to a 125 GL deficit in the volume of water necessary to meet ‘high priority commitments’¹¹⁹⁴ for the 2018–19 water year.¹¹⁹⁵ The result of this was conveyance entitlement holders¹¹⁹⁶ not receiving a full opening allocation and subsequent resource improvements during 2018–19 being allocated to those conveyance licence holders first, before general security entitlement holders. As dry conditions continued, this shortfall (and the requirement to prioritise allocating additional water to these needs) carried through into 2019–20 with a 145 GL deficit occurring from 1 July 2019. As of the time of writing (mid-May 2020), the deficit has just been erased, and New South Wales Murray GS entitlement holders have received a 3 per cent allocation.¹¹⁹⁷

The effect of the shortfall has seen continued concern from New South Wales Murray stakeholders who aired concerns to the ACCC and through the media about why general security entitlement holders had not received an allocation as a result of good autumn rains. These concerns were linked to a view that greater volumes of water are being held in reserves than in previous years.¹¹⁹⁸

These circumstances were coupled with the publication of water allocation statements from late 2017–18 and early 2018–19 that, in the ACCC’s view, failed to explain this deficit explicitly and sufficiently clearly. While the 1 July 2018 water allocation statement did indicate that conveyance entitlement holders would receive a reduced allocation and be the first priority for allocation as new water became available, the publication did not explicitly state there was a deficit in water needs, or unpack the implications for general security entitlements.¹¹⁹⁹ The ACCC does not consider it reasonable to assume that all general security entitlement holders would have a detailed understanding of the workings of allocation rules and would check the allocation made to conveyance entitlements and extrapolate what that meant for their chance of receiving an allocation in the year ahead. As the reality of the water availability situation was not explicitly explained to them, this likely contributed to the discontent felt by some general security entitlement holders who did not understand why resource improvements were not allocated to them.¹²⁰⁰

Another commonly held view among stakeholders was that allocation policies, particularly in New South Wales, have changed over time to become more conservative, with more water being maintained in reserves for future years’ commitments.¹²⁰¹ Provisions in New South Wales water sharing plans which dictate the priority of allocations have remained largely

¹¹⁹⁴ High priority commitments does not appear to be clearly defined. The New South Wales Murray and Lower Darling Incident Response guide lists high priority water needs as including stock and domestic, local water utility and high security town water supply and high security licences, but the ACCC understands that general security carryover is also included as high priority needs. Advice from New South Wales Department of Industry and Environment; New South Wales Department of Planning and Environment, *New South Wales Murray and Lower Darling Surface Water Resource Plan Incident Response Guide*, 2019, available at https://www.industry.nsw.gov.au/_data/assets/pdf_file/0010/272737/schedule-g-nsw-ml-d-irg.pdf.

¹¹⁹⁵ Under the *Water Sharing Plan for the New South Wales Murray and Lower Darling Regulated Rivers Water Sources 2016* (NSW), water in the New South Wales Murray is allocated first to domestic and stock licences and local water utilities. If sufficient water has been set aside for general security carryover and losses, water is then allocated to high security entitlements. Following this, conveyance entitlements receive 50 per cent of their entitlement volume before water begins to accumulate to general security entitlements, with conveyance entitlement allocations then increasing alongside allocations to general security.

¹¹⁹⁶ Conveyance entitlements are a category of access licence originally issued to Irrigation Infrastructure Operators to facilitate delivery of water through their channel systems. Note that water use against these licences is considered consumptive use. New South Wales Government, *NSW Murray and Lower Darling Water Allocation Update*, 2019, at https://www.industry.nsw.gov.au/_data/assets/pdf_file/0006/270771/WAS-murray-190815.pdf, viewed 25 June 2020.

¹¹⁹⁷ WaterNSW, *NSW Murray and Lower Darling Water Allocation Update*, 2020, at https://www.industry.nsw.gov.au/_data/assets/pdf_file/0019/301393/Was-Murray-20200515.pdf, viewed 25 June 2020.

¹¹⁹⁸ Shepparton News, ‘Still no water ... so intervention demanded’, 5 May 2020, <https://www.sheppnews.com.au/deniliquin-news/2020/05/05/1157342/still-no-water-so-intervention-demanded>.

¹¹⁹⁹ WaterNSW, *Opening allocations for NSW Murray Valley and Lower Darling water users*, 2018, at https://www.industry.nsw.gov.au/_data/assets/pdf_file/0004/165595/WAS-Murray-Lower-Darling-180701.pdf, viewed 25 June.

¹²⁰⁰ *ibid.*

¹²⁰¹ Coleambally Irrigation Co-operative Ltd, Submission to the Murray-Darling Basin inquiry, 13 February 2020.

unchanged as plans have been updated. However, data published in water allocation statements for some values does appear to indicate greater volumes of water are being set aside for future years' commitments. This largely stems from a change to the presentation of water allocation statements (with minimal explanation) from 2017–18 which indicated large volumes of water were being held for future high priority water needs.¹²⁰² The ACCC is continuing its analysis of these trends.

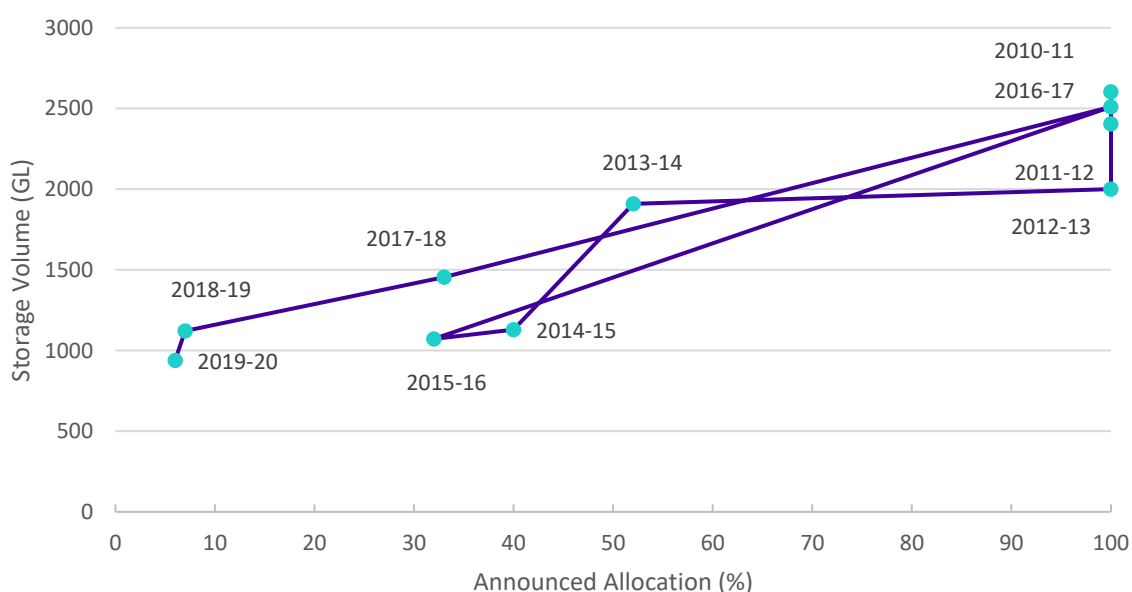
As such, while the primary driver of shifting allocations in New South Wales is climatic trends, a lack of clear communication has contributed to stakeholder beliefs that government decisions have been a significant driver in allocation changes. Based on the information to hand, it appears that the New South Wales Government could have taken clearer steps to explicitly and directly communicate information about these circumstances to general security entitlement holders to attempt to dispel misconceptions about perceived changes in policy approach.

13.2.3. The relationship between storage volumes and allocations has changed

Since 2010–11, key water storage volumes have become a less reliable predictor of announced allocations in some catchments. For example, the volume allocated to Murrumbidgee General Security relative to a given total volume held in Murrumbidgee storages has been lower in recent years compared to previously.

On 30 December for 2018–19 and 2019–20, the total volume of Blowering Reserve and Lake Burrinjuck averaged over 1000 GL and announced allocations were less than 10 per cent. In comparison, 2014–15 and 2015–16 experienced similar volumes of water in Blowering Reserve and Lake Burrinjuck but announced allocations were 32 per cent and 40 per cent respectively. Additionally, despite relatively significant additional volumes in storages in 2017–18 compared to 2015–16, announced allocations were only slightly higher than in 2015–16. Figure 13.4 shows the relationship between storage volumes and announced allocations in the Murrumbidgee over the last decade.

Figure 13.4: Murrumbidgee water storage volumes and announced general security allocation at 30 December, 2010–11 to 2019–20



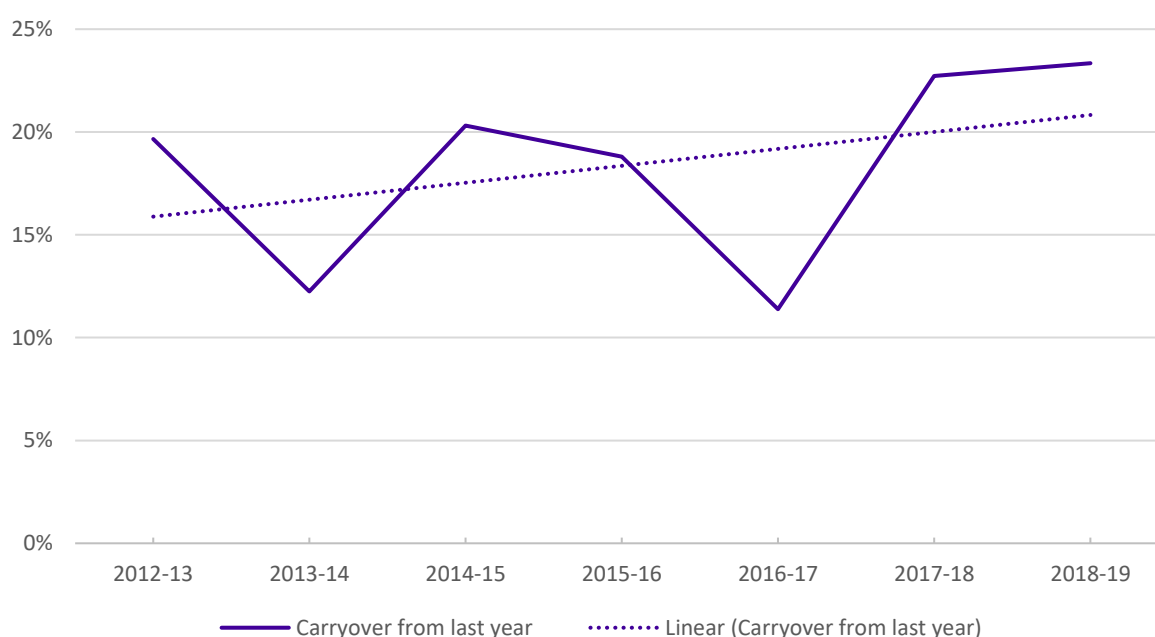
¹²⁰² Water Allocation Statement NSW Murray and Lower Darling, 15 March 2018, available at <https://www.industry.nsw.gov.au/water/allocations-availability/allocations/statements>.

Source: Bureau of Meteorology and WaterFlow.

Note: Water storage volume is the total of Blowering Reserve and Lake Burrinjuck. General security allocations are for the Murrumbidgee.

These differences are likely, at least in part, because of the fact that a higher proportion of available water in the Murrumbidgee is being held as carryover. Figure 13.5 reveals a slight upward trend in the proportion of available water held as carryover over time and reveals that carryover holdings were comparatively greater in 2017–18 and 2018–19 than in 2014–15 and 2015–16. It is also possible that a greater proportion of water is being set aside by the New South Wales Government to meet future years' commitments, though the ACCC's analysis in this space is ongoing.¹²⁰³

Figure 13.5: Volume carried over from last year relative to total available water determination in current year, Murrumbidgee, 2012–13 to 2018–19



Source: ACCC analysis of voluntary information request data from New South Wales

Note: Provisional estimates. Dotted line represents linear trend. Carryover is represented by the opening balance of water accounts at the start of the water year.

This is important because water users have historically relied on information about total storage volumes to estimate or forecast likely announced allocations. If relationships between storage volumes and announced allocations are not static over time, and users are not aware of how these relationships change or what drives these changes, users are likely to significantly misestimate likely announced allocations, which could lead to inappropriate investment or farm management decisions. Further, such changes, if not well understood, can drive perceptions that there has been a change in allocation or storage management policy, even when this has not actually been the case.

13.2.4. The timing of water allocation improvements does not appear to be getting later for most entitlement types

Stakeholders, most commonly in New South Wales, indicated concerns that announcements to increase water allocations had been getting later in recent years. They argued that the

¹²⁰³ WaterNSW, 2020, 'Water Allocation Statements—Murrumbidgee Valley', 2020 at <https://www.industry.nsw.gov.au/water/allocations-availability/allocations/statements>, viewed 11 June 2020.

lack of water allocations early in the season was impacting their ability to make business decisions, pushing them to increase their reliance on carryover and undermining their ability to access finance. Allocation announcements (known as water allocation statements in New South Wales, seasonal determinations in Victoria and announced allocations in Queensland) tend to be released at regular intervals (often fortnightly) and specify the proportion of water held under an entitlement a water user is allowed to extract.

The ACCC's analysis of the timing of allocation improvements revealed that while allocations to many entitlement types have been significantly lower in recent years (because of low water availability), there is no clear evidence that allocation improvements are occurring later in the year for most entitlement types. On average, Lower Darling entitlement holders have experienced longer waits to receive allocations since 2012, particularly for high security entitlement holders, while high security holders in the Goulburn have also seen longer waits since 2015.¹²⁰⁴ The data indicates that climatic conditions and overall water availability are the most significant factor in the timing of allocation improvements, with long waits or no allocations in drier years.¹²⁰⁵

Figure 13.6 below represents how long it has taken allocations to reach 25 per cent for general security entitlement holders (in terms of total number of days from 1 July of that year). Water years with a figure equal to one indicate the entitlement received a 25 per cent of greater opening allocation on 1 July, while years with no data indicate allocations did not exceed 25 per cent at any point that year.

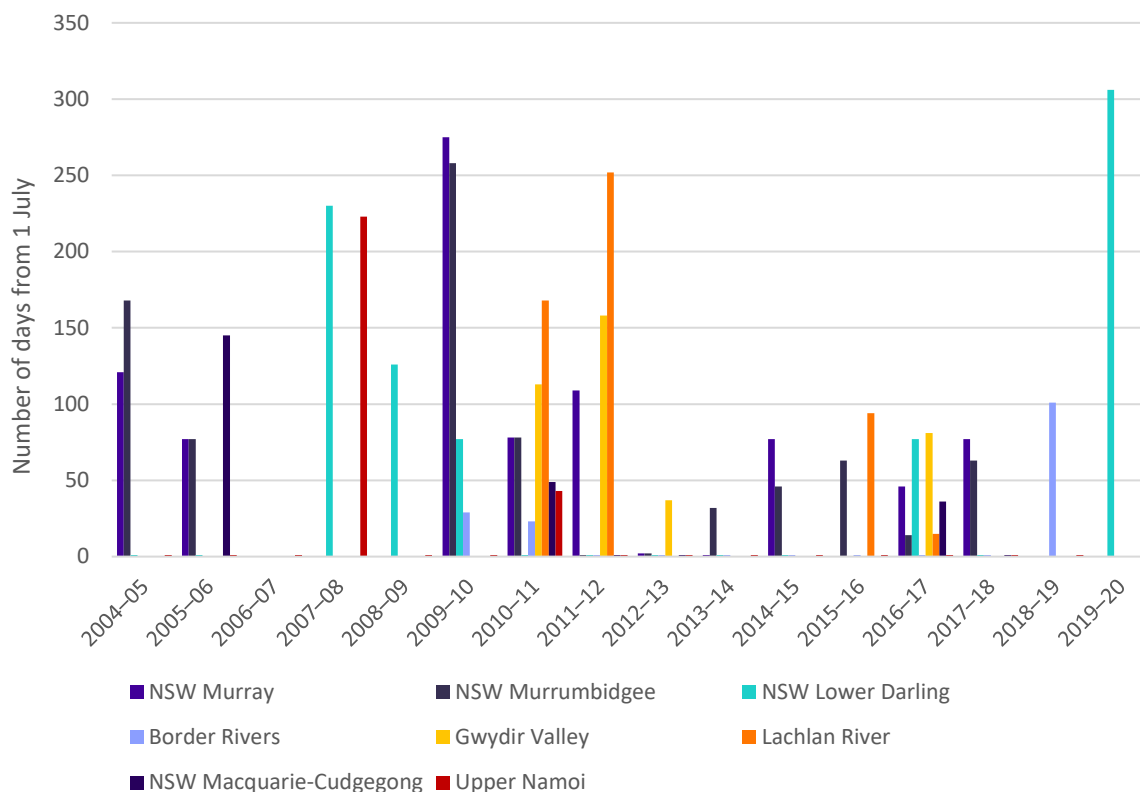
Figure 13.6 indicates there is no clear evidence for the argument that water allocations are taking longer to improve in recent years for most valleys. The majority of valleys that exceeded 25 per cent allocations in these years did so with the years' opening allocation, though reaching 25 per cent at all has become less likely in recent years with prevailing drought conditions. The average number of days taken for general security allocations to reach 25 per cent fell for six of the eight in the valleys listed in figure 13.6, when the periods of 2004–05 to 2011–12 and 2012–13 to 2019–20 are compared. The Lower Darling and the Upper Namoi experienced very slight increases due almost entirely to the late allocation increase received in 2019–20 as a result of autumn rains following an extended dry period. The New South Wales Government has indicated that, based on stakeholder preferences, they attempt to allocate water to general security users upfront (rather than via incremental improvements) to allow them flexibility in how they use water.¹²⁰⁶

¹²⁰⁴ ACCC analysis of Waterflow data.

¹²⁰⁵ ACCC analysis of Waterflow data.

¹²⁰⁶ New South Wales Government, *Drought Community Consultation – What we heard from drought-affected communities*, December 2019, https://www.industry.nsw.gov.au/_data/assets/pdf_file/0005/285404/community-drought-meetings-what-we-heard-october-november.pdf, viewed 26 June 2020.

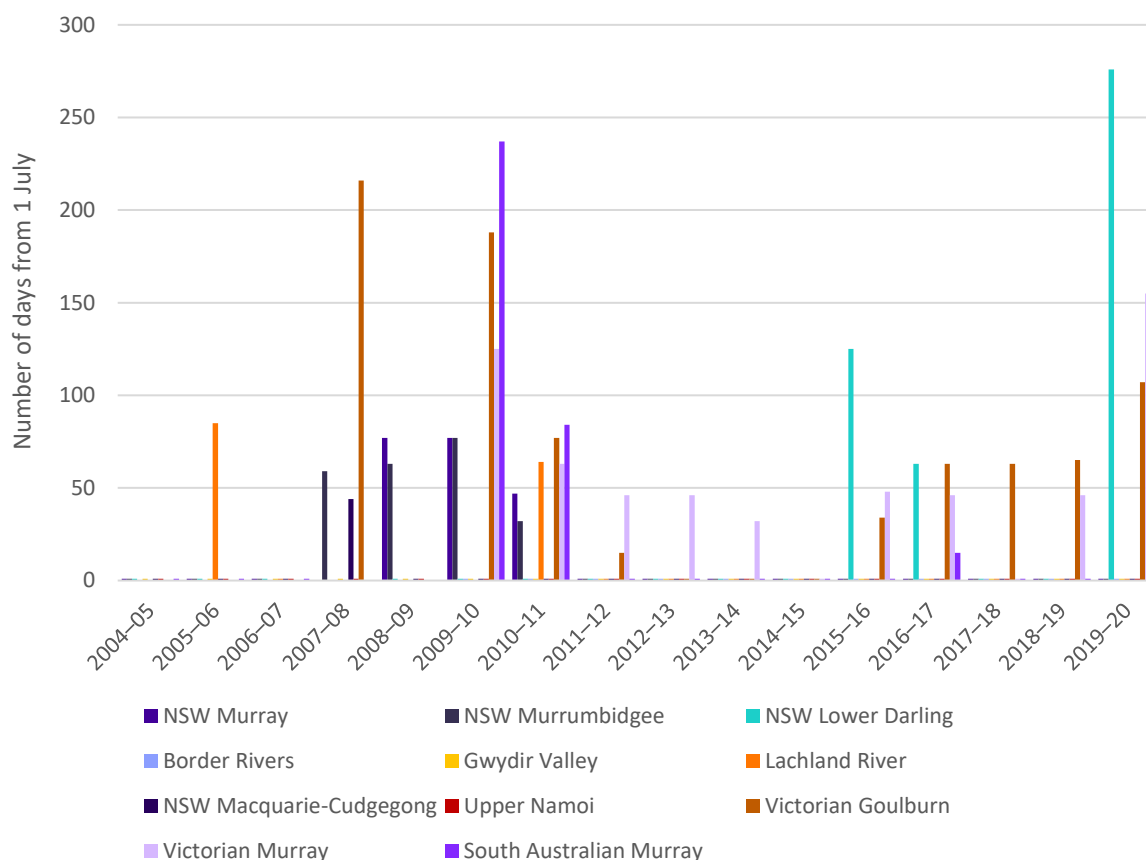
Figure 13.6: Number of days taken for general security water allocations to reach 25 per cent, 2004–05 to 2019–20



Source: ACCC analysis of Waterflow data.

Figure 13.7 demonstrates the number of days taken for high security/reliability water entitlements to receive a 50 per cent water allocation. This figure reveals that most of the water sources exceeded 50 per cent allocations with their opening allocations in the vast majority of years. With some potential outliers, the data does not reveal any discernible trend in the timing of allocation improvements across high reliability entitlement types. Of the 11 water sources in Figure 13.7, only the New South Wales Lower Darling experienced an increase in average wait times to receive a 50 per cent allocation based on the periods 2004–05 to 2011–12 and 2012–13 to 2019–20. High security entitlement holders in this water source received a 50 per cent opening allocation every year from 2004–05 to 2011–12 except in 2007–08, but from 2012–13 to 2019–20 wait times increased to an average of 59 days. Following three consecutive years of opening allocations over 50 per cent from 2012–13 to 2014–15, the Goulburn Valley has seen waits of over 34 days for the last five years in a row at an average of 66 days in these years. It should be noted the Goulburn had experienced long waits previously, such as in 2007–08, 2009–10 and 2010–11.

Figure 13.7: Number of days taken for high security water allocations to reach 50 per cent, 2004–05 to 2019–20



Source: ACCC analysis of Waterflow data.

13.2.5. Some allocation policies are designed to rely on out-of-date information, rather than being dynamic and adaptable

The ACCC notes that water allocation policies in a number of Basin catchments are designed to ensure that the hydrological modelling they are based on does not update as more data becomes available. The water sharing plans for the New South Wales Murray and Lower Darling, Murrumbidgee and Lachlan (and Hunter, outside the MDB) have provisions which ensure that minimum inflow levels remain determined by the data that was available at the commencement of the first water sharing plans established for the catchments in 2003.¹²⁰⁷ Most other plans maintain a constant base for the duration of the plan, but update the assumed minimum inflows based on the latest available information at the commencement of each plan (generally every 10 years).

For plans where inflow assumptions have been held constant, it stands to reason that updating these plans to incorporate the record low inflows that have occurred since 2003 would impact the timing and volume of water allocations to water users in these catchments, and necessitate a greater proportion of water being held in reserves (particularly early in the water year). This could potentially damage industry confidence, particularly for lower reliability entitlement holders who would experience reduced allocations before others, and

¹²⁰⁷ *Water Sharing Plan for the Lachlan Regulated River Water Source 2016* (NSW); available at <https://www.legislation.nsw.gov.au/#/view/regulation/2016/365>; *Water Sharing Plan for the New South Wales Murray and Lower Darling Regulated Rivers Water Sources 2016* (NSW), available at <https://www.legislation.nsw.gov.au/#/view/regulation/2016/366>; *Water Sharing Plan for the Murrumbidgee Regulated River Water Source 2016* (NSW), available at <https://www.legislation.nsw.gov.au/#/view/regulation/2016/367>.

would likely push these users towards a greater reliance on carryover and other trading strategies to ensure access to water earlier in the season.

As a matter of good policy design, the ACCC considers policy instruments should seek to rely on and, at appropriate intervals, incorporate the current and accurate information available. This should be balanced with the benefits offered to water users from the stability and certainty of a stable baseline; for this reason there would be little benefit in water sharing plans which are perfectly dynamic and update inflow assumptions throughout the life of the plan. However, updating policy instruments to take into account new information as they are renewed appears to be a reasonable approach. If doing so would result in undesirable policy outcomes, there is likely a need to review the appropriateness of the policy instrument. Additionally, updating the reference base infrequently or on a seemingly ad hoc basis could lead to greater 'shocks' to water users and the undermining of entitlement holders' property rights. The ACCC understands that the New South Wales parliament is currently considering a draft bill intended to address stakeholder concerns with allocation policy design, by allowing the updating of flow information.^{1208,1209}

Preventing water allocation policies from ever updating as new data becomes available would undermine the robustness and appropriateness of these policies. If the observed trend of declining inflows¹²¹⁰ continues, allocation policies that do not update as new flow information becomes available risk increasing uncertainty and variability of allocations because of an increasing likelihood that actual inflows fail to exceed assumed minimums for the year.

It follows that this would result in an increasing likelihood of years where high priority water needs are not met (as occurred in the New South Wales Murray in 2018–19; section 13.2.2). In these years, higher reliability entitlements (high security and conveyance entitlements) could experience reduced allocations and general security entitlement holders would not receive an allocation until those commitments had been met. As observed during 2018–19 in the New South Wales Murray, a deficit in water available results in significant stakeholder angst and reduced confidence in market architecture and governance arrangements. Relatively frequent reoccurrence of these conditions would have further flow on impacts on water use, trading and investment decisions.

13.3. Carryover

The ACCC's consultation found that some stakeholders:

- found information on carryover arrangements and related matters hard to find and difficult to understand
- held concerns that governments changed carryover arrangements without adequate notice to or consultation of water users
- were concerned that differences in carryover arrangements between states and between water resources distorted water markets and were unfair, and that rules should be standardised

¹²⁰⁸ As at 18 June 2020, the New South Wales Legislative Council referred a draft bill for review to the *Portfolio Committee No. 4—Industry* which seeks to address stakeholder concerns by allowing the updating of flow information in water sharing plans. *Water Management Amendment (Water Allocations—Drought Information) Draft Bill 2020* (NSW), at <https://www.parliament.nsw.gov.au/bill/files/3755/First%20Print.pdf>, viewed 19 June 2020.

¹²⁰⁹ New South Wales Legislative Council, *Inquiry into the provisions of the Constitution Amendment (Water Accountability and Transparency) Bill 2020 and the provisions of the Water Management Amendment (Transparency of Water Rights) Bill 2020 and the Water Management Amendment (Water Allocations—Drought Information) Bill 2020—Terms of reference*, 2020 at <https://www.parliament.nsw.gov.au/lcdocs/inquiries/2599/Terms%20of%20Reference%20-%20Const-Water%20Management%20Amdt.pdf>, viewed 19 June 2020.

¹²¹⁰ Interim Inspector General of Murray Darling Basin Water Resources, *Impact of lower inflows on state shares under the Murray–Darling Basin Agreement*, 2020, https://www.igmdb.gov.au/sites/default/files/documents/iig_final_report.pdf.

- were concerned that carryover arrangements did not always account for impacts on other water users
- believed that investors used carryover arrangements to withhold water and drive up prices and so should not have access to it.

The ACCC's analysis will focus on considering whether carryover arrangements contribute to the effective and efficient operation of water markets. It will examine the efficiencies of minimising transaction costs to users through clear, accessible information and limiting unnecessary trading costs for carryover parking. The ACCC found that where possible, carryover policies should account for impacts of policy settings on other water users and provide appropriate price signals as to the efficient use of available storage capacity.

The ACCC's analysis of carryover arrangements, the use of carryover and related data is ongoing. The ACCC will investigate further for the final report whether water is being traded for carryover and the effects of this, and whether carryover is being used by investors to increase prices by withholding supply. Investor behaviour is being considered in chapter 5, section 5.6.2. The ACCC will do further work before the final report to consider these questions.

13.3.1. Carryover was designed to increase the economic efficiency of water use (including trade)

Carryover was widely introduced by states as a temporary measure during the Millennium Drought.¹²¹¹ Its aim was to help farmers deal with the impacts of the drought, allow farmers to smooth out their consumption of water across dry years and reduce the 'use it or lose it' mentality commonly seen with policies that resulted in users forfeiting unused water allocation at the end of the water year. In providing for better risk management and the ability to bank water for future use, carryover seeks to improve economic efficiency in the market by providing flexibility of water use across time.

As discussed in section 3.3, carryover and trade interact to allow concentration of water use in particular places (zones), at particular times, for particular uses. In some ways, this can be seen as the market working and moving water to its highest value use (moving geographically and in time). However, these policies were designed prior to the substantial inter-zonal trade in the system today, and in order to maximise the benefits market settings should build both costs and benefits of carryover into the trade mechanisms, to ensure users factor these into their decision making.

Carryover has also facilitated the development of new water market products. An example of this is investors using the availability of carryover to offer forward contracts. Forward contracts allow irrigators to lock in a future price and supply of water. Carryover allows investors to guarantee their water supply, reducing their risk in supplying forwards. This transfers the risk from the irrigator that they will not be able to access adequate water at an appropriate price onto the investor. Where water users perceive a risk of water prices rising in the future, forward contracts will generally sell at a premium compared to the spot price.

13.3.2. Information on carryover arrangements and carryover levels should be improved

Information on carryover arrangements can be difficult to find and hard to understand. This partly reflects the wide range of carryover policies in place for Basin water resources because of the underlying hydrological differences, storage characteristics, the make-up of entitlements on issue, and allocation policies for the relevant water resources. The basis for

¹²¹¹ N Hughes, M Gupta, K Rathakumar, *Lessons from the water market: The southern Murray–Darling Basin water allocation market 2000–01 to 2015–16*, Department of Agriculture, ABARES, 2016.

carryover policy settings (and implicitly, the differences between carryover policies) does not always appear to be well-explained to relevant entitlement holders.

It also reflects that information about carryover arrangements is not provided in a transparent and consistent way across the Basin. Victoria and South Australia both have easy to find information on their carryover policies.¹²¹² For New South Wales, and particularly in the Northern Basin, this information is often found in Water Sharing Plans with complex language.¹²¹³

Stakeholders are also concerned about a lack of information about the level of carryover in dams, as previously they were able to use dam levels as a proxy to estimate allocations for the year.¹²¹⁴ Without this information, it makes informed decision making for market participants on how to manage their risk more difficult. This is covered in more detail in section 13.2.3.

The ACCC considers that a lack of information that is clear, easy to understand and access about all policies, including carryover arrangements, leads to confusion and reduces water holders' confidence to participate in the market. This reduction in confidence and reluctance to participate in the market prevents water being traded to its most economically efficient use and inhibits the opportunity to improve welfare.

13.3.3. Different carryover arrangements reflect states' varied hydrological characteristics, entitlements on issue and policy processes

Across the Basin, carryover arrangements differ between water sources and states (see section 12.4). There appears to be a variety of reasons for these differences, including the volume of storage capacity, classes and volume of entitlements on issue and state allocation policies.

South Australia has a stricter carryover policy in response to less reliable access to storage space compared to Victoria and New South Wales.¹²¹⁵ The Murray–Darling Basin Agreement allows the private carryover of South Australian water in upstream storages¹²¹⁶ on the condition it must not adversely impact New South Wales or Victorian water availability.¹²¹⁷ As a result of this, South Australian deferred water is the first to spill when storages in New South Wales and Victoria fill. This, combined with South Australia's more conservative approach to allocations, results in more reliable allocations and in turn, a more restrictive carryover policy.¹²¹⁸

Spill can refer to either a physical spill, where water is released from the dam, or a 'paper' or accounting spill. A physical spill refers to where water is lost from storage because it is required to be released (because of inflows exceeding the available storage capacity and/or dam safety requirements). A paper spill is where water is not physically released from the

¹²¹² Department of Environment, Water, Land and Planning (Victoria), 'Carryover rules', 2020, waterregister.vic.gov.au
Department for Environment and Water (South Australia), 'Private carryover', 2020, environment.sa.gov.au, viewed 17 June 2020.

¹²¹³ *Water Sharing Plan for the Lachlan Regulated River Water Source 2012*, Part 9, division 1, cl55.

¹²¹⁴ The Australian Farming Services, Submission to the Murray–Darling Basin inquiry, 30 January 2020, p. 2.

¹²¹⁵ Storage arrangements are set out in Schedule G of the Murray–Darling Basin Agreement—this sets out that if water spills from storage then South Australia's deferred water for private carryover spills first.

¹²¹⁶ Department for Environment and Water (South Australia), *Private carryover*, 2020, environment.sa.gov.au, viewed 4 June 2020.

¹²¹⁷ Interim Inspector General of Murray Darling Basin Water Resources, *Impact of lower inflows on state shares under the Murray–Darling Basin Agreement*, 2020, p. 18 at https://www.igmdb.gov.au/sites/default/files/documents/iig_final_report.pdf.

¹²¹⁸ Department for Environment and Water (South Australia), *Private carryover*, 2020, environment.sa.gov.au, viewed 4 June 2020.

dam but is 'lost' to the party and socialised (that is, reallocated to other water users) when a limit is reached for the entitlement or account.

In the River Murray system, Victoria and New South Wales have a 50–50 split of the Hume and Dartmouth reservoirs, giving them more reliable access to storage compared to South Australia, which is reflected in their carryover policies allowing higher (but also different) levels of carryover.

Spills can also occur as a result of trade, where users from one state hold so much water in storage that there is no storage capacity to capture new inflows. Victoria manages this risk through the use of a trade rule that limits allocation trade between the states in a given year (generally, to 200GL or a volume that keeps the risk of spill in Victoria's share the Murray system below 50 per cent). This is discussed in more detail in appendix E.

Different choices in the initial issuing of entitlements and those entitlements' securities, have also impacted carryover policies. In New South Wales, there is a wide range of different carryover rules depending on the water source and entitlements issued. The majority of New South Wales water sources allow water to be carried over only on general security entitlements,¹²¹⁹ because of their lower reliability and higher percentage of entitlements on issue. South Australia also only allows class three entitlements (which are high reliability) to access carryover.¹²²⁰

In contrast, in Victoria both high and low security entitlements are able to access carryover in river systems with access to dams as Victoria perceives both entitlements to have a right to inflows and dam space.¹²²¹ Low reliability entitlements in Victoria rarely receive allocations and are now used primarily for their carryover properties.

South Australia and Victoria explicitly manage their increased spill risks and evaporation losses from carryover. As South Australian deferred water is the first to spill, it addresses spill risk by only allowing carryover in years where projected opening allocations in April are 50 per cent or less, capping carryover at 20 per cent of entitlement and water use at 100 per cent of entitlement.¹²²² Victoria explicitly manages spill risk by only allowing carryover above 100 per cent of entitlements in river systems where there is access to larger storages and also making water carried over the first to spill if the dam spills.¹²²³ Both states also deal with evaporation losses on carryover by deducting 5 per cent of water carried over, although Victoria does it from private accounts and South Australia does it at a bulk level.¹²²⁴

New South Wales does have policies in place for evaporation in some valleys, however it is difficult to work out how much the carryover water would be reduced by because of the complexity of the relevant legislative instruments. For example, the New South Wales Water Sharing Plan for the Lower Darling and New South Wales Murray uses a difficult-to-understand calculation and this only applies to the Lower Darling but not the New South

¹²¹⁹ ACCC analysis of New South Wales carryover policies found in Water Sharing Plans.

¹²²⁰ Department for Environment and Water (South Australia), *Private carryover*, 2020 at <https://www.environment.sa.gov.au/topics/river-murray/about-river-murray/water-allocation-and-carryover/south-australian-private-carryover>.

¹²²¹ Department of Sustainability and Environment (Victoria), *How carryover works on the Murray, Goulburn & Campaspe Carryover Review Committee fact sheet 1*, https://waterregister.vic.gov.au/images/documents/CRC%20Fact%20Sheet%201_How%20carryover%20works%20on%20the%20Murray%20Goulburn%20&%20Campaspe.pdf.

¹²²² Department of Natural Resources (South Australia), *Private carryover – issues and options Amending the 2019 Water Allocation Plan for the River Murray Prescribed Watercourse*, 2019, https://www.naturalresources.sa.gov.au/files/sharedassets/sa_murray-darling_basin/water/allocation_plans/river_murray/2020-january/rmwap-private-carryover-issues-options.pdf.

¹²²³ Department of Environment, Water, Land and Planning (Victoria), 'Carryover rules', 2020, waterregister.vic.gov.au.

¹²²⁴ Department of Environment, Water, Land and Planning (Victoria), 'Carryover rules', 2020, https://www.naturalresources.sa.gov.au/files/sharedassets/sa_murray-darling_basin/water/allocation_plans/river_murray/2020_river_murray/river-murray-wap-adopted-150420-plan.pdf

Wales Murray water source.¹²²⁵ It is also unclear if New South Wales deals explicitly with the increased spill risk from carryover across all valleys, as again the spill rule used for Menindee Lakes and the Lower Darling does not appear to apply to the New South Wales Murray, despite the same Water Share Plan covering both water resources.¹²²⁶

13.3.4. The differences in carryover policies can drive trade to access more generous carryover provisions

The different carryover policies across states and valleys encourage water users to trade allocation in order to access the more generous carryover provisions into certain states and valleys, most notably into Victoria. This can be between accounts owned by the same person but in different valleys, or for carryover parking between accounts with different owners (discussed more in section 13.3.5).

As discussed in chapter 3 (section 3.1.1), preliminary estimates indicate that trade between own accounts (that is, buyer and seller are the same entity) over the period 2012–13 to 2018–19, represented at a minimum about 10 per cent of total allocation trades in the Southern Connected Basin (by number), and 12 per cent by volume. This highlights that significant volumes of trade are not ‘arm’s length trade’, but rather to allow a user to manage their own water portfolios through time via access to carryover, and also across zones. This type of trade is increased further when carryover parking is included (there is not currently an estimate for carryover parking figures).

13.3.5. The ACCC is still investigating the efficiency implications of carryover parking trades

Some stakeholders expressed concerns that differences in carryover arrangements result in trade occurring in order to access carryover parking, primarily into Victoria with its more reliable carryover policies.¹²²⁷ As discussed in chapter 3 (section 3.2.1), preliminary analysis shows that the use of carryover parking appears to be increasing, although the ACCC does not currently have an estimate for how much trade is related to carryover parking. Despite the apparent increase in use, preliminary findings are that the number of irrigators using carryover parking is likely to be small (see chapter 4).¹²²⁸

Carryover parking is a private agreement which enables the holder of water allocations to acquire access to the storage capacity and carryover rights attached to water entitlements held by another individual. This is done by ‘selling’ the allocation to the entitlement holder and then ‘buying’ back the carried over allocation in the following year.

¹²²⁵ Water Sharing Plan for the New South Wales Murray and Lower Darling Regulated Rivers Water Sources 2016 (NSW), cl 52 (7).

¹²²⁶ *Water Sharing Plan for the New South Wales Murray and Lower Darling Regulated Rivers Water Sources 2016* (NSW), cl 52 (8).

¹²²⁷ Murray Darling Basin Authority, Submission to the Murray-Darling Basin inquiry, 13 February 2020, p. 11.

¹²²⁸ Chapter 4 in this report, section 4.5.

The ACCC is assessing whether these arrangements are likely to promote or undermine the efficient functioning of the water market. The ACCC is considering:

- the general inter-temporal allocative efficiency considerations of carryover parking
- whether prices for carryover parking trades will be able to accurately reflect the true value of storage capacity
- whether carryover parking as a mechanism is able to effectively price externalities, given it is a private transaction between two people and the externalities occur at the bulk level
- whether the risk of loss because of spill or evaporation are borne by the party obtaining the carryover benefit (through prices that reflect these costs), by the seller or by third parties
- whether the private nature (and lack of disclosure of prices) makes it difficult for the market to establish an efficient, market clearing price.

The ACCC is investigating the amount of trade that occurs for the purposes of carryover and carryover parking as part of its consideration of the materiality of these issues.

13.3.6. Carryover has impacts on other water users that aren't always taken into account in policy design

Carryover can have impacts on other water users which have not always been taken into account in carryover policy design. The priority order of which water users are the first to bear impact of spills (in the form of lost allocations), will determine the incentives faced by water users considering carryover. For example, stakeholders have been concerned that general security entitlement holders in New South Wales are bearing these costs, as these entitlements are lower reliability.

Victoria's carryover policy ensures that evaporation costs from storage are taken into account by deducting 5 per cent off water carried over. Spill risk is also taken into account by holding water that is carried over in excess of 100 per cent of the entitlement, in spillable water accounts which is the first water to spill.

Table 13.1 shows annual losses in the major lakes of the Southern Basin. Due to the high losses in Menindee Lakes and Lake Victoria, river operators try to minimise the amount of water (and carryover) held there.

Table 13.1: Annual net evaporation as a percentage of lake capacity

	Dartmouth Dam	Lake Hume	Lake Victoria	Menindee Lakes
2012-13	0.23%	3.41%	19.96%	34.26%
2013-14	0.02%	2.36%	18.17%	31.63%
2014-15	0.32%	2.44%	18.76%	14.70%
2015-16	0.13%	2.09%	19.73%	6.04%
2016-17	-0.15% ¹²²⁹	2.65%	14.45%	27.86%
2017-18	0.11%	2.80%	19.65%	25.99%
2018-19	0.20%	3.09%	18.48%	8.78%

Source: ACCC analysis based on data provided by the MDBA.

¹²²⁹ Net evaporation losses below zero occur when rainfall directly over the storage exceeds evaporation from the storage.

South Australia deducts 5 per cent of water carried over to account for evaporation losses at a bulk carryover level, rather than from an individual's carryover volume. South Australia only allows carryover when projected minimum opening allocations in April are 50 per cent or less. The excess volume of water above 100 per cent will roll over into the following dry year if carryover is triggered again (that is, if the projected minimum opening allocation is 50 per cent or less). This avoids spill risk by not allowing carryover in wet or normal conditions, and is due in part to the sharing arrangement South Australia has with New South Wales and Victoria and the dam space in the river system noted in section 13.3.3 above.¹²³⁰

New South Wales carryover policies do not always take into account the increased spill risk arising from increased water stored in the dam across all valleys. This prevents inflows being captured in the dam that otherwise would have been captured, as water that is being stored or carried over takes up airspace that otherwise would have captured inflows of water.

Therefore, when policies do not incorporate costs and risks, water market participants do not face incentives to use or store water in an efficient way, and they may choose to defer usage and maintain more water in storages (through carryover) than is economically efficient. This is likely to distort water market outcomes as water will not be directed to its most economically efficient use over time. If these risks or costs are not borne or paid by the water user who incurs them, this will be in breach of the 'user-pays' principle that underpins the NWI and the Basin Water Charging Objectives and Principles.¹²³¹

The ACCC considers this an issue, as users of carryover do not incur their share of costs imposed on others (such as evaporation losses) nor bear the increased risk of spills from their decision to store water in the dam. This disadvantages other water users who bear these socialised costs and share this risk.

Victoria experienced significant spills in 2012–13, due in part to generous carryover policies, large trade into Victoria and unexpected inflows.¹²³² Victoria implemented new inter-valley and interstate controls on allocation trades in the Goulburn, Murray and Campaspe systems, a new spill rule for the Hume Dam and a 100 per cent limit on carryover after 2012–13 to minimise the risk of these large spills occurring again, by attributing the risks and costs of carryover to those benefiting from carryover. Introduction of this policy led to a reduction in water carried over in Victoria, as can be seen in figure 13.8 below.¹²³³

¹²³⁰ As defined in the Murray-Darling Basin Agreement, New South Wales and Victoria provide South Australia's Entitlement equally. During sustained periods of low water availability across the entire River Murray system, South Australia's Entitlement is also reduced. During these periods, once the conveyance requirements are put aside, each state effectively receives a third share of the available River Murray water and New South Wales and Victoria still retain ownership of the water from their tributaries. Each state is free to choose how it will allocate its water within its state.

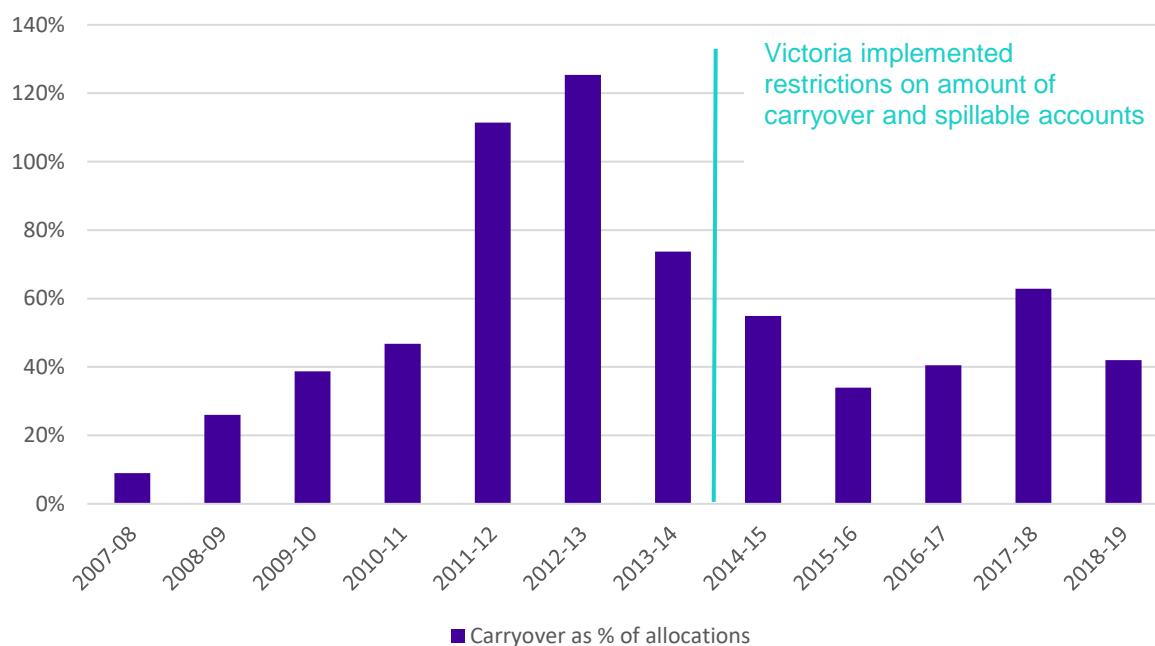
To help South Australia prepare for an extended dry period, it can store water from its Entitlement in the major storages in one year to meet its critical human water needs and private carryover in a future year. South Australia is not allowed to negatively impact water availability or storage access for New South Wales and Victoria when storing this water.

¹²³¹ *Intergovernmental agreement on a National Water Initiative*, between the Commonwealth of Australia and the Governments of New South Wales, Victoria, Queensland, South Australia, the Australian Capital Territory and the Northern Territory, 2004, agriculture.gov.au/water/policy/nwi, viewed 3 June 2020.

¹²³² Department of Sustainability and Environment (Victoria), *New spill rule on the Murray Carryover Review Committee fact sheet 2*, 2012 https://waterregister.vic.gov.au/images/documents/CRC%20Fact%20Sheet%202_New%20spill%20rule%20on%20the%20Murray.pdf, viewed 17 June 2020.

¹²³³ *ibid.*

Figure 13.8: carryover as a percentage of allocations, Victoria, 2007–08 to 2018–19



Source: ACCC analysis of ABARES data. The ACCC will continue to verify this data using provided Basin State data for the final report.

Note: Carryover as a per cent of allocations refers to the balance of carryover water at the start of that year (so carried over from the previous year) divided by allocations from the previous year.

13.3.7. Despite stakeholder concerns about the effects of carryover on water allocations, water is still being forfeited

Stakeholders expressed concern that carryover has reduced the volume of unused water forfeited at the end of the year, which previously would have been returned (or socialised) back to the consumptive pool for the following year.¹²³⁴ However when looking at New South Wales Murray and the Murrumbidgee, figure 13.9 below shows that contrary to stakeholder concerns, there is still a considerable amount of forfeited water. While forfeiture in the New South Wales Murray below Choke showed a downward trend since 2012–13, a slight rebound in the last two years somewhat offset this decline. Meanwhile, the Murrumbidgee and New South Wales Murray above Choke demonstrated an increasing proportion of forfeiture. Higher levels of forfeiture occurred even in recent years, despite the drier conditions and may be because of the lower levels of carryover allowed in the New South Wales valleys in the Southern Basin.¹²³⁵ The ACCC is still working with the data we have received and will endeavour to broaden this analysis to include other trading zones as well.

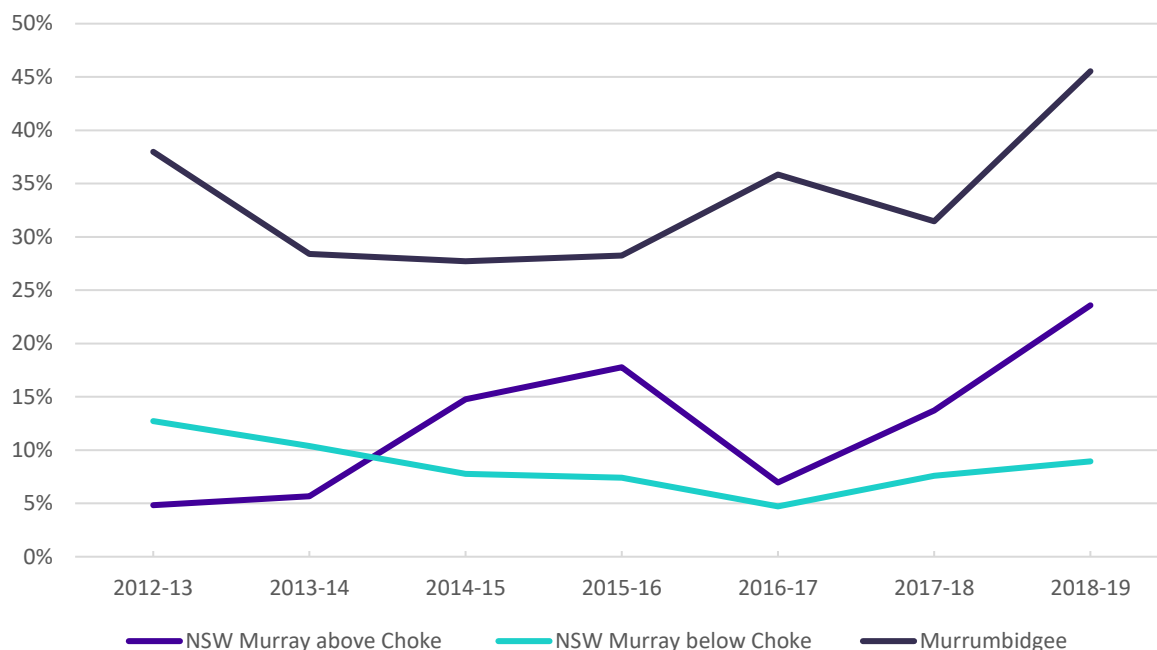
¹²³⁴ Simone and Lachie Knight, Submission to the Murray–Darling Basin inquiry, 30 January, p. 3.

David Morrison, Submission to the Murray–Darling Basin inquiry, 30 January 2020, p. 2–3.

ACCC Murray–Darling Basin inquiry, Shepparton and Kerang public forums

¹²³⁵ New South Wales allows carryover up to 50 per cent of the water entitlement to be carried over from year to the next in the Murray and Lower darling water sources and 30 per cent in the Murrumbidgee.

Figure 13.9: Water forfeited at the end of the year for New South Wales Murray above and below Barmah Choke and Murrumbidgee as a proportion of water account debits, 2012–13 to 2018–19



Source: ACCC analysis of voluntary information request data from New South Wales.

Note: Preliminary estimates. This data excludes forfeitures by supplementary entitlement holders.

The ACCC’s preliminary view is that even if the use of carryover resulted in no water being forfeited at the end of the water year (which is not the case seen so far), it is still a valuable and useful tool. This is because of the efficiency benefits derived from allowing individual water users control over when they choose to use or sell their water, rather than making them use or sell their water within a specified time period.

Furthermore, water market participants are much more aware of the value of water than in the past, and the ACCC understands from conversations with irrigators that if water was not able to be carried over, then most water users would use their water within that year in any way possible. This would likely result in less water being returned to the consumptive pool through forfeiture than the volumes of water currently carried over.

A return to no carryover would also likely lead to inefficient usage of water, and reduce some entitlements’ value. In discussion with irrigators, it has been predicted that without carryover, New South Wales Murrumbidgee General Security entitlements would halve in value, as a large part of their value comes from the underlying characteristic of being able to carryover water. Therefore, the ACCC considers that the benefits of carryover outweigh the costs outlined above.

Further, it is important to note that water that has been carried over by a water user is already allocated and held in that user’s account. For this reason, when making allocations for the current or upcoming water year, state governments are *not* required to first allocate water to meet carryover commitments before allocating the remaining water to other entitlement holders, as it has already been allocated out previously. This means that entitlement holders will not be directly affected by receiving less of an allocation as a result of an increased volume of carryover. However, carryover is likely playing a role in changing the nature of the relationship between storage volumes and announced allocations (section 13.2.3), which may be contributing to concerns about its impacts.

13.4. Inter-valley transfer limits and tagged trades

The ACCC's assessment of stakeholder concerns about IVT limits and related issues has sought to understand the water market-focused issues. This includes the frequency and duration of IVT openings and closures, the policy intent and effectiveness of IVT rules in managing the impacts of trade.

IVT limits are significant because they can affect the ability to trade in hydrologically connected markets, effectively creating separate markets for a period of time. Trade impacts from IVT limits are alleged to arise through:

- increased closures of trade because of IVT limits being reached and reducing the opportunity to trade and subsequently the overall volume of trade that otherwise would occur
- price impacts, particularly the divergence of prices between trading zones because the trading zones are disconnected when trade is closed because of IVT limits (see section 3.3.2)
- inefficient allocation of delivery capacity because of the disconnection between time of trade and time of delivery.

Stakeholders were also concerned that some water market participants (including brokers) were able to capture significant volumes of IVT capacity, when IVT opportunities were available. These concerns are being investigated and are discussed further in chapters 5 and 6. For more detail about how IVTs operate, see sections 3.3.2, 12.5.2 and appendix E.

The ACCC's analysis focuses on considering:

- the frequency with which IVT accounts opened and closed
- the extent to which IVT limits were understood by market participants, and the adequacy of explanatory information, including the effect on opportunities for trade
- the extent to which access to IVT limits, and the related administrative arrangements, may be subject to capture, manipulation or avoidance (through grandfathered tags or other legacy arrangements).

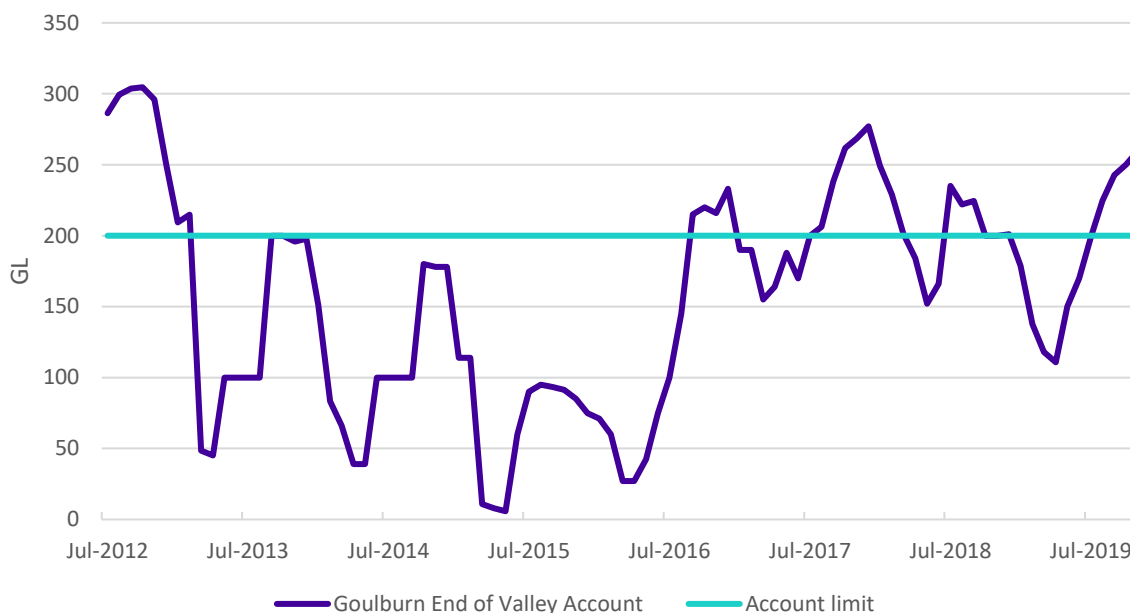
The ACCC's analysis of IVT limits and related data is ongoing. The ACCC will do further work before the final report to consider these and other questions.

13.4.1. The Goulburn to Murray transfer account balance has exceeded its limit in recent years and is under review

The Goulburn IVT account is limited to a trade balance of under 200 GL owed to the Murray¹²³⁶ but has exceeded those limits in recent years (see figure 13.10), feeding into stakeholder suspicions that IVT limits are ineffective and not strictly based on hydrology (see section 12.5.3). Figure 13.10 also reveals the Goulburn IVT limit has been closed much more regularly since mid-2016 than in the preceding years.

¹²³⁶ Department of Environment, Water, Land and Planning (Victoria), *Understanding the Goulburn to Murray trade limit*, 2017, waterregister.vic.gov.au, viewed 17 June 2020.

Figure 13.10: Goulburn to Murray inter-valley transfer account balance, end of month, July 2012 to November 2019



Source: MDBA voluntary information request.

Victoria is currently reviewing the Goulburn to Murray trade rule because of concerns that higher flows required to deliver water into the Murray in recent years because of higher demand during the drought, are having adverse environmental impacts.¹²³⁷ This is in part because of IVT policy restricting the net amount of water owed to the Murray but not the total volume that can be delivered or flow rates of water in the river, which is causing the environmental side effects. There has also been an increasing reliance on the Goulburn IVT account for delivery of water, because of Menindee Lakes being under New South Wales control and less water being traded out of the Murrumbidgee because of low allocations and high cotton prices.¹²³⁸

13.4.2. Murrumbidgee inter-valley transfer limit and the Barmah Choke have become more restrictive in recent years¹²³⁹

In figure 13.11, the Murrumbidgee IVT limits (0 and 100 GL) are represented by the blue lines. Trade is allowed when the IVT account balance (the dark purple line) is between the blue lines (IVT account limits). It is important to note that this data represents end of month balances and not the daily balance.

There is a small number of tagged entitlements established prior to 22 October 2010 (also known as grandfathered tagged entitlements) which can affect the IVT balance through the ordering of water, which can on occasion move the IVT balance outside the 0–100 GL limits.

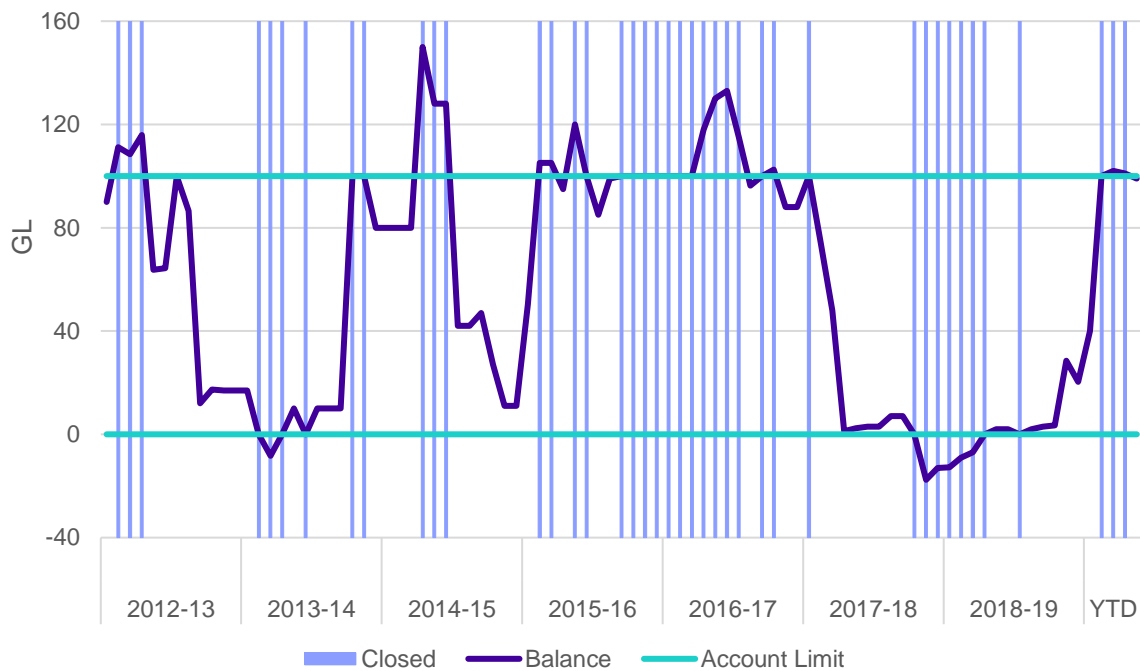
From mid-2012 to until 2016, the Murrumbidgee inter-valley transfer balance switched regularly between being opened and closed, remaining open for extended periods of time. From late 2015–16 until 2019–20, there were more regular closures of the Murrumbidgee inter-valley transfer limit.

¹²³⁷ Department of Environment, Water, Land and Planning (Victoria), *Changes to the Goulburn-Murray trade rule consultation paper*, 2020, https://engage.vic.gov.au/download_file/26084/3373.

¹²³⁸ *ibid.* See section 13.5.2.

¹²³⁹ New South Wales Department of Industry, *Murrumbidgee Inter-Valley Trade account (IVT)*, 2020, https://www.industry.nsw.gov.au/_data/assets/pdf_file/0018/209412/murrumbidgee-ivt-fact-sheet.pdf.

Figure 13.11: Murrumbidgee inter-valley transfer account balance, end of month, 31 July 2012 to 30 November 2019

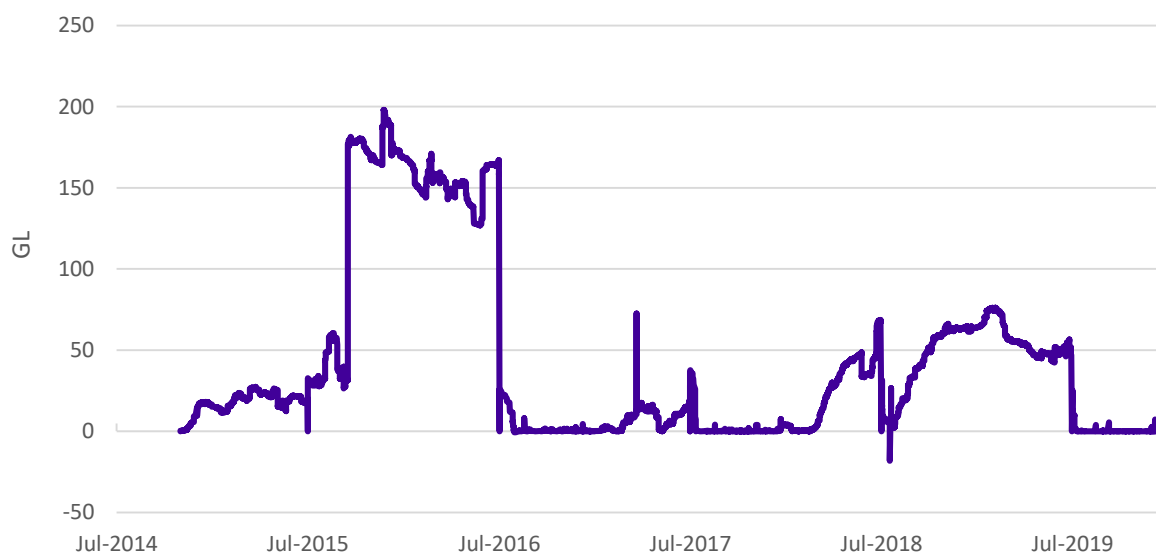


Source: MDBA voluntary information request.

Note: This figure shows the end of month balance, not the daily balance. As such, trade here is represented as closed for the month when the end of month balance is greater than or equal to 100 GL, or less than or equal to 0 GL (which are the relevant operational limits for this trade restriction).

Figure 13.12 represents the Barmah Choke trade account balance. Trade is open when the balance is positive (indicating where there has been 'backtrade' from below the choke to above the choke). Figure 13.12 shows the Barmah Choke trade balance has been more restrictive since mid-2016 than before this point.

Figure 13.12: Barmah Choke trade balance, October 2014 to December 2019



Source: MDBA voluntary information request.

13.4.3. Inter-valley transfer limits and interstate trade policies are not transparent

IVT limits and interstate trade policies are complicated and not well understood by some stakeholders. The original policy intent of many of the rules is not well known, leading to frequent misconceptions about the risks and issues different rules are designed to manage. For example, many stakeholders believe that IVT account balance limits are designed to limit the total annual volume of water that can be traded out of a tributary, when in fact they are used to manage risks to reliability of allocations from trade by limiting the water owed by a tributary (see sections 13.3.3 and 13.3.6).

Basin States have done some work to address these concerns. WaterNSW has expanded the information available about the Murrumbidgee IVT account to now show the running account limit as well as clear information about the operation of the IVT.¹²⁴⁰ Victoria also has information accessible on the portal about which valleys are able to be traded to and from.¹²⁴¹

13.4.4. Inter-valley transfer limits may be open to manipulation

There is widespread concern that tagged accounts are used to circumvent IVT limits, as deliveries for tagged accounts were essentially guaranteed, regardless of the IVT balance at the time. Previously in Victoria, all tagged accounts were able to circumvent the Goulburn IVT limit, however these rules have recently been changed so that regular tagged accounts are no longer able to circumvent the limit.¹²⁴²

Grandfathered tags (which are tagged entitlement trades created prior to October 2010) are still able to circumvent IVT limits, potentially affecting other water users and the environment. The ACCC is still working on data received to verify the scale of the problem.

Many stakeholders considered the New South Wales trade procedures around IVT openings to be opaque and unfair. Stakeholder concerns about the capture and alleged manipulation of access to IVT opportunities primarily relate to investors and brokers. The ACCC is investigating these allegations, which are discussed in chapter 5 (section 5.6.2) and 6 (section 6.5.3 and 6.9).

New South Wales's current process is to open the IVT at 10 am and to receive trade applications via email or fax. A stakeholder questioned the reliability of email as a form of receipt for time sensitive trades and expressed concern that this approach was open to manipulation by automated programs that scrape data to determine when a limit will open and submit multiple applications for different volumes to increase their chance of success.¹²⁴³ The ACCC will investigate the alleged impacts of this further in the final report, however the ACCC does have preliminary concerns about the higher potential for human error or manipulation.

Overall, the trading procedures for states on a 'first come, first served basis' may create integrity concerns in that it potentially allows for an automated program to push through trades when an IVT opens. The ACCC will investigate further and report on findings and recommendations in the final report.

¹²⁴⁰ WaterNSW, *Murrumbidgee IVT account status*, waterNSW.com.au, viewed 22 June 2020.

¹²⁴¹ Department of Environment, Land, Water and Planning, (Victoria), *Allocation trading*, waterregister.vic.gov.au, viewed 22 June 2020.

¹²⁴² Lisa Neville, Victorian Minister for Water, *Inter Valley Trade Changes To Protect Our Waterways*, Victorian Government, 20 August 2019.

¹²⁴³ GoFarm Australia, *Submission to the Murray-Darling Basin inquiry*, February 2020.

13.5. Deliverability and conveyance losses

Deliverability refers to the ability of river operators to deliver water (including traded water) through the system to meet demand from water users in a timely fashion. The ACCC's focus in this section is largely on 'on-river' delivery, managed by river operators, rather than delivery to 'off-river' water users (such as those located within an irrigation network).

Conveyance losses are the water that is lost while flowing through the river system (or irrigation channels), generally as a result of seepage, evaporation and transpiration (also known as transmission losses). Conveyance losses are calculated as the difference between the volume of water that flows past an upstream gauge and a downstream gauge once extractions have been accounted for. Given as a net figure, losses can be reduced (sometimes to below zero) as a result of rainfall directly over the river or return flows. Generally, conveyance losses are higher during sustained periods of hot, dry and windy conditions (and dry antecedent conditions), and when river flows are higher.¹²⁴⁴

Quantifying the effects of trade and its impacts on the river system for delivery risk and conveyance losses is complex, dynamic and heavily dependent on river conditions. Changing trends in demand for water are exacerbating the impacts of increased movement of water through limited capacity points during more concentrated time periods. Despite some information gaps, it is generally accepted that delivery risk appears to be increasing.¹²⁴⁵ These changing trends are also increasing the impacts caused by inappropriate market design for delivery capacity.

The ACCC's consultation showed that some stakeholders are concerned that trends in market activity and current approaches to water delivery are leading to:

- increased conveyance losses which are socialised among all water users rather than attributed to those involved in those trades
- environmental damage through sensitive river reaches
- increased delivery risk.

Stakeholders also raised concerns about a lack of transparency and clarity over river operations processes and decisions, such as how conveyance losses are accounted for.

The ACCC's analysis is focused on considering:

- the current and potential materiality of these issues—that is, are these issues big enough to be resulting in significant distortions, or likely to become big enough to do so?
- the underlying drivers of the concerns highlighted by stakeholders—what features of the market architecture (or lack thereof) are allowing these issues to arise?
- where information gaps relating to the above exist, what work is currently being undertaken that will improve the ability to assess the above point?

The ACCC's analysis of deliverability issues, including conveyance losses, and related data is ongoing. The ACCC will do further work before the final report to consider these questions.

¹²⁴⁴ MDBA, *Conveyance Losses in the River Murray System 2018–19*, March 2019, [/www.mdba.gov.au/sites/default/files/pubs/River-murray-system-losses-report.pdf](http://www.mdba.gov.au/sites/default/files/pubs/River-murray-system-losses-report.pdf).

¹²⁴⁵ MDBA, *Understanding Water Delivery Shortfall Risk*, 2020 at www.mdba.gov.au/river-murray-system/river-murray-operations/understanding-water-delivery-shortfall-risks, viewed 20 May 2020.

13.5.1. Delivery capacity is not explicitly accounted for by market architecture

Water markets in the Basin do not put a price on the scarce on-river delivery capacity through which water can be delivered. Rather the right to have water delivered to an on-river extract point remains bundled with the right to access water (in the form of water entitlements), and is generally guaranteed. At times where demand for delivery capacity (in the form of demand for water) exceeds supply (in the form of the amount of water that can be delivered), water delivery shortfalls can occur and result in broad restrictions on extractions (which act as a mechanism for rationing delivery capacity). This approach means that the limited delivery capacity will not be rationed efficiently as would be the case if prices were used to allocate this limited resource.

Water entitlement charges do include bulk water delivery charges, passed through to water users by state resource managers. However, because water users are not required to pay a price for on-river delivery capacity which would vary according to its relative scarcity (that is, increase during times of peak demand), there is no direct price signal to encourage water users to adjust their current or planned water use patterns away from times and locations where delivery capacity is scarce. The result appears to be an increase demand for water delivery during peak times, as irrigation development, particularly for horticultural crops downstream of the Barmah Choke, continues to increase.¹²⁴⁶ This is coupled with other shifts, resulting reductions in supply and leading to an increase in delivery shortfall risk.¹²⁴⁷ It is important to note that water trading does not create the threat of water delivery shortfalls, but is facilitating changes to water use patterns, which appear to be contributing to an increased risk.

13.5.2. Changing delivery patterns are contributing to increased strain on river systems and at capacity points

Concerns regarding environmental damage from the overuse of natural river channels are mostly related to the high flow rates through the Barmah Choke, the Goulburn River and the Murrumbidgee River. While the drivers and severity of the environmental degradation arising from unseasonal delivery patterns may vary, governments should be conscious of, and, where possible, address the impacts being generated by trade as a result of flaws in the market architecture. Without financial incentives or government intervention, it is unlikely that private actors will be sufficiently incentivised to address environmental concerns potentially resulting from water trade that results in a change of water use location within the current market architecture.

Environmental damage that results from the use of natural river channels for delivery of water is an externality that is not accounted for within the market. Those who benefit from overuse of the resource (water users who are receiving water) are not incurring the costs of their overuse. As part of the NWI in 2004, Basin States agreed to implement water pricing and institutional arrangements which give effect to the principle of user-pays in respect of water storage and delivery.¹²⁴⁸

¹²⁴⁶ Aither, *Water supply and demand in the southern Murray–Darling Basin: An assessment of future water availability and permanent horticulture irrigation water demand*, 2019 at https://waterregister.vic.gov.au/images/documents/Water-Supply-and-Demand-Report_Aither_FINAL.pdf, viewed 25 June 2020.

¹²⁴⁷ MDBA, *Understanding Water Delivery Shortfall Risk*, 2020 at <https://www.mdba.gov.au/river-murray-system/river-murray-operations/understanding-water-delivery-shortfall-risks>, viewed 27 May 2020.

¹²⁴⁸ Council of Australian Governments, *Intergovernmental agreement on a National Water Initiative*, 2004.

Goulburn River is increasingly flowing higher as inter-valley trade increases, resulting in environmental damage

IVTs are currently being used to manage both environmental externalities and deliverability risks arising from allocation and entitlement trade, despite not limiting flows in the river. This is having adverse effects on the Goulburn River.

Table 13.2 below shows the change in the proportion of summer and early-autumn days where discharge rates through the Lower Goulburn (as measured at McCoy’s Bridge) exceeded 940 ML/day in the period before 2011 from 2012 to 30 June 2017 and from 1 July 2017 onwards. During these months, the environment is detrimentally affected when flows are consistently above 940 ML/day.¹²⁴⁹ Table 13.2 reveals that flow rates over these months in recent years were multiple times more likely to exceed this 940 ML/day threshold, than they were before 2011 and nearly 20 per cent more common than in the period from 2012 to 30 June 2017. Periods of five consecutive days above these rates were also more common since 1 July 2017.

Table 13.2: Proportion of summer and early-autumn days at McCoy’s Bridge with discharge above 940 ML/day

	1987–2011	From 1 Jan 2012 to 30 June 2017	Since 1 July 2017 to 1 April 2020
Proportion of days with flow rates above 940 ML/day	9%	28%	33%
Number of periods per year of five consecutive days with flow rates above 940 ML/day	5.08	18.36	20.61

Source: ACCC analysis on MDBA, River Operations data, <https://riverdata.mdba.gov.au/mccoy-bridge>.

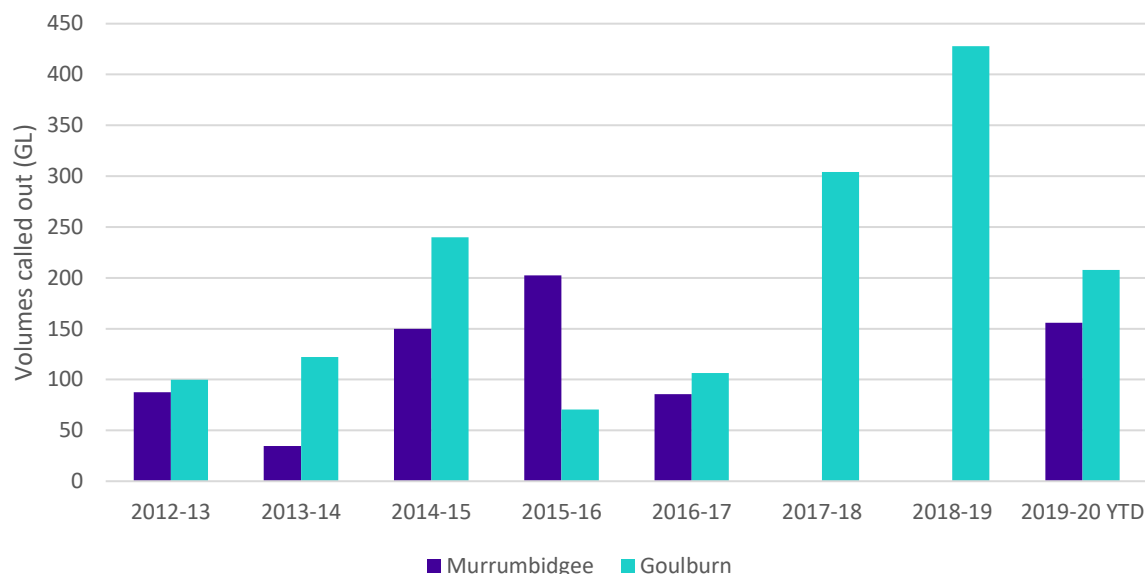
Note: Summer and early-autumn includes the months of December, January, February and March.

The increased likelihood of high summer and early autumn flows through the Lower Goulburn since 1 July 2017 coincides with significantly increased volumes of water being delivered from the Goulburn (see figure 13.13, below). The environmental damage from these high rates of delivery were the reason for the Victorian Government’s review of the Goulburn to Murray trade rule. The review noted that summer and early autumn deliveries of water from the Goulburn IVT account to the Murray system over the last two years has caused stress and environmental damage in the lower Goulburn River.¹²⁵⁰

¹²⁴⁹ Victorian Department of Environment, Water, Land and Planning, *Changes to the Goulburn-Murray trade rule consultation paper, 2020*, https://engage.vic.gov.au/download_file/26084/3373, accessed 22 June 2020.

¹²⁵⁰ *ibid.*

Figure 13.13: Volumes of water called out from the Goulburn River and the Murrumbidgee River inter-valley transfer accounts to the River Murray, 2012–13 to April 2020



Source: MDBA voluntary information request.

Note: YTD = year to date (2019-20 year to April 2020).

There has been an increasing reliance on the Goulburn IVT account for delivery of water. This is due to the impact of drought conditions leading to increased demand in the Murray, and low allocations in the Murrumbidgee coupled with high cotton prices resulting in water not being traded out of the Murrumbidgee into the Murray.¹²⁵¹

As noted in section 13.1.3, the MDBA faces objectives and outcomes for environmental protection and restoration in operating the River Murray system, however it does not face any such requirements for the Goulburn (or the Murrumbidgee).¹²⁵² This, coupled with the ability of the MDBA to use IVT account water to meet downstream demand raises questions about whether the current market architecture and underlying policy assumptions allow too much flexibility for river operations. This could be leading to approaches that may be prioritising ensuring the delivery of water to downstream users (and minimising shortfall risk), at the expense of other water users and environmental health in the tributaries.

River operators do not face prescribed flow limits for delivering water through the river system and IVT limits do not impose direct limits on the volumes of intervalley trade or on flow rates for delivery of water between valleys. Further, the absence of mechanism to manage demand such as markets for scarce on-river delivery capacity, means market participants do not face any real signal to avoid water demand patterns which may be contributing to environmental damage. The Goulburn to Murray trade rule review is investigating direct approaches to managing water trading activities resulting in environmentally damaging delivery of water out of the Goulburn.

¹²⁵¹ Victorian Department of Environment, Water, Land and Planning, *Changes to the Goulburn-Murray trade rule consultation paper, 2020*, https://engage.vic.gov.au/download_file/26084/3373, p. 2, accessed 22 June 2020.

¹²⁵² Basin Officials' Committee, 2019, *Objectives and outcomes for river operations in the River Murray System*, MDBA, p. 10–11 at <https://www.mdba.gov.au/sites/default/files/pubs/Objectives-and-outcomes-for-river-operations-in-the-RMS-2019.PDF>, viewed 25 June 2020.

High flow rates and bank erosion through the Barmah Choke are largely driven by operational and climate factors rather than trade

Sections of river banks through the Barmah Choke are experiencing increased rates of erosion, while channel capacity through the Choke is declining.¹²⁵³ Some stakeholders are concerned that observed high flow rates and bank erosion are in turn causing siltation and declining channel capacity, and are the result of trends in water use and water being traded downstream.¹²⁵⁴ Others propose that the siltation of the channel may be the result of a sand slug moving downstream (potentially caused by upstream human activity over the last several decades).¹²⁵⁵ It is also alleged that unseasonal flooding from overbank transfers to meet downstream demands is causing negative impacts on the adjacent Barmah–Millewa Forests.¹²⁵⁶ The MDBA is currently completing work to examine the drivers and trajectory of the changing Barmah Choke channel capacity and how to manage this.

The Barmah Choke trade restriction prevents net trade of water from above the Choke to below, meaning that water trading from upstream to downstream of this constraint cannot contribute to increased deliveries through this constraint. One of the main drivers of high flows through the Barmah Choke in recent years, has been the lack of inflows from the Darling River. The MDBA has been unable to call on water resources in the Menindee Lakes system since December 2017, resulting in a heavy reliance on releases from upstream Murray storages and inter-valley transfers to meet downstream demand.

There is not enough information available to assess the concerns about damage in the Murrumbidgee River

The ACCC is aware of concerns raised about emerging environmental damage through the Murrumbidgee River as a result of high flows. However, work to consider the extent of damage (and the particular drivers) does not appear to be well advanced and so limited information is available to assess the extent of this problem. As noted in figure 13.13 above, no water was delivered from the Murrumbidgee IVT account in 2017–18 and 2018–19, although a return to higher volumes has been seen so far in 2019–20.

13.5.3. Delivery shortfall risk is increasing, though the information base on the relative impact of drivers is lacking

Significant recent work has highlighted the fact that the risk of water delivery shortfalls in the River Murray system are increasing.¹²⁵⁷ A number of changes that have occurred in Basin water markets which have resulted in river operators having to adapt their system management and become more flexible:

- the introduction of water trading and an interstate water market, resulting in significant new areas of permanent plantings in the Sunraysia and Riverland areas and other shifts in demand patterns
- water recovery under the Basin Plan resulting in the rise of the environment as a significant water holder with new and different demands on water

¹²⁵³ Independent Panel for Capacity Project review, *Independent Panel for Capacity Project Review Report to Murray Darling Basin Ministerial Council*, 2019, MDBA, p. 10, <https://www.mdba.gov.au/sites/default/files/pubs/ipcpr-minco-final-report-2019.pdf>.

¹²⁵⁴ SunRice Submission to Murray–Darling Basin inquiry, February 2020.

¹²⁵⁵ Independent Panel for Capacity Project review, *Independent Panel for Capacity Project Review Report to Murray Darling Basin Ministerial Council*, 2019, MDBA, p. 10 at <https://www.mdba.gov.au/sites/default/files/pubs/ipcpr-minco-final-report-2019.pdf>, viewed 25 June 2020.

¹²⁵⁶ ACCC Murray–Darling Basin inquiry, Griffith public forum.

¹²⁵⁷ MDBA, *Understanding water delivery shortfall risks*, 2020, at www.mdba.gov.au/river-murray-system/river-murray-operations/understanding-water-delivery-shortfall-risks, viewed 25 June 2020.

- some of the driest periods on record have been experienced, which has prompted businesses to change how they use water and governments to make rule changes (such as introducing carryover).¹²⁵⁸

River operators are now running sections of the River Murray at capacity for much of the time, and increasingly relying on inter-valley transfers (IVT) from mainly the Goulburn River and sometimes the Murrumbidgee River.¹²⁵⁹ The Capacity Panel argued that the result of this is that the risk of water delivery shortfalls for water users below the Barmah Choke are likely to be increasing:

*The current risk of a system or delivery shortfall downstream of the Choke will increase as a consequence of reducing channel capacity at the Barmah Choke and in downstream tributaries, increasing horticulture development in the Murray Valley, the increased water requirements of horticulture developments as recent plantings mature, and the requirement to deliver environmental entitlements to achieve outcomes under the Basin Plan. This is likely to be exacerbated under a drying climate.*¹²⁶⁰

Analysis by Aither identifies concerns that the physical delivery of water to horticulture developments in the Lower Murray may be constrained during peak irrigation demand periods due to their growth and concentration in the Lower Murray region. The report concludes that it is unable to quantitatively assess how material the Barmah Choke constraint is to the delivery of water to the lower Murray during peak demand periods.¹²⁶¹

Work to better understand the drivers of delivery shortfall risk is currently underway as part of the Capacity and Delivery Shortfall project, however information gaps still exist over the impact of water trade. Despite the information gaps, the observed apparent increase in risk does indicate flaws with the market architecture. There is also a threat that policy changes to address other interrelated issues, such as changes to inter-valley transfer rules to address environmental concerns, may exacerbate delivery risks.

13.5.4. The impacts of a delivery shortfall would vary widely but likely result in reduced production values and market confidence

Where a water delivery shortfall occurs, the river operator is unable to supply enough water to meet the demands of water users in a region or regions. This occurs because the river operator (the MDBA in the River Murray system) cannot provide the water necessary to the state resource managers. Resource managers are then forced to introduce temporary restrictions or embargos on water extractions to reduce extractions to the volume of water available for consumptive use. As delivery shortfalls are most likely to occur during times of peak demand, the greatest threat for shortfalls is during peak irrigation season and during periods of extreme heat, though many other factors can play a role. The risk of a shortfall is high in January when evapotranspiration for horticultural crops peaks.

The impact of a delivery shortfall on the operations of water users will vary significantly based on what they are producing, where they are located, when in their water schedule the shortfalls occurs and the specific rules of any restriction implemented. Overall impacts on the

¹²⁵⁸ Independent Panel for Capacity Project review, *Independent Panel for Capacity Project Review Report to Murray Darling Basin Ministerial Council*, 2019, MDBA, p. 10 at www.mdba.gov.au/sites/default/files/pubs/ipcpr-minco-final-report-2019.pdf, viewed 25 June 2020.

¹²⁵⁹ Gupta M, Hughes, *Future Scenarios for the southern Murray-Darling Basin water market*, ABARES, 2018.

¹²⁶⁰ Independent Panel for Capacity Project review, *Independent Panel for Capacity Project Review Report to Murray Darling Basin Ministerial Council*, 2019, MDBA, p. 10 at www.mdba.gov.au/sites/default/files/pubs/ipcpr-minco-final-report-2019.pdf.

¹²⁶¹ Aither, *Water supply and demand in the southern Murray–Darling Basin: An assessment of future water availability and permanent horticulture irrigation water demand*, 2019, waterregister.vic.gov.au/images/documents/Water-Supply-and-Demand-Report_Aither_FINAL.pdf, viewed 25 June 2020.

market and the environment will also vary based on the level of compliance with the rationing rules. For example, table grapes are particularly susceptible to water stress, with varying impacts based on timing as a lack of water prior to flowering and fruit setting will reduce yields in the current and following year, while water shortages after fruiting could result in a crop that is not fit for market. Meanwhile, water shortages for almonds or dairy pastures may result in reduced yields in either the current or the following year. Sufficient lack of water can also result in permanent crops dying off permanently. Accordingly, while contingent on a number of factors, the production losses as a result of a delivery shortfall have the potential to be significant.

13.5.5. There is a link between extraction location and conveyance losses, but it is inexact and extremely difficult to quantify

The shift of water traded downstream for extraction does not always correlate to the distance travelled by the water. The MDBA has significant flexibility in operating the River Murray system and the ability to meet downstream demands from through deliveries from tributaries (such as the Goulburn, Murrumbidgee and, when online, the Darling) and from other storages. This means that a trade from an upstream user to a user a certain distance downstream will not necessarily result in the corresponding water delivery travelling that same additional distance through the river.

That being said, the relative location of water's release and demand points (that is, the distance water travels) can impact conveyance losses.¹²⁶² Assuming inflow volumes and locations remain constant, it is reasonable to assume that a large enough shift in the location of water extraction further downstream (and away from the various water origin points) would put upward pressure on conveyance losses. Additionally, water trades which result in deliveries which increase river flow levels would further contribute to this effect.¹²⁶³ However, as inflow patterns and a number of other factors are constantly changing, the impact of changing extraction location trends on losses are complex and extremely difficult to quantify.¹²⁶⁴ The MDBA has indicated that the resolution of system losses data does not allow for an accurate measurement of the proportionate impact of additional drivers such as traded water delivery against other drivers such as climate on total conveyance losses.

Chapter 3 (section 3.2.2) and analysis by Aither noted the significant expansion of area planted and volume of water applied by almond plantations in the Murray below the Barmah Choke.¹²⁶⁵ A recent report by Hydrology and Risk Consulting found that despite environmental water buybacks, consumptive use in the reach between the Barmah Choke and the South Australian border has remained relatively steady, with the reduction in use in the reach from buybacks offset by increased inter-valley trade. It also noted some water demand is shifting downstream within this reach from the Torrumbarry system to the Sunraysia system.¹²⁶⁶ Similarly, the Capacity Panel's report notes that demand patterns have shifted largely downstream.¹²⁶⁷

¹²⁶² MDBA, *Conveyance Losses in the River Murray System 2018–19*, 2019, p. 38 at <https://www.mdba.gov.au/sites/default/files/pubs/River-murray-system-losses-report.pdf>, viewed 25 June 2020.

¹²⁶³ *ibid.*, p. 2.

¹²⁶⁴ *ibid.*, p. 38.

¹²⁶⁵ Aither, *Water supply and demand in the southern Murray–Darling Basin: An assessment of future water availability and permanent horticulture irrigation water demand*, 2019, waterregister.vic.gov.au/images/documents/Water-Supply-and-Demand-Report_Aither_FINAL.pdf, viewed 25 June 2020.

¹²⁶⁶ Hydrology and Risk Consulting, 2020, *Review of historical use of water: Barmah to the South Australian Border*, (HARC Report), at <https://www.mdba.gov.au/sites/default/files/pubs/review%20of%20historical%20use%20of%20water%20barmah%20to%20south%20australia.pdf>, viewed 25 June 2020.

¹²⁶⁷ Independent Panel for Capacity Project review, *Independent Panel for Capacity Project Review Report to Murray Darling Basin Ministerial Council*, 2019, MDBA, p. 6 at <https://www.mdba.gov.au/sites/default/files/pubs/ipcpr-minco-final-report-2019.pdf>, viewed 25 June 2020.

This supports the stakeholders' concerns that water use is shifting further downstream, and, assuming relatively homogenous watering patterns among these plantations, resulting in higher peaks in water demand and higher delivery flow rates. However determining the exact impact of these trends on conveyance losses is difficult.

These trends were identified in 2012 by the National Water Commission (NWC), which stated:

*Water trading is generally moving water downstream, further away from where water is stored. This increases the distances it must travel before being extracted, and in some reaches increases flow rates above pre-trading levels. Both outcomes would be expected to increase transmission losses along water supply routes. Any increase in transmission losses that has not been accounted for in trades will affect the general resource pool and hence environmental outcomes.*¹²⁶⁸

However, the NWC went on to note that the magnitude of the probable increase in conveyance losses due to trade is highly uncertain and that insufficient information is available to quantify this impact.

The marginal impact on losses of an additional megalitre of water being delivered downstream is likely small, as the incremental increase in flow rates would be minimal. However, where changes in delivery patterns shift more significantly, the additional distance travelled and change in flow rates could result in a material impact on conveyance losses and available water resources. The ACCC is considering the magnitude of the potential externality arising from this flaw in market design.

13.5.6. Conveyance losses are having an increasingly significant impact on water availability, though the role of trade is unclear

The ACCC's initial assessment is that the volume of water lost in the River Murray system is not the primary driver of water available in the consumptive pool. Conveyance losses can vary wildly with annual totals ranging from less than zero to almost 12 000 GL (in 1975 which was a major flood year). However, in the 10 fully regulated years from 1970, annual losses varied between 500 to 900 GL/year, while system inflows in those years ranged from 895 to 4811 GL.¹²⁶⁹ Generally, while conveyance losses can play a significant role, system inflows are a more important factor in determining state water availability and water allocations.¹²⁷⁰

Figure 13.14 reveals a strong upward trend in total River Murray system conveyance losses as a proportion of system inflows since 2012–13. In 2018–19 and 2019–20 (to the end of January 2020), conveyance losses accounted for 36 per cent and 30 per cent of system inflows respectively, in contrast to figures of 4 per cent and 11 per cent for 2012–13 and 2013–14. This trend suggests that conveyance losses are playing an increasingly significant role in water availability.

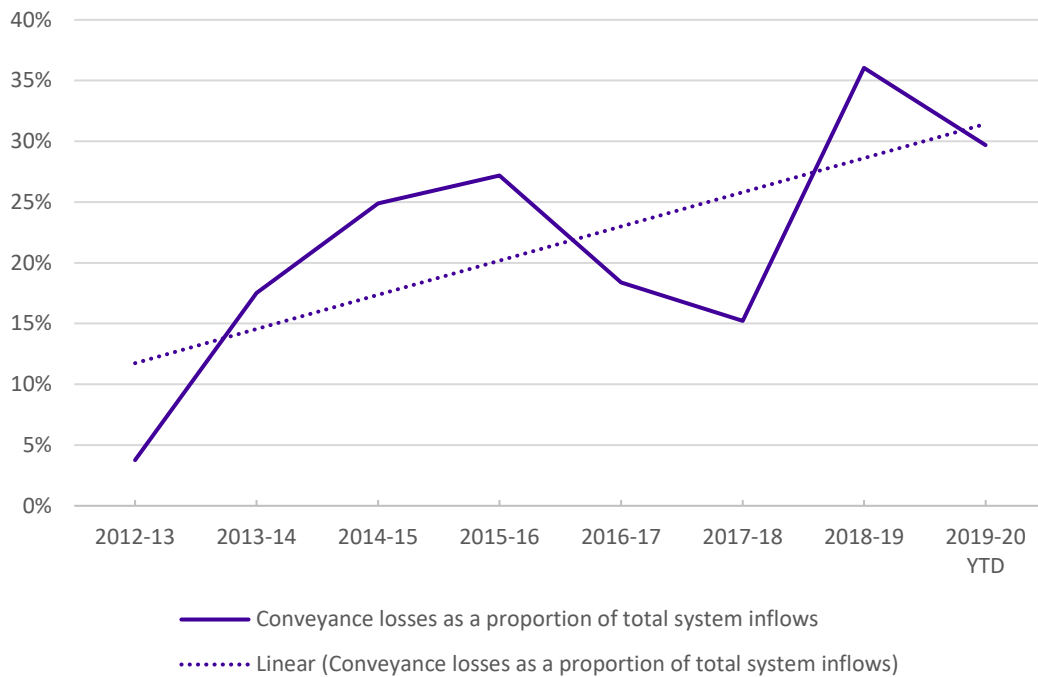
However, as noted above, inflows have decreased sharply since 2012, with flooding in 2012 and 2016 followed by severe dry conditions since January 2017. These climatic factors have likely played a significant role in driving this increase in recent years.

¹²⁶⁸ National Water Commission, 2012, *Impacts of water trading in the southern Murray–Darling Basin between 2006–07 and 2010–11*, NWC, Canberra, pp. 116–117.

¹²⁶⁹ The term regulated flow is used to define periods when most of the water in the river has been released from storages to meet system demands and water orders. This is the opposite of 'unregulated' or flood periods when river flows are dominated by natural tributary inflows, airspace management releases or the spilling of water from storage. Taken from: MDBA, *Conveyance Losses in the River Murray System 2018-19*, March 2019, <https://www.mdba.gov.au/sites/default/files/pubs/River-murray-system-losses-report.pdf>, p. 4.

¹²⁷⁰ *ibid.*

Figure 13.14: Annual conveyance losses as a proportion of total system inflows, 2012–13 to 2019–20 (to Jan 2020)

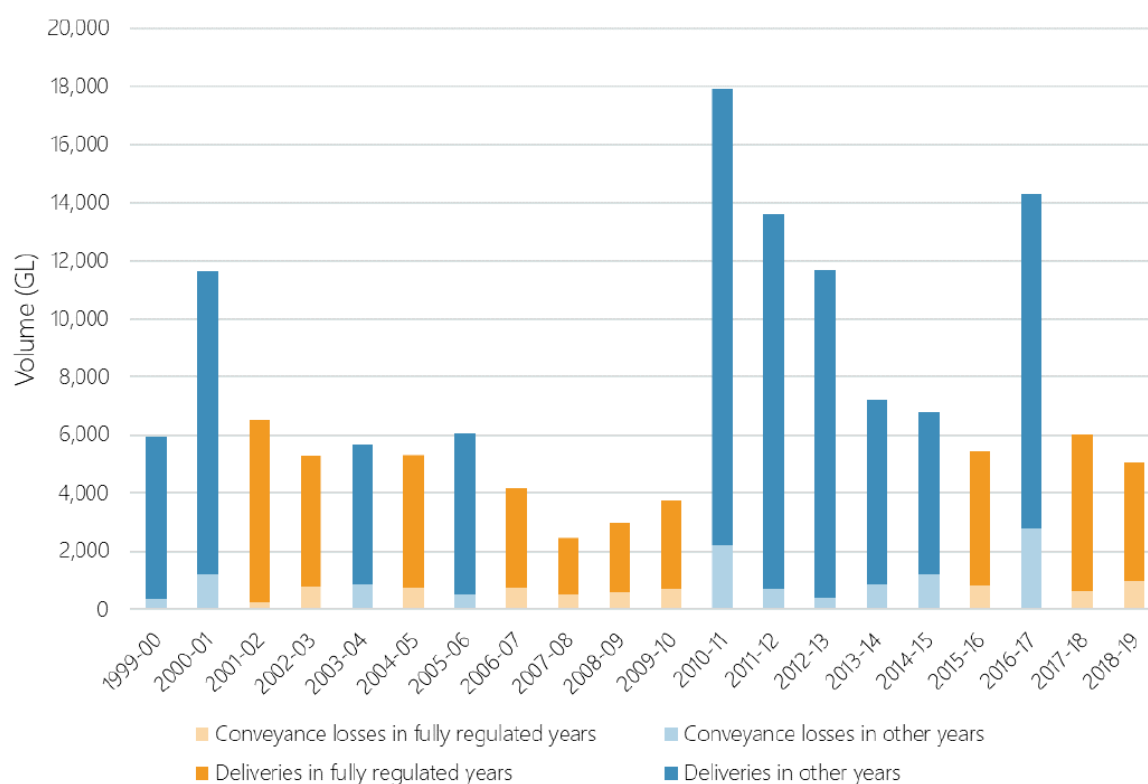


Source: MDBA voluntary information request.

Note: YTD = year to date (2019–20 year to April 2020). Dotted line represents linear trend.

The IIG Report plotted conveyance losses against delivery volumes with similar findings (figure 13.15 below). Importantly, the IIG’s report found that in 2018–19 (a dry year) losses accounted for 25 per cent of water delivered, which was equal to the period from 2006–07 to 2009–10 (a similarly dry period). The implication of this is that while conveyance losses may appear to be becoming a more significant influence on water availability, this trend may be less significant once climatic factors accounted for.

Figure 13.15: Annual conveyance losses and delivery volumes, 1999 to 2019



Source: Impact of lower inflows on state shares under the Murray–Darling Basin Agreement, Interim Inspector-General of Murray–Darling Basin Water Resources, 2020, based on MDBA data.

The intergovernmental group (featuring the MDBA and Basin State governments) are responsible for the trade adjustments project noted the potential for negative third party impacts (including conveyance losses), if a significant volume of water is owed from a tributary. The group also briefly assessed the materiality of transmission losses when considering trade between the tributaries and the River Murray. The group noted that during the Millennium Drought, an obligation to deliver 230 GL of water from the Murrumbidgee to the River Murray system was forecast to incur 30 GL of conveyance losses. This 30 GL would have been drawn from the Murrumbidgee resource pool, reducing the overall availability of water for all water users in the Murrumbidgee, regardless of whether they sold water into the River Murray system or not.

As noted above, the ACCC is concerned about the potentially distortionary impact of the failing of market architecture to effectively price in the impact of increased water delivery downstream resulting in increased conveyance losses. Notwithstanding this, significant information gaps impede the ability to determine the exact magnitude of the problem due to the inability to effectively determine the proportional impact of particular drivers on conveyance losses.

Any reform to better incorporate and attribute conveyance losses, such conveyance loss factors for trade or delivery would face major hurdles to implementation (in part linked to imperfect information) and result in significant disruption to the market (section 13.5.7). As such, any further consideration of broader reforms to market design should consider the scale of efficiency gains to be achieved through better accounting for conveyance losses against the potential disruption that might stem from such reforms.

Another significant consideration for resource managers is how the burden of conveyance losses should be (or should not be) shared among water market participants. Currently, those who hold lower reliability water entitlement types are disproportionately affected by

changes to conveyance losses. These water users will face the greatest impact on the reliability of their allocations as a result of structural shifts in conveyance losses (and inflows).

The ACCC has not directly considered whether or how state water sharing arrangements and allocation policies should be reformed to change this risk assignment. However, state resource managers may wish to consider this if current arrangements allocate these risks in the manner originally intended and communicated when they were first established, and whether the risks are allocated in their most preferred manner.

13.5.7. Conveyance loss factors for allocation trade and delivery both face significant challenges to implementation

Stakeholders made a number of suggestions for policy solutions to address issues relating to delivery of water and the associated conveyance losses. These included calls for exchange rates applied to water allocation trades which shift water downstream, delivery loss factors based on the distance of water extraction from the water's source and debiting conveyance losses against environmental water holder's accounts. Relevant stakeholder concerns and recommendations are outlined in section 12.6.

Conveyance loss factor—allocation trade

A proposed solution to deal with conveyance losses was through the introduction of conveyance loss factors onto allocation trades.^{1272,1273} Doing so, would essentially represent an exchange rate allocation trade, defined by Schedule 3 of the *Water Act 2007* (Cth) as the 'rate of conversion to be applied to water to be traded from one trading zone and/or jurisdictions to another'.¹²⁷⁴ Note, that this differs to exchange rate *entitlement* trades outlined in appendix D. Water entitlement exchange rate trades have to be declared by the MDBA, but a state government could apply a conveyance loss factor to water allocation trade without MDBA declaration (assuming it was for a reason allowable under rule 12.18 of the Basin Plan Water Trading Rules).¹²⁷⁵

Conveyance loss factors for allocation trade could theoretically be applied to water trades which would increase conveyance losses (by changing the location of extraction), so that one megalitre of water sold from an upstream water user would be converted to less than one megalitre received by the downstream purchaser. The difference between the two amounts would reflect the proportion of water lost to conveyance as a result of the trade in the form of a conversion factor. Doing so would more effectively attribute the incremental increase in conveyance losses as a result of changing water use activity to those who are benefitting from this change—those involved in trading water downstream.

Conveyance loss factors for allocation trade can be applied to water allocation trades to take into account changes in 'distribution losses'.¹²⁷⁶ Examples of this kind of conveyance loss trade factor exist in Queensland's St George Water Supply Scheme, where the official transfer volume is an 'at dam' value but where the volume of water debited or credited from the seller or buyer's account is an 'at farm' value. Under normal climatic conditions and where water is traded from one zone to another further downstream, a loss adjustment (generally 12 per cent) is applied to the volume debited against the seller's account,

¹²⁷² Murrumbidgee Valley Food and Fibre Association, Submission to the Murray-Darling Basin inquiry, January 2020.

¹²⁷³ Goulburn Murray Irrigation District Water Leadership, Submission to the Murray-Darling Basin inquiry, January 2020.

¹²⁷⁴ *Water Act 2007* (Cth), Schedule 3.

¹²⁷⁵ Reasons could include the need to address hydrological connections and water supply considerations, such as 'the amount of transmission losses that may be incurred through evaporation, seepage, or other means'. *Murray-Darling Basin Plan 2012* (Cth), Schedule 12—Water Trading Rules, Rules s12.18.

¹²⁷⁶ *Water Act 2007* (Cth), Schedule 1—Murray-Darling Basin Agreement, Schedule D—Transferring Water Entitlements and Allocations, Clause 12.

providing the buyer's 'at farm' value.¹²⁷⁷ Enacting these mechanisms in the St George scheme is administratively much simpler than in the Southern Connected Basin, as the scheme is characterised by one main water source and minimal other inflow points.^{1279,1280}

Imposing conveyance loss factors for allocation trade in the Southern Connected Basin to incorporate changes in conveyance losses would be extremely challenging and face a number of practical impediments to implement. The significant inherent difficulty in accurately estimating the change in conveyance losses incurred as a result of individual water delivery decisions means that determining the appropriate regime of loss factors would be technically difficult and complex. As outlined above, this is partly due to the fact that, while water allocations may be traded from one water source to another, the water itself may not necessarily be delivered from the original water source's storages, but rather could be met by a number of different water sources (unlike in St George).

Further complicating matters is the fact that rates of conveyance losses vary significantly within and across years.¹²⁸¹ River operators would face a potentially impossible challenge to accurately forecast anticipated conveyance loss rates for an upcoming water year, with enough accuracy to reflect the hydrological characteristics of the system and early enough to effectively communicate this to the market in advance.

Any attempt to account for differing loss rates within a year (such as between summer and winter) or across years, would likely be exploited by water users. Because there is no direct temporal link between water trade and delivery, downstream water users could merely purchase water at times when the loss factor is low and hold water in their accounts until they require delivery (quite possibly during periods of high losses). Applying a flat conveyance loss factor to reflect an 'average' conveyance loss rate is likely to drive market distortions when the actual rate of losses deviates from this average. Tagging allocations trade as well as entitlement trade may help with this but would create considerable administrative burden.

If an appropriate system of conveyance loss factors for allocation trade could be determined, a further complicating consideration is whether water allocation traded upstream would then be subject to the established conversion factor in reverse. It is unclear if an upstream water user receives greater than one megalitre for each megalitre sold to them by a downstream user. This would require additional water to be added on to the volume purchased by the upstream water user. These considerations become even more complex where water allocations are traded multiple times to multiple upstream and downstream locations. Implementing a conveyance loss trade factor would possibly require revision to the current water sharing and accounting arrangements in Murray–Darling Agreement to address these considerations.

The potential benefits of implementing such a policy would need to be considered against the market disruption it would cause, and the impediments to effective implementation outlined above. The MDBA and Basin States considered the introduction of conveyance loss factors for allocation trade traded from tributaries into the Murray in June 2018 as part of the Trade Adjustments Project. Simultaneously, the MDBA also considered the concept of a conveyance share which would have to be purchased by water users when purchasing water from upstream. Because of the challenges and complexities to implementation

¹²⁷⁷ SunWater, *Application for Temporary Transfer of Water and/or CAP St George Water Supply Scheme*, 2009, p. 4 at https://www.sunwater.com.au/wp-content/uploads/Home/Customers/Forms/Temporary_Transfer_of_Water_and_CAP_St_George.pdf, viewed 14 May 2020.

¹²⁷⁹ SunWater, *St George Water Supply Scheme Schematic Plan*, 2004 at <https://www.sunwater.com.au/wp-content/uploads/Home/Schemes/St-George/St-George-Schematic-Plan.jpg>, viewed 14 May 2020.

¹²⁸⁰ SunWater, *St George Scheme*, 2019 at <https://www.sunwater.com.au/schemes/st-george/>, viewed 14 May 2020.

¹²⁸¹ MDBA, *Conveyance Losses in the River Murray System 2018–19, 2019*, at <https://www.mdba.gov.au/sites/default/files/pubs/River-murray-system-losses-report.pdf>.

outlined above, the group recommended no change to the current treatment of conveyance losses.

Conveyance loss factor—delivery/extraction

Other stakeholders recommended the application of conveyance loss or ‘freight’ factors applied to water that is delivered through the River Murray system (as opposed to water traded, as outlined above).¹²⁸² Theoretically, a loss factor or adjustment could be applied to the water held by water users in each water source, which would give them an adjusted value representing the volume of water they are allowed to extract. In doing so, water users would directly bear the costs of conveyance losses related to their water use. This would differ to a conveyance loss factor for allocation trade, described above, as it would apply to the volume of water extracted, rather than applying when water is traded.

Conveyance loss factors for delivery are also applied in the St George scheme. In addition to conveyance loss factors applied to inter-zone allocation trades, a loss factor also applies to water extracted, and converts the water volume ‘at dam’ to an ‘at farm’ volume for extraction based on the distance of the water user’s zone from the water’s origin points (including within the trading zone).¹²⁸³

However, as noted previously, water deliveries in the River Murray system are aggregated and water can originate from multiple sources (both storages and tributaries) which would make it difficult to accurately determine the appropriate loss adjustment factor to apply for water users. Determination of the appropriate conveyance loss factor to apply to any water extraction would face many of the same challenges outlined above for conveyance loss factors for allocation trades.

If an appropriate regime of loss factors was developed, it could be possible to apply conveyance factors to deliveries to tagged water entitlements. Because water traded via a tagged entitlement has to be ordered specifically by the licence holder, conveyance losses could theoretically be applied to deliveries to tagged entitlements.¹²⁸⁴ Imposing a conveyance loss factor only on tagged entitlement holders, and no other water users, would create a clear market distortion and is not recommended. The ACCC understands the Victorian Government has explored having all allocation trade facilitated through tagging arrangements but this approach would need to be adopted consistently across the Southern Connected Basin, and would likely face significant administrative complexity to implement.

The introduction of policy mechanisms such as conveyance loss factors applied to allocation trade or the delivery/extraction of water in the Basin offer the potential to address flaws in the market architecture regarding the accounting and attribution of conveyance losses. However, as noted above, the magnitude of the impact of market driven trends on conveyance losses is as yet unknown. Any consideration of these kinds of policy mechanisms should balance the challenges to, and market disruption of, their implementation against the potential efficiency gains they offer. Policy makers may also need to consider where ‘second-best’ policy approaches which are more practical may be preferable to optimal, but challenging policy solutions. The ACCC will continue to examine the scale of conveyance loss related issues, and potential reforms to address these.

¹²⁸² Coleambally Irrigation Co-operative Ltd, Submission to the Murray-Darling Basin inquiry, February 2020.

¹²⁸³ SunWater, *Application for Temporary Transfer of Water and/or CAP St George Water Supply Scheme*, 2009, p. 4 at www.sunwater.com.au/wp-content/uploads/Home/Customr/Forms/Temporary_Transfer_of_Water_and_CAP_St_George.pdf, viewed 14 May 2020.

¹²⁸⁴ *Murray–Darling Basin Agreement (Schedule D—Processing Interstate Transfers of Water Allocations) Protocol 2010* (Cth) Schedule 2 Processes—accounting for tagged allocations, step 3 cl. 3.

Debiting conveyance losses as environmental water

Several stakeholders argued that, because water lost to conveyance in operating the river system can generate environmental benefits, that these losses should be debited against the accounts of environmental water holders, rather than socialised and shared equally among all entitlement holders. The environmental benefits of conveyance water were considered during the development of the Basin Plan. As such, attributing losses to the environment would mean a greater volume of water would need to be recovered to meet the objectives of the Basin Plan. Where an environmental water holders' water orders incur increased losses, this additional loss *is* debited against its account.¹²⁸⁵

13.6. Metering

Accurate meters and gauging stations are critical to ensuring compliance with water take rules and allowing river operators to better estimate how much water needs to be released to meet demand.

Submissions to this inquiry and other inquiries show stakeholder concerns about unmetered and unmeasured water take in New South Wales and Queensland.¹²⁸⁶ Stakeholders have alleged that due to limited metering in the Northern Basin, water theft is easier.¹²⁸⁷ Four Corners investigated these claims in their program *Pumped*, and several water users have been fined for water theft since this program aired.^{1289,1290} Given the numerous inquiries into this issue, the ACCC will focus on the market impacts according to the terms of reference for this inquiry.

13.6.1. Consistent metering is important to market integrity, confidence and reducing third party impacts

Without adequate and consistent metering across the Basin, it is not possible to maintain an effective compliance and enforcement regime. Illegal take undermines water availability. If water is taken illegally, there is less water available for other water users and the environment, which in turn diminishes the value of the underlying water access entitlements. Clearly understood and enforced property rights in traded products are an essential basis for the efficient functioning of markets and for water users' confidence in the market. However this must be weighed against the costs of metering, which can be prohibitive to smaller water users.

¹²⁸⁵ MDBA, Conveyance Losses Report MDBA, *Conveyance Losses in the River Murray System 2018–19*, 2019 at www.mdba.gov.au/sites/default/files/pubs/River-murray-system-losses-report.pdf, p. 13, viewed 25 June 2020.

¹²⁸⁶ Green Dymension, Submission to the Murray–Darling Basin inquiry, January 2020, p. 4.

Citrus Australia, Submission to the Murray–Darling Basin inquiry, January 2020, p. 16.

Senate Inquiry, *Integrity of the water market in the Murray–Darling Basin*, 2018 at

www.aph.gov.au/Parliamentary_Business/Committees/Senate/Rural_and_Regional_Affairs_and_Transport/MurrayDarlingPlan/~media/Committees/rrat_ctte/MurrayDarlingPlan/Report/report.pdf, viewed 28 May 2020.

¹²⁸⁷ Green Dymension, Submission to the Murray–Darling Basin inquiry, January 2020, p. 4.

¹²⁸⁹ ABC Four Corners, *Pumped*, 2017, available at <https://www.abc.net.au/4corners/pumped/8727826>, viewed 25 June 2020.

¹²⁹⁰ M Brown, *NSW cotton farmer Anthony Barlow fined \$190,000 for breaching Water Management Act*, ABC News, 2019 at www.abc.net.au/news/2019-03-22/anthony-barlow-fined-for-water-theft/10930026, viewed 9 June 2020.

13.6.2. Metering costs can be prohibitive to some water users but metering costs have been supported by governments in some jurisdictions

Queensland is currently reviewing its metering policy and is seeking to upgrade its meters to telemetry.¹²⁹¹ Queensland estimates that installation costs for smaller meters are from \$8000 (for meters below 200mm), with very large meters (approximately 1200mm) costing up to \$100 000.¹²⁹² Initial estimates indicate that the cost to retrofit telemetry to an existing meter ranges from \$500 to \$5000. Consistent with Queensland's current policy, water users are expected to fund this.¹²⁹³ South Australia also expects water users to cover installation and maintenance costs at the owners' expense.¹²⁹⁴

In New South Wales, the average cost for installing a telemeter is estimated at \$12 000 to \$15 000.¹²⁹⁵ It appears that the Australian Government had committed funding to help cover the installation or upgrade costs in the Murray Darling Basin, but it is unclear how much the New South Wales government expects meter owners to cover.¹²⁹⁶ New South Wales will recover ongoing costs of running the meters from meter owners.¹²⁹⁷ IIOs are responsible for managing metering and retrieving costs from within their networks.¹²⁹⁸

Victoria takes a similar line to New South Wales, with Australian Government funding expected to help with some of the upfront costs of installing or upgrading meters. For both states it is unclear what the final amount of committed Australian Government funding was provided. Non-urban water metering in Victoria is undertaken by the rural water corporations, Melbourne Water, Coliban Water and Lower Murray Water.¹²⁹⁹ These water businesses own the meters, and the approach taken to meet these costs is a business decision for rural water corporations, but ultimately the cost falls on water users.¹³⁰⁰

13.6.3. There are large differences in metering policies between jurisdictions, but there are moves to strengthen compliance

The ACCC has heard stakeholder concerns about the differences between states and in particular concerns about inconsistent metering, and compliance and enforcement. This reflects the underlying issues with governance which are dealt with more comprehensively in chapter 15.

¹²⁹¹ Department of Natural Resources Mines and Energy (Qld), *Rural Water management program: Proposals for strengthening non-urban water measurement*, Consultation paper, 2019, www.dnrme.qld.gov.au/_data/assets/pdf_file/0007/1453849/proposals-strengthening-water-measurement.pdf, p. 14, viewed 25 June 2020

¹²⁹² *ibid*, p. 14.

¹²⁹³ *ibid*, p. 14.

¹²⁹⁴ Department of Environment and Water (SA), *South Australian Licensed Water Use Metering Policy*, 2019 at www.environment.sa.gov.au/files/sharedassets/public/water/sa-licensed-water-use-metering-policy.pdf, viewed 26 May 2020.

¹²⁹⁵ Department of Primary Industries—Office of water (NSW), *NSW metering implementation plan under the National Framework for Non-Urban Water Metering*, 2013, www.water.nsw.gov.au/_data/assets/pdf_file/0003/547257/metering_nsw_metering_implementation_plan.pdf, p. 23, viewed 26 May 2020.

¹²⁹⁶ Department of Primary Industries—Office of water (NSW), *NSW metering implementation plan under the National Framework for Non-Urban Water Metering*, 2013, www.water.nsw.gov.au/_data/assets/pdf_file/0003/547257/metering_nsw_metering_implementation_plan.pdf, p. 23, viewed 26 May 2020.

¹²⁹⁷ *ibid*, p. 23.

¹²⁹⁸ *ibid*, p. 18-19

¹²⁹⁹ Victorian department, *Victorian Non-urban Water Metering Policy*, 2014, www.water.vic.gov.au/_data/assets/pdf_file/0015/52233/Non-urban-Water-Metering-Policy_Final_jg85_20140513.pdf, p. 7, viewed 27 May 2020.

¹³⁰⁰ *ibid*, p. 7.

The MDBA found in the Murray–Darling Basin Water Compliance Review 2017 that metering levels varied across states. Specifically:

Over the four years from 2012-13 to 2015-16, between 64% and 73% of Basin surface water was metered. Among the states, South Australia has the highest metering rate with 96% of take being metered. In the Northern Basin between 25% and 51% is metered. Groundwater metering varies considerably. In Victoria, 91% is metered, with South Australia and New South Wales metering 88% and 83% respectively, and Queensland 28% (due in part to the high volume of overland flow harvesting).¹³⁰¹

Telemetry is an important part of updating metering so that it can be monitored remotely and more frequently, allowing better and more accurate compliance actions to be taken by states. Telemetry refers to meters that allow reading to occur remotely, with the data being sent to a centralised database for monitoring. The Basin Compliance Compact requires that telemetry be installed except for where the costs outweigh the benefits. This has resulted in divergent policies by the states (see table 13.3).

Table 13.3: States' telemetry policies

State	Telemetry required?	Deadline
Vic ¹³⁰²	Yes, for sites pumping more than 10ML surface and 20ML ground water	June 2025
SA ¹³⁰³	No, but requires that meters are able to have telemetry added	N/A
NSW ¹³⁰⁴	Yes, but only for pumps larger than 200mm and not groundworks ^{1305*}	December 2023
Qld ¹³⁰⁶	No, but requires that meters are able to have telemetry added	Queensland is currently reviewing its non-urban metering policy

* Note that if a farmer has 5 pumps that are 50mm (so a cumulative 250mm) this is not covered.¹³⁰⁷

As of September 2019, there are approximately 57 400 non-urban water meters in Victoria, with just over half of these meters have telemetry. In May 2020, a policy was introduced that committed to telemetry being extended in compliance with AS4747 metering standard

¹³⁰¹ MDBA, *The Murray–Darling Basin Water Compliance Review*, 2017 at www.mdba.gov.au/sites/default/files/pubs/MDB-Compliance-Review-Final-Report.pdf, viewed 27 May 2020, p. 17.

¹³⁰² Department of Environmental, Land, Water and Planning (Victoria)—*Victorian Non-Urban Water Metering Policy*, 2020, at www.water.vic.gov.au/_data/assets/pdf_file/0030/459831/NonUrbanWaterPolicy_2020.pdf, viewed 26 May 2020, p. 5.

¹³⁰³ Department of Environment and Water (South Australia) *Metering Improvement Plan*, 2019 at <https://www.environment.sa.gov.au/topics/water/water-licences-and-permits/metering-water-use>, viewed 28 May 2020, p. 12 and p. 17.

¹³⁰⁴ MDBA, *Murray–Darling Basin Compliance Compact Interim Assurance Report 2018*, 2018 at <https://www.mdba.gov.au/sites/default/files/pubs/murray-darling-compliance-compact-assurance-report.pdf>, viewed 28 May 2020, p. 11.

¹³⁰⁵ Department of Primary Industries—Office of water (NSW), *NSW metering implementation plan under the National Framework for Non-Urban Water Metering*, 2013 at www.water.nsw.gov.au/_data/assets/pdf_file/0003/547257/metering_nsw_metering_implementation_plan.pdf, viewed 26 May 2020.

¹³⁰⁶ Department of Natural Resources, Mines and Energy (Qld), *Queensland interim water meter standard for non-urban metering*, 2019 at www.dnrm.qld.gov.au/?a=109113:policy_registry/qld-interim-standard-water-metering.pdf, viewed 28 May 2020, p. 5.

¹³⁰⁷ MDBA, *Review of metering in the lower Murrumbidgee regulated surface water system*, 2019 at www.mdba.gov.au/sites/default/files/pubs/lower-murrumbidgee-metering-review-report-sept-19.pdf, viewed 28 May 2020.

except where the costs outweigh the benefits. Victoria also has a zero tolerance policy to unauthorised water take.¹³⁰⁸

New South Wales has taken compliance action after allegations of widespread water theft aired in the *Pumped Four Corners* report and the following Ken Matthews' review highlighted serious compliance inadequacies.^{1310,1311} The Natural Resources Access Regulator (NRAR) is the new regulator set up in response to these allegations, advocates for no meter no pump rules, and has scaled up New South Wales compliance actions.¹³¹² However, New South Wales has also delayed its rollout of the new metering due to severe drought.¹³¹³

South Australia has the highest rate of metered water¹³¹⁴, and has a reasonably robust compliance and enforcement regime in place.¹³¹⁵ However an MDBA audit found that it could be improved by ensuring that photographic evidence of the meter reading is required, rather than relying solely on self-reporting.¹³¹⁶

Stakeholders have raised concerns that water users in South Australia are able to go into negative balances as they self-report their meter reads and are only required to report and balance their accounts at the end of each quarter.^{1317,1318} This arrangement gives South Australian water users greater flexibility, for example, by applying water to crops in anticipation of water allocation announcements or to defer water purchase to a time when price is expected to be more favourable. This helps South Australian water users (who usually do not have access to carryover apart from very dry years) to access water earlier in the season. This benefit can be seen as part of the 'property right' that the water entitlement bestows, similar to differing carryover rules between states and differing reliability between different classes of entitlements.

In Queensland, metering is predominantly for the take of water from watercourses or groundwater bores. Therefore in large flow events, the volume of water measured is proportionally less due to unmeasured floodplain take. This floodplain take (in Queensland it is referred to as overland flow), although not metered, is reported and limited.¹³¹⁹ These provisions prevent an increase in overland flow take for uses other than those permitted under s37 of the Condamine and Balonne Water Plan. This is discussed in more detail in the next section.

¹³⁰⁸ Lisa Neville, Victorian Minister for Water, *Zero tolerance of unauthorised water take in Victoria*, media release, Victorian Government, 2020.

¹³¹⁰ ABC Four Corners, *Pumped*, July 2017, available at www.abc.net.au/4corners/pumped/8727826, viewed 25 June 2020.

¹³¹¹ Matthews, K, 2017, *Independent investigation into NSW water management and compliance*, New South Wales Department of Industry at www.industry.nsw.gov.au/_data/assets/pdf_file/0019/131905/Matthews-final-report-NSW-water-management-and-compliance.pdf, viewed 28 May 2020.

¹³¹² Claver, O, *Water cops have tripled prosecutions in two years*, The Land, 2020 at www.theland.com.au/story/6752961/nrar-marks-20-prosecutions/, viewed 28 May 2020.

¹³¹³ Department of Planning, Industry and Environment, *2018/19 Draft Compliance Compact Assurance Report 2019—NSW Management Response*, 2019 at www.mdba.gov.au/sites/default/files/pubs/NSW%20response%20to%20the%20recommendations.pdf, viewed 28 May 2020.

¹³¹⁴ MDBA, *The Murray–Darling Basin Water Compliance Review*, 2017 at www.mdba.gov.au/sites/default/files/pubs/MDB-Compliance-Review-Final-Report.pdf, viewed 27 May 2020, p. 17.

¹³¹⁵ MDBA, *The Murray–Darling Basin Water Compliance Review*, 2017 at www.mdba.gov.au/sites/default/files/pubs/MDB-Compliance-Review-Final-Report.pdf, viewed 27 May 2020, p. 146–161.

¹³¹⁶ MDBA, *Review of metering in the Riverland regulated surface water system*, 2020 at www.mdba.gov.au/sites/default/files/pubs/review%20of%20metering%20in%20the%20riverland%20regulated%20surface%20water%20system%20april%202020.pdf, viewed 26 May 2020, p. 4.

¹³¹⁷ Sunrice, Submission to the Murray–Darling Basin inquiry, February 2020, p. 10.

Australian Water Brokers Association, Submission to the Murray–Darling Basin inquiry, January 2020, p. 8.

¹³¹⁸ Department of Environment and Water (SA), *Water Reporting*, 2020 at www.environment.sa.gov.au/topics/water/water-licences-and-permits/water-reporting, viewed 27 May 2020.

¹³¹⁹ Overland flow is limited by the water plan provisions (*Water Act 2000* (Qld), (s.101(1)(b)) provides a general authorisation for the take of overland flow water. However, section 101 also limits this right, making it subject to any relevant alteration or limitation prescribed under a moratorium notice or a water plan.

The MDBA has found that despite making progress on the metering objectives in the Murray–Darling Basin Compliance Compact, Queensland missed deadlines and still had progress to be made.¹³²⁰ The review into the Condamine Alluvium groundwater resource regulatory metering arrangements found that the lack of validation in the self-meter read process was a key risk in water users misreporting their water use.¹³²¹ Queensland is currently reviewing its metering policy.¹³²²

The MDBA has completed audits into all states' metering policies in key valleys¹³²³, and can take enforcement action such as injunctions against states if they have breached the Sustainable Diversion Limits due to their metering policies.¹³²⁴

The Australian Government is continuing to progress the drafting of amendments to the Water Act 2007 to give effect to the recommendations of the Murray–Darling Basin Water Compliance Review, to strengthen the compliance and enforcement powers of the MDBA. The proposed amendments will include new civil penalties and the introduction of criminal offences to address conduct such as water theft.¹³²⁵

13.6.4. Stakeholders have concerns that metering does not apply to all water users

The allegations of water theft in the Northern Basin are concerning, and will likely have a considerable impact on market confidence. If true, these allegations are likely to also have significant impacts on third parties. Illegal water take reduces the water available for use by legitimate water users and undermines the value of tradeable water access rights. Clearly understood and enforced property rights of traded products are essential for the efficient functioning of markets and to the confidence of participants in the market. Without the certainty that others are paying for their water, current entitlement holders see their entitlement value reduce.

New South Wales has recently created an independent regulator the Natural Resources Access Regulator (NRAR), in response to concerns about the lack of enforcement around water use.¹³²⁶ NRAR has commenced a wide-ranging compliance and enforcement regime since it started operations in April 2018, and in 2018–19 commenced nine prosecutions, issued 50 penalty infringement notices and 107 statutory notices.¹³²⁷

Floodplain harvesting is when the water that flows across the floodplains during a flood is collected and used later.¹³²⁸ Overland flow refers to water that runs across the land after

¹³²⁰ MDBA, *Murray–Darling Basin Compliance Compact Assurance Report*, 2019 at www.mdba.gov.au/sites/default/files/pubs/murray-darling%20basin%20compliance%20compact%20assurance%20report%202019.pdf, viewed 28 May 2020, p. 5–6.

¹³²¹ MDBA, *Review of the Condamine Alluvium Groundwater self-meter read process*, 2019 at www.mdba.gov.au/sites/default/files/pubs/review-condamine-alluvium-groundwater-self-meter%20read%20process_2.pdf, viewed 26 May 2020, p. 3–4.

¹³²² Department of Natural Resources, Mining and Energy, *Consultation on rural water measurement policy proposals*, 2020 at www.dnrme.qld.gov.au/land-water/initiatives/rural-water-management/projects/rural-water-measurement-proposals, viewed 26 May 2020.

¹³²³ MDBA, *Audit and assurance*, 2020 at <https://www.mdba.gov.au/publications/mdba-reports/audit-assurance>, viewed 28 May 2020.

¹³²⁴ MDBA, *Compliance and enforcement policy 2018–21*, 2018 at <https://www.mdba.gov.au/sites/default/files/pubs/MDBA-Compliance-and-enforcement-policy-2018.pdf>, viewed 28 May 2020.

¹³²⁵ MDBA, *Basin Plan Report Card reveals steady progress, with more to do*, media release, Ministerial Council, Murray–Darling Ministerial Council communique, MDBA, 2019 at www.mdba.gov.au/media/mr/murray-darling-ministerial-council-communique-20-dec-2019, viewed 25 June 2020.

¹³²⁶ Department of Planning, Industry and Environment (NSW), *About NRAR*, 2020 at www.industry.nsw.gov.au/natural-resources-access-regulator/about-nrar, viewed 8 June 2020.

¹³²⁷ Natural Resources Access Regulator, *Natural Resources Access Regulator Progress Report 2018–19*, 2019, p. 25 at www.industry.nsw.gov.au/_data/assets/pdf_file/0007/272689/NRAR-progress-report-2018-19.pdf, viewed 8 June 2020.

¹³²⁸ Department for Water, Property and Housing (NSW), *Floodplain Harvesting Action Plan*, 2019, p.2 at www.industry.nsw.gov.au/_data/assets/pdf_file/0015/272301/floodplain-harvesting-action-plan.pdf, viewed 15 May 2020.

rainfall, flooding, or after it rises to the surface naturally from underground. Capturing this water on a floodplain is referred to as overland flow development or floodplain harvesting.¹³²⁹

The development of floodplain harvesting in the Northern Basin has resulted in many irrigators building large private storages on their farms.¹³³⁰

There are significant difficulties in quantifying how much water has been taken by floodplain harvesting, as it occurs intermittently in a variable climate and often covers vast low-lying areas.¹³³¹ The water accounting is complex, as on-farm storages are typically used to store water from multiple sources, such as water pumped from rivers or bores and floodplain harvesting, each with different conditions on use.

Despite the difficulties in quantifying flood plain harvesting and overland flow take, both New South Wales and Queensland have taken action although they have taken different approaches.

New South Wales is currently working through stakeholder consultation about their flood plain harvesting policy, which hopes to have the flood plain licensing framework operational in all Water Sharing Plans by 2021.¹³³² Water harvested from floodplains will be limited to year 2000 use levels, in line with the baseline diversion limits under the Basin Plan. If use has grown since this time, this will require current levels of harvesting to be reduced.¹³³³ There are currently pilots to use satellite technology to accurately measure floodplain harvesting take.¹³³⁴ However recent allegations that there have been large increases above year 2000 take levels are concerning.¹³³⁵

Queensland has had ongoing restrictions on the construction of new works to take and store floodplain harvesting water in the Border Rivers, Moonie, and the Condamine and Balonne water plan areas since its moratorium which was introduced in 2000.¹³³⁶ Queensland has already issued licenses and implemented measurement programs in some places such as the Lower Balonne, and expects that overland flows in the priority floodplains in Queensland will be measured by December 2022.¹³³⁷

The ACCC supports the ongoing work to quantify flood plain harvesting in New South Wales and overland flows in Queensland, noting that this is integral to market integrity and increasing confidence that all are abiding by the same rules.

¹³²⁹ MDBA, *Floodplain harvesting and overland flows*, 2019, at www.mdba.gov.au/basin-plan-roll-out/sustainable-diversion-limits/floodplain-harvesting-overland-flows, viewed 15 May 2020.

¹³³⁰ Department for Water, Property and Housing (NSW), *Floodplain Harvesting Action Plan*, 2019 at www.industry.nsw.gov.au/_data/assets/pdf_file/0015/272301/floodplain-harvesting-action-plan.pdf, viewed 15 May 2020.

¹³³¹ MDBA, *Floodplain harvesting position statement Expectations from the Authority*, 2019, p. 3 at www.mdba.gov.au/sites/default/files/pubs/MDBA-position-statement-on-floodplain-harvesting.pdf, viewed 18 May.

¹³³² Department for Water, Property and Housing (NSW), *Floodplain Harvesting Action Plan*, 2019, p. 2 at www.industry.nsw.gov.au/_data/assets/pdf_file/0015/272301/floodplain-harvesting-action-plan.pdf, viewed 15 May 2020.

¹³³³ MDBA, *Floodplain harvesting and overland flows*, 2019 at www.mdba.gov.au/basin-plan-roll-out/sustainable-diversion-limits/floodplain-harvesting-overland-flows, viewed 15 May 2020.

¹³³⁴ Townsend, S, *Sensory technology measures water in floodplain harvesting*, 7 May 2020, The Land.

¹³³⁵ Brester, K, *NSW water officials knew decades of unmeasured floodplain harvesting by irrigators was illegal*, 29 May 2020, The Guardian.

¹³³⁶ Department of Natural Resources, Mines and Energy (Qld), *Program to improve the measurement of overland flow*, 2020 at www.dnrme.qld.gov.au/land-water/initiatives/rural-water-management/projects/measurement-overland-flow, viewed 15 May 2020.

¹³³⁷ *ibid.*

Mining water use is not metered in all jurisdictions

New South Wales, Victoria and South Australia all include mining within their metering and water planning frameworks. However in Queensland, water for mining does not have to be metered as the Queensland government found through its risk assessment of its potential impact on water use was found to be low.¹³³⁸ The ACCC has preliminary concerns that this represents an inequity between Queensland and the other jurisdictions, by removing requirements for mining to be metered and incorporated in the Basin Plan's Sustainable Diversion Limits.

The *Water Act 1989* (Victoria) prohibits the take and use of water for mining and by floodplain harvesting without a water entitlement.¹³³⁹ The take and use of water by mining is therefore accounted for in Sustainable Diversion Limits.

In South Australia, Part 10A of the *Mining Act 1971*, requires that a mining company identify and manage any potential impacts, including a requirement to meter water take.¹³⁴⁰

In New South Wales, under the *Environmental Planning and Assessment Act 1979*, approved mining and coal seam gas activities are conditioned to mitigate impacts on water and related resources.¹³⁴¹ This means having to acquire entitlements on the water market, therefore bringing mining into the Basin Plan and Sustainable Diversions Limits framework.

Mining activities that take underground water do not have to be metered in Queensland¹³⁴², although they may have reporting obligations.¹³⁴³ Water take by mining is out of scope for the water planning framework, and it is instead regulated via the Environmental Authority and Development Approval processes, and impact management frameworks under the *Water Act 2000* (Qld).¹³⁴⁴

Queensland has assessed the risk of impacts on third parties from increases of water take by mining operations, to be low.¹³⁴⁵ This is due to the low connectivity of basin aquifers (that is, an alluvium water system such as the Central Condamine Alluvium) to formations containing mineral resources, limiting the predicted impacts from current and future mining activities.¹³⁴⁶ The ACCC will consider this issue in more depth for the final report.

¹³³⁸ *ibid*, p. 33.

¹³³⁹ Department of Environment, Land, Water and Planning (Vic), *Wimmera-Mallee Water Resource Plan – Part 10 Implementation*, 2020 at www.water.vic.gov.au/_data/assets/pdf_file/0019/420535/Wimmera-Mallee-WRP-Part-10.pdf, viewed 15 May 2020.

¹³⁴⁰ Department of Environment and Water (SA), *South Australian Murray Region Water Resource Plan*, MDBA at www.mdba.gov.au/sites/default/files/pubs/SA-Murray-Region-WRP-2018.PDF, viewed 15 May 2020.

¹³⁴¹ Department of Planning, Industry and Environment (NSW), *NSW Great Artesian Basin Shallow Water Resource Plan*, 2020, p. 60 at https://www.mdba.gov.au/sites/default/files/pubs/nsw-great-artesian-basin-shallow-wrp-2019_1.pdf, viewed 15 May 2020.

¹³⁴² In other words, associated water. An associated water licence authorises the taking of or interference with underground water in the area of a mining tenure if the taking or interference happens during the course of, or results from, the carrying out of an authorised activity for the tenure.

¹³⁴³ Queensland government, *Water authorisations for associated water*, 2019 at www.business.qld.gov.au/industries/mining-energy-water/resources/minerals-coal/authorities-permits/applying/water-authorisations/associated-water, viewed 15 May 2020.

¹³⁴⁴ Department of Natural Resources, Mines and Energy, *Condamine and Balonne Risk assessment report*, 2019, p. 76–77 at https://www.mdba.gov.au/sites/default/files/pubs/qld-condamine-balonne-risk-assessment-report-2019_2.pdf.

¹³⁴⁵ *ibid*, p. 33.

¹³⁴⁶ *ibid*, p. 33.

14. Market architecture reform options

Key Points

- Stakeholder concerns and other issues identified by the ACCC (in chapters 12 and 13) highlight the need to review and update key elements of the market architecture because:
 - the current operation of some market architecture elements is undermining confidence in the integrity of water markets and trade activity
 - some of the assumptions on which the current architecture rests need to be re-assessed
 - some of the current mechanisms aren't working as well as hoped, and are having or could lead to unintended consequences.
- Reform of market architecture can build more robust frameworks for trade and improve how arrangements address evident and emerging impacts on other water users and the environment. For the final report, the ACCC will explore the potential benefits of a range of possible reform options, including:
 - improving policy transparency and consultation processes
 - examining possible improvements to allocations and carryover policies, and the feasibility of adopting alternative approaches like continuous accounting and capacity sharing in the Southern Connected Murray-Darling Basin (the Southern Connected Basin)
 - exploring the potential for further unbundling of property rights and the creation of formal markets for storage and delivery capacity in the Southern Connected Basin
 - investigating the feasibility of applying conveyance loss factors to water deliveries in the Southern Connected Basin
 - removing the exemption for grandfathered tags or getting rid of entitlement tagging altogether
 - developing more dynamic mechanisms to manage inter-valley trades
 - changing all allocation trade to tagged allocation trade
 - improving consistency, including in compliance activity and across Basin States' accounting and metering requirements.
- Reforms will ensure the market architecture better manages changes in trade activity and system conditions into the future. Market architecture that better integrates trade, operational requirements and the physical characteristics of the system could improve the operation and integrity of water markets. This will help achieve a range of benefits, including properly pricing the costs of trade, and protecting other water users and the environment.
- For its final report, the ACCC will also consider where inappropriate barriers to trade remain because market architecture mechanisms are preventing trade, are still in development, or are missing altogether. The ACCC will seek to incorporate updated information from parallel reviews and projects considering related issues.
- The ACCC is interested in stakeholder feedback on the possible options outlined in this chapter.

14.1. Identifying the problems with the market architecture and the options for change

The ACCC considers that a number of the issues of concern to stakeholders with the operation of water markets have their causes in the underlying market architecture, particularly in the Southern Connected Basin where water can generally be traded between valleys. The ACCC's preliminary view is that the design of the Southern Connected Basin market architecture has not kept pace with increasing trade activity. Current policy and rule design do not always adequately manage or signal the costs of accessing limited storage and delivery capacity in the regulated river system or the environmental impacts of water deliveries.

The resulting problems include unpriced impacts on other water users or the environment, and potentially unnecessary operation of limits on trade activity. There may also be 'missing markets' for on-river storage and delivery capacity, the lack of which may result in less effective operational, investment and trading decisions. The end result is inefficient allocation of scarce resources, including the water itself and also the man-made and natural infrastructure which is used to store and deliver water to users.

Since the formal arrangements for interstate trade were developed in (then) schedule E of the Murray–Darling Basin Agreement in 1992¹³⁴⁷, there has been a dramatic increase in the volumes and locations of water trade (see section 3.1.1). Previously, certain consequences of trade and delivery of water, such as conveyance losses, were assumed to be immaterial because of small volumes traded, and they did not, at the time, justify costly administrative arrangements to incorporate them into the market. However as trade has grown, these costs and impacts can also be assumed to have grown and now may need to be more explicitly factored into market design. A review of Schedule D of the Murray–Darling Agreement prepared for the Murray–Darling Basin Authority in 2013 questioned the appropriateness of the purpose, scope and coverage of the trade arrangements in light of increases in trading activity.

Another example of market architecture not being fit for purpose is in the design of the inter-valley trade (IVT) limits. These are designed to manage the reliability impacts for source zone water users of the commitment to deliver traded allocations in the destination zone, however IVT limits now operate to limit trade between zones increasingly frequently (section 3.3.1), and are not managing capacity constraints or environmental impacts adequately (section 13.4.1).

Market architecture also needs to accommodate increasing variability in inflows. Over the last two decades or so, the Basin has experienced a significant declining trend in inflows¹³⁴⁸ and increasing variability in climatic conditions, with flooding in 2011¹³⁴⁹ and 2016¹³⁵⁰ as well as severe drought (2017 to the present) (see also section 3.2.1 for more detail on water supply).

The evolution of Basin water markets, the absence to-date of a wholesale review of market architecture and the emerging issues (such as increased deliverability risk and environmental damage arising from high flows), highlight the need for a review of current

¹³⁴⁷ The Commonwealth of Australia, the State of New South Wales, the State of Victoria and the State of South Australia, 1992. *The Murray–Darling Basin Agreement*, Murray–Darling Basin Commission, Canberra, 2006. https://www.mdba.gov.au/sites/default/files/archived/mdbc-governance-reports/2167-Murray-Darling_Basin_Agreement.pdf viewed May 2020.

¹³⁴⁸ Interim Inspector-General of Murray–Darling Basin Water Resources, *Impact of lower inflows on state shares under the Murray–Darling Basin Agreement*, Canberra, 2020, p. 7, <https://www.igmdb.gov.au/media/17>, p.7, viewed May 2020.

¹³⁴⁹ Murray–Darling Basin Authority (MDBA), *MDBA Annual Report 2011–12*, MDBA, Canberra, 2012, https://www.mdba.gov.au/sites/default/files/archived/annualreports/2011-12/chapter_04_2_4.html viewed May 2020

¹³⁵⁰ MDBA, *MDBA Annual Report 2016–17*, MDBA, Canberra, 2017, https://www.mdba.gov.au/sites/default/files/pubs/MDBA_Annual_Report_2016-17-1.pdf viewed May 2020.

arrangements with a market focus. Trade arrangements in the Basin evolved over several decades but until now, have not been reviewed with a comprehensive market focus. Given the ACCC inquiry's unique focus on trade activity, market operation and market outcomes, identifying priority areas of the market architecture in need of reform is part of what this inquiry seeks to do. However, the ACCC acknowledges that reforms in this area raise a raft of hydrological and other technical considerations, and require coordination across a raft of broader water policies that will need to be the subject of detailed consideration in the implementation of any ensuing reforms.

The ACCC's preliminary assessment has identified three groups of market architecture issues, each needing a different response. These are described in the following sections.

14.1.1. The current operation of some market architecture elements is undermining confidence and market integrity

The design of key policy mechanisms relevant to Basin water markets, including allocations policies, carryover arrangements and IVT rules, and the outcomes they produce are highly complex. This complexity is compounded by the interdependence of policy impacts and the changing nature of underlying factors such as world markets' impacts on agricultural produce and the climate.

It is not surprising that stakeholders can have difficulty understanding how these policies work or why the outcomes are changing. The challenge of understanding in turn acts to erode confidence in the policies themselves and the institutions that manage them. This is evident in relation to many elements of market architecture. One key area where this problem is evident has been with New South Wales allocation policies, although concerns also manifest to a lesser degree with respect to Victorian allocation policies (especially regarding low reliability water shares¹³⁵¹), understanding how IVT limits operate, and conveyance losses.

The ACCC considers there are two components that require consideration in fixing these problems. These are:

- making current processes more transparent and further policy change more truly inclusive. This would involve:
 - better communicating the policy workings by improving transparency and 'showing workings' in a way that is easy to understand and find.
 - building users' capability to estimate the outcomes of policies, and what variables they should be looking at, to help build information and policy literacy
 - adopting appropriately structured reform processes, with transparent and detailed timelines and robust consultation.
- where confidence issues point to a need to reassess past policy decisions or past policies are no longer fit for purpose, policy reform processes should demonstrate a focus on strategic, long-term decision making that builds sustainability and stewardship of resources over time.

In the long run, the ACCC considers that governments should pursue opportunities to reduce policy complexity, bring users into the policy discussion in more meaningful ways, and reduce the scope for interventions which are perceived as unilateral or not consulted on.

¹³⁵¹ Interim Inspector-General of Murray–Darling Basin Water Resources, op. cit., p. 21.

14.1.2. Some of the assumptions or ‘policy calls’ on which the current architecture rests need to be re-assessed

The ACCC’s preliminary view is that some key policy premises may need to be reconsidered. These include whether:

- the approach of socialising conveyance losses in the Southern Connected Basin remains appropriate
- infrastructure operators should have a high level of discretion in their storage management and delivery decisions, without clearly specified parameters such as prescribed flow limits
- it is appropriate to shield water users (including both entitlement holders and successful traders) from delivery shortfall risk, at the expense of trade, and the environment
- on-river storage and delivery infrastructure access should be bundled with water access rights
- significant policy differences can be supported between Basin States (for example, different carryover policy settings and metering requirements).

The ACCC has not yet formed a view on whether it can make clear recommendations in this space and notes the work of parallel committees and working groups. Nevertheless, it has identified a range of options for further consideration:

- re-evaluating the assumption that conveyance losses should be socialised and considering whether conveyance loss factors can be applied to deliveries to particular zones (that is, all zones would have a conveyance or transmission loss factor applied, and inter-zone trade would apply a factor that is the difference between two ‘zone factors’, like the approach taken in some systems in Queensland¹³⁵²)
- making carryover parking markets more formal (the crucial aspect here is to separately identify carryover parking in water allocation trade data, and enforce price reporting rules, to aid price discovery, see section 11.2.1)
- unbundling storage access / carryover eligibility from water access entitlements and creating formal, separate markets for carryover storage
- introducing continuous accounting¹³⁵³ in the Southern Basin
- introducing capacity sharing¹³⁵⁴ in the Southern Basin
- harmonising or increasing the frequency of water account reconciliation and reducing the ability to reconcile accounts by entering water markets (this would require upgrades to metering technology, the cost of which would vary by location).

The ACCC anticipates stakeholders will hold a range of views on these matters, and invites feedback on the options flagged for further consideration.

¹³⁵² Sunwater, *Application for Temporary Transfer of Water and/or CAP St George Water Supply Scheme*, 2009, https://www.sunwater.com.au/wp-content/uploads/Home/Custom/Forms/Temporary_Transfer_of_Water_and_CAP_St_George.pdf, viewed 14 May 2020.

¹³⁵³ In continuous accounting systems, in effect, there is no resetting of account balances and the account balance continues from year to year with incremental available water determination announcements made as and when new dam inflows happen: New South Wales Department of Water and Energy, 2009, *Water availability in NSW Murray–Darling Basin regulated rivers*, NSW Department of Water & Energy. p. 4, https://www.industry.nsw.gov.au/data/assets/pdf_file/0008/153926/water_availability_mdb_reg_rivers.pdf, viewed 14 May 2020.

¹³⁵⁴ In a capacity sharing system, each water user is allocated with a share in storage capacity and a share in water inflow. Individuals can store water subject to the rule that for each individual, if the sum of water storage and water inflow exceeds the allocated storage capacity, the excess is re-allocated in the same period to other users in proportion to their capacity share sizes. C.H. Truong, R.G. Drynan, Capacity sharing enhances efficiency in water markets involving storage, *Agricultural Water Management* vol. 122(C) 2013, p. 47.

14.1.3. Some of the mechanisms are not working as well as hoped, or are having or could lead to unintended consequences

Where elements of the market architecture are not appropriately designed or implemented, this can result in the failure to meet planned objectives, or can create unintended consequences. The key areas where this type of problem are evident are:

- water access entitlement tagging remains cumbersome administratively and has not had the uptake previously envisaged by policy designers
- grandfathered tags are undermining the integrity of the IVT limit mechanism, which has to date been a key mechanism for guarding against negative third party and environmental impacts
- even without the grandfathered tag issue, the IVT limit mechanism is insufficient to fully manage negative third party impacts and environmental impacts. At the same time it can be overly restrictive, in that it prevents some trades which would *not* have such negative environmental or third party impacts.

Therefore, the ACCC's preliminary view is that IVT limits are a blunt and inadequately effective mechanism which is unable to discern between beneficial and harmful trades, and a more direct mechanism is needed to govern access to on-river delivery capacity. The entitlement tagging mechanism also has unexpected costs and unintended negative impacts.¹³⁵⁵ These mechanisms need to be enhanced or replaced to:

- be dynamic—that is, not designed for an assumed pattern of water availability, use or trade
- be equitable in terms of having a 'level playing field' for access to on-river delivery capacity
- aim to maximise opportunities to trade, subject to physical constraints and environmental limits
- allow users to more directly experience the costs and benefits of their own (trading and use) actions and not to shield them from shortfall risk, as occurs under current policies
- be robust:
 - not allowing some users to operate outside the mechanism, especially in ways which undermine the integrity of that mechanism
 - successfully manage environmental impacts through timely and responsive actions to limit damage.

The ACCC is considering what the options might be to replace or enhance these mechanisms. Options under consideration include:

- removing the exemption for grandfathered tags or getting rid of entitlement tagging altogether
- developing more dynamic IVT mechanisms (that is, timely and responsive tools to allocate access to limited delivery capacity and to manage impacts on other water users and the environment, as are being explored in the Victorian Government's review of the Goulburn to Murray trade rule)
- make all allocation trade tagged allocation trade (so that water only moves between valley accounts when it is being delivered, and remains in the origin valley accounts at the time of trade and for carryover)

¹³⁵⁵ Victorian Government, 2020, *Goulburn to Murray trade rule review: Consultation paper*, Department of Environment, Land, Water and Planning, https://waterregister.vic.gov.au/images/documents/Goulburn-to-Murray-trade-rule-review_consultation-paper.pdf, viewed May 2020.

- developing markets for on-river delivery capacity, to better allocate and account for scarce capacity (see 13.5.1)
- developing non-market allocation mechanisms for on-river delivery capacity, that allocate capacity on a less than annual accounting period and are defined with respect to specific constraints.

Questions for stakeholders

- The ACCC, in exploring options for reform, seeks stakeholder feedback on the merits and drawbacks of, and the potential to adopt, the options outlined above.

14.2. Reforms must take into account new information and changing conditions to provide benefits to all

To benefit all water users, market architecture needs to balance promoting freer trade while appropriately managing the impacts of trade on river systems and other water users. A well-designed reform program should allow the market to remain robust in the face of evolution in climatic conditions, patterns of water use, and market participant behaviour. The ACCC recognises that major changes in approach may be costly to implement and that there is a level of reform fatigue evident among Basin water users.

However, well-designed market architecture reforms could bring significant benefits by more accurately managing system capacity and assigning the costs and risks of individual choices to store, use or trade water. This would better align with the principles agreed to through the National Water Initiative in 2004.¹³⁵⁶ These reforms would also seek to directly address some of the key concerns raised by some stakeholders, which have caused them to lose confidence in market mechanisms.

14.2.1. Better market architecture will improve outcomes for water users and the environment

Architecture reforms should be designed to ensure the market can better manage dynamic trade activity and changing system conditions into the future. This will help achieve a range of benefits, including properly pricing the costs of trade and protecting other water users and the environment. Benefits to market participants, and water users more generally, can accrue from:

- lowering barriers to trade that prevent parties accessing water in locations where and when it is wanted most, at prices that are set under competitive market conditions
- properly pricing and attributing the costs of trade and protecting other water users and the environment, by ensuring the costs of transacting in water markets better reflect the actual impacts of trade.

¹³⁵⁶ Under the National Water Initiative, Basin States agreed to implement water pricing and institutional arrangements which, among other things, promote the efficient and sustainable use of resources and assets, facilitate the efficient functioning of water markets, give effect to the principles of user-pays and avoid perverse or unintended outcomes: Council of Australian Governments, 2004. *Intergovernmental Agreement on a National Water Initiative*, Canberra, 2004. p. 13, <https://www.agriculture.gov.au/sites/default/files/sitecollectiondocuments/water/Intergovernmental-Agreement-on-a-national-water-initiative.pdf>, viewed May 2020.

14.2.2. Basin governments need to work together to address issues

Achieving whole-of-Basin consensus on policy changes has often proven difficult. Basin governments need to coordinate and integrate the management of work to understand the nature of emerging problems and find solutions to improve the functioning of specific rules or the broader market architecture. The current governance arrangements for oversight of Basin market architecture often struggle to engineer coordinated, timely and integrated solutions to emerging problems. The need for Basin governments to consider more significant reform of governance arrangements to address this is discussed in chapter 15.

14.2.3. Work underway will help fill information gaps but uncertainty cannot be eliminated

Water markets, and the river systems they rely on, are subject to changing influences. Getting changes to the market architecture right is challenging because of these dynamic characteristics, the need to manage impacts on other water users and the environment. Significant information gaps can inhibit accurate assessment of specific drivers and marginal impacts of trade, and the development of evidence-based and sustainable solutions for the operation of the river system.

Multiple inquiries, investigations and reviews have recently or are currently examining arrangements relevant to the Murray–Darling Basin market architecture.¹³⁵⁷ The ACCC considers that these reports will improve the evidence base upon which evidence-based policy decisions can be made.

However, despite technical experts' best efforts, it will be impossible to eliminate uncertainty in decision making and Basin governments will need to respond to emerging issues ahead of filling all of the information gaps. Market design should expressly consider how policy makers can improve their ability to make robust decisions under uncertainty and build in the flexibility to respond to as-yet unknown changes, rather than delaying decision making until the evidence base is 'complete'.

14.3. Setting the direction for reforms—where to from here?

Reforms can build more robust frameworks for trade and improve how arrangements address emerging issues. The ACCC is seeking feedback on its preliminary assessment and the options outlined above. For the final report, the ACCC intends to consider some or all of these options, depending on further analysis and stakeholder feedback. The ACCC will also consider where market architecture mechanisms are still in a nascent stage of development or are missing altogether, such as:

- the continuing lack of a framework to allow trade between Australian Capital Territory and New South Wales

¹³⁵⁷ The ACCC will integrate material from current or recent inquiries, consultations or reviews with relevance to the Basin market architecture into our final report, where reporting timeframes permit. These include: The Interim Inspector General of Murray-Darling Basin Water Resources report into Impact of lower inflows on state shares under the Murray–Darling Basin Agreement; The Independent Assessment of Social and Economic Conditions in the Murray-Darling Basin; The Senate Select Committee on the Multi-Jurisdictional Management and Execution of the Murray Darling Basin Plan; Finalisation of Victorian, New South Wales and Australian Capital Territory Water Resource Plans (South Australia and Queensland plans have all been accredited); Implementation of the recommendations from the MDBA Price Audit; The Bulk Water Trade Adjustments Trials that are currently occurring, including the Hume to Dartmouth triggers, the directed inter-valley trade and the in-stream adjustments for return flows trials; Independent review of the science of the Lower Lakes; Capacity and Delivery Shortfall Project and the Independent Panel for Capacity Project Review are both considering delivery risks; The South Australian review and recent implementation of their new carryover policy; South Australian Parliamentary Inquiry into Findings of the Murray-Darling Basin Royal Commission and Productivity Commission as they relate to the Decisions of the South Australian Government; Victorian inquiry into water market transparency; Victoria and New South Wales investigation into constraints relaxation measures under Murray-Darling Basin Plan; Victorian Government's Goulburn to Murray trade rule review.

- limited development of trading rules for unregulated systems in northern New South Wales, or for trade of overland flow/floodplain harvesting rights
- shepherding and other arrangements available to trade/change the location of environmental water.¹³⁵⁸

Targeted changes of the kind described may improve the functioning of particular elements of the market architecture. However, they will not guarantee enduring and effective market architecture reforms that integrate market activity with water storage and delivery system design and operation, or overcome the potential for decision-making inertia to arise as a result of coordination challenges. In the ACCC's preliminary view, a comprehensive, forward-looking and coordinated approach is required to avoid piecemeal, reactive changes and to achieve effective reforms.

The body responsible for coordinating reforms should have a mandate to consider changes in light of the operation of interconnected water markets, hydrological and technical considerations, and relationships with other areas of water policy (in some cases, being matters beyond the scope of this inquiry). Without such coordination, reforms risk pushing problems to other parts of the system or making other problems worse: for example, managing the environmental impacts of high flows by reducing permissible flows from one valley may shift demand (and associated impacts) to other valleys or river reaches.

Questions for stakeholders

- Are there gaps in or issues with other areas of the market architecture that you would like the ACCC to consider?

¹³⁵⁸ Water shepherding is a mechanism to enable a licence holder to access water from a nominated licence, in a water source downstream of the original licence location, where it can be made available for environmental use. The volume available at the downstream location is reduced to take into account the evaporation and transmission losses incurred between the original location of the parent licence and the downstream delivery point. Water shepherding provides a much greater degree of flexibility in regard to the location from where water may be taken.

New South Wales Department of Primary Industries (Office of Water), 2012. *Proposed arrangements for shepherding environmental water in NSW—Draft for consultation*, NSW DPI, Sydney, 2012.

http://www.water.nsw.gov.au/_data/assets/pdf_file/0004/555745/recovery_water_shepherding_proposed_arrangements_shepherding_nsw_draft_for_consultation.pdf, viewed June 2020

Part VI—Governance

This part includes one chapter on issues relating to Murray–Darling Basin water market governance. The ACCC uses the term ‘market governance’ to refer to the range of institutions, rules and processes through which decisions concerning water trade arrangements are made and implemented, and water markets are regulated.

Chapter 15 draws together issues identified in previous chapters and explores whether these issues have a common basis in the underlying frameworks for market governance. It seeks feedback on some questions and potential options to address the issues identified by the analysis to-date.

15. Market governance

Key Points

- The many benefits of water trading rely on fair and efficient water markets, underpinned by an environmentally healthy river system. This depends on:
 - a governance framework that ensures trading rules and regulations are developed and implemented with a Basin-wide perspective, and in close connection to the river system's physical characteristics
 - clear trading rules that apply consistently across the Basin
 - regulation of market participants that promotes open and fair trading, and which is robustly enforced.
- The ACCC's interim view is that the current governance of the Murray–Darling Basin and the regulatory frameworks for water trading do not meet these standards.
- Overarching governance arrangements, such as fragmentation and overlap of roles between governing bodies, contribute to the problems identified in this interim report, or prevent them from being addressed.
- Governance issues have impeded past reform efforts, with the result that some problems which have long been raised by stakeholders, and which have previously been acknowledged by governments, continue to persist.
- The ACCC's preliminary view is there is a need to realign governance frameworks to focus on the development, oversight and regulation of markets.

Water markets have developed at different times across different regions as an adjunct to broader water management reform. This has resulted in an extremely complex, fragmented and sometimes inconsistent system. Many of the historical market settings and governance arrangements are no longer suitable to deliver all of the potential benefits of trade.

Market governance refers to the range of institutions, rules and processes through which decisions concerning the arrangements for trade of water products and associated services are made and implemented, and decision-makers are held accountable.¹³⁵⁹ It involves establishing processes and protocols, assigning responsibility for actioning them and monitoring their proper implementation.

The government agencies involved in water management include the Murray–Darling Basin Authority (MDBA), state and Commonwealth water departments, numerous state water authorities and resource managers, and many regulators and compliance agencies, including the ACCC. These various agencies are themselves governed by an array of state and Commonwealth laws and agreements, including the Basin Plan, the Murray–Darling Basin Agreement and the National Water Initiative. At the highest level, the Murray–Darling Basin Ministerial Council is the decision-making forum established to consider and determine outcomes and objectives on major policy issues of common interest to the Basin governments. A further description of the current institutions and intergovernmental arrangements for water management is set out in section 2.11.

The Productivity Commission identified four principles for effective institutional arrangements and good governance in its Murray–Darling Basin Plan five-yearly assessment¹³⁶⁰:

¹³⁵⁹ Organisation for Economic Cooperation and Development (OECD), *Principles on Water Governance*, <https://www.oecd.org/governance/oecd-principles-on-water-governance.htm>, viewed June 2020

¹³⁶⁰ Productivity Commission, *Murray-Darling Basin Plan: Five-year assessment, Final Report*, 2018, p. 347, <https://www.pc.gov.au/inquiries/completed/basin-plan#report> viewed June 2020.

- Clear roles and responsibilities: including clear powers and functions for each institution and clear decision making responsibilities.
- Conflicting objectives and functions are effectively managed: which is concerned with separating regulatory, service delivery, and policy-making functions into separate institutions.
- Effective mechanisms for accountability: institutions have a responsibility to fulfil their duties, and open and transparent processes enable stakeholders to understand the reasons behind decisions.
- Effective processes for collaboration: coordination among government institutions helps streamline decision making and avoids overlaps and duplication.

15.1. Many water market problems have their underlying cause in governance

This report has identified significant problems with elements of the water market, including:

- gaps, complexity and inconsistencies in regulation that impede effective oversight, enforcement and compliance, and undermine confidence in the market (see, in particular, Part III—Market integrity and conduct)
- deficiencies in the information necessary to participate in the market, including timely and accurate trade data, and other information necessary to make informed trading decisions (see Part IV—Trade processing and water market information)
- problems with the market architecture where the design of the market does not adequately deal with the characteristics of the physical river system, which then incentivises ‘less-than-best’ investment and trading decisions or results in other unintended consequences (see Part V—Market architecture).

To some degree, all of these issues have their basis in the underlying governance framework. Governance can be the source of these problems, can impede the timely resolution of problems, or both.

The governance issues confronting the Murray–Darling Basin can be categorised as follows:

- *Ineffective decision-making frameworks* can lead to governments being put in positions where they need to make reactive decisions, leading to uncertainty for market participants and a lack of confidence in the stability of market settings.
- *Fragmentation of roles and functions* leads to inconsistent governance frameworks, and difficulties for stakeholders in understanding and effectively engaging with governing institutions. This also leads to difficulties resolving problems and harmonising systems due to the time, resources and coordination necessary to effectively collaborate, leading to bureaucratic inertia.
- *Conflicting roles and functions* can lead to some existing government agencies not fulfilling certain roles or functions as well as they could.
- *Regulatory or governance gaps* can lead to the opportunity for misconduct to occur, or mean that third party impacts (externalities) are not being adequately addressed.

Each category of governance issue is discussed in further detail below.

A serious additional consequence of these problems is that many water users, in particular irrigation farmers, do not trust that the markets and key institutions are fair or working to the benefit of water users. Impediments to informed and confident trading by many irrigators caused by these problems is likely to impede investment that is important for efficient agricultural production.

Table 15.1 shows the current distribution of governance functions across different entities:

- comparing horizontally, the table shows how certain roles are fragmented across several entities:
 - in some cases, responsibilities that most logically sit within one entity are divided across entities, even within the same jurisdiction. For example, in New South Wales and Queensland, the register for water allocations is managed by a different government agency to the register for water entitlements—see section 8.6.1
 - in some cases, the same role is performed by the same types of entities in different jurisdictions (not shown in the table, as different types of Basin State agencies are only represented once). For example, each Basin State has one or more trade approval authorities, and one or more water registers—see section 8.6.2 and 8.6.3
- comparing vertically, the table shows how certain entities have multiple roles:
 - while having multiple roles, functions or responsibilities is usual for government agencies and often no cause for concern, some specific combinations of roles can cause potential conflicts of interest. If these conflicts are not well-managed, performance in one or more roles can be negatively affected, or even compromised. For example, irrigation infrastructure operators operate trading platforms and/or offer brokerage services, while also acting as a trade approval authority. This puts them in a position where they could prioritise the approval of trades facilitated by their own brokers or trading platforms over other trade approval requests—see section 6.10.
 - moreover, while not shown in the table, funding arrangements may also contribute to actual or perceived conflicts of interests, and negatively impact effective governance, enforcement and market confidence.
 - gaps in the table, or areas where the role is very narrow, highlight that certain roles necessary for well-functioning markets—particularly for created markets such as water markets—are missing or incomplete within the current governance framework.

Table 15.1: Distribution of governance functions

Category	Market element	Commonwealth			Basin State					Joint Basin Governments	IIO
		Policy agency	MDBA	Other	Policy agency	Resource manager	Register	Approval authority	Other		
Enabling institutions	Resource definition Volume of water available to be traded. In a cap-and-trade market, encompasses the robust definition of the cap and specifying resource shares in perpetuity.		✓			✓				✓	
	Product definition Details of water product characteristics, including security level, risk level, legal protection.				✓				✓		
	Ownership registry Record of legal ownership of water entitlements and allocations, including records of changes in ownership.			ASIC			✓				✓
	Delivery The arrangements to physically supply water to the owner of a water right.		✓			✓			✓	✓	✓
	Trading rules Rules that determine when and how trade can occur, in what water products, and special constraints applicable to certain products or transactions.		✓		✓				✓	✓	
Facilitating gains from trade	Exchange Forum(s) in which buyers and sellers are able to make and accept price offers to exchange ownership of water products.										✓
	Clearance Process of verifying ownership of water rights and transferring ownership in the event of a successful trade.						✓				✓
	Settlement Exchange of funds associated with a successful trade.										
	Market information Collation and dissemination of key market data such as price of trades, and description of the product that has been transacted. Ensure the quality of data and information is appropriate for users' needs.	✓	✓	BOM ABARES	✓	✓	✓	✓			
Effective monitoring, enforcement and evaluation	Market monitoring and oversight Market monitoring involves both actively examining the behaviour of market participants (including service providers such as intermediaries and trade approval authorities).		✓	ACCC	✓				IPART (NSW)		

	<p>Compliance and enforcement Compliance and enforcement are critical in terms of market integrity and confidence. Compliance and enforcement actions apply in relation to multiple elements listed above.</p>		✓	IIG	✓				NRAR (NSW)		
	<p>Market evaluation Evaluating the outcomes arising from markets in order to assess whether markets are performing well or could be improved.</p>		✓	PC							

15.1.1. Ineffective decision-making frameworks

Markets need policy stability and should be underpinned by a robust regulatory framework that balances the need to minimise ad hoc decision making while enabling the timely resolution of emerging issues or problems.

Where a coordinated approach is required, existing consensus-based decision-making frameworks may not be appropriate to respond to problems in a timely way. This can lead to acknowledged problems remaining unresolved, rather than being proactively addressed from a strategic, whole-of-Basin perspective.

As a result, governments are put in positions where they need to make reactive decisions, leading to uncertainty for market participants and a lack of confidence in the stability of market settings. Sometimes, due to the bureaucratic inertia of the decision-making process, states are left with no recourse but to resolve a problem within their own jurisdiction, rather than waiting for Basin-wide consensus. This results in more policy fragmentation and complexity as jurisdictions solve the same problem in different ways.

An independent report to the Murray–Darling Basin Ministerial Council noted that:

‘With the preponderance of ‘emergency’ decision making as critical timelines loom, the BOC [Basin Officials Committee] has devoted very little if any time considering strategic directions and management of strategic risks.’¹³⁶¹

These issues persist into implementation, with the result that some problems which have long been raised by stakeholders, and which have previously been acknowledged by governments, continue to persist.

Where possible, the governance framework should establish clear processes for decision making by independent institutions established with a clear mandate to oversee trade and water management. As outlined in section 14.3, a comprehensive, forward-looking and coordinated approach is needed to avoid piecemeal, reactive changes and achieve effective reforms. The entity responsible for managing reforms should be given a mandate to consider changes in view of the operation of interconnected water markets, hydrological and technical considerations, and relationships with other areas of water policy.

Key problems that arise when markets do not have effective decision-making frameworks include:

- ad hoc solutions that only partially address issues, address the symptoms without examining the underlying causes or push problems into other regions. For example, the Victorian announcement in July 2019 that all new works licence applications for extractions from the lower Murray would be referred to the Minister for assessment for the next 12 months.¹³⁶²
- staggered implementation, as each jurisdiction sets different priorities and timelines for implementing agreed actions. For example, the 2018 MDBA trade price reporting audit made a number of simple and straight forward recommendations for collecting market-relevant information and better quality-assure reported prices.¹³⁶³ States have been slow

¹³⁶¹ Claydon, *Review of Murray-Darling Basin Joint Governance Arrangements, prepared for the Murray-Darling Basin Ministerial Council*, 2018. p. 3, <https://www.mdba.gov.au/sites/default/files/pubs/Review-of-MDB-joint-governance-arrangements-final-report.pdf>, viewed June 2020. BOC (the Basin Officials Committee) is the decision-making forum for senior water officials from each Basin State.

¹³⁶² Neville (Minister for Water, Victoria), Minister Takes Control Of Lower Murray Water Extraction, media release 10 July 2019, <https://www.premier.vic.gov.au/minister-takes-control-of-lower-murray-water-extraction/>, viewed June 2020.

¹³⁶³ MDBA, Water Trade Price Reporting under the Basin Plan: Part 1: Basin State processes and procedures for collecting water trade price information, 2019, <https://www.mdba.gov.au/sites/default/files/pubs/part-1-audit-basin-state-process.pdf>, viewed June 2020.

to act on the recommendations, held up by coordinating action across differing state register processes and internal agency approval processes—see section 6.10.

- failure to identify and address emerging issues in an integrated way, as jurisdictions defer engaging with the issue until it reaches crisis point in a particular jurisdiction. This often results in limited solutions that only address the problem locally or push the problem into other regions. For example, options for revising the Goulburn to Murray trade rule risk exacerbating deliverability issues for water users in the Murray—see section 13.1.5.
- a proliferation of ad hoc reviews rather than a commitment to establishing periodic evaluation and review points (see footnote 11 in chapter 14). Where periodic reviews exist, their effectiveness is undermined by the proliferation of ad hoc reviews.

15.1.2. Fragmentation of roles and functions

The regulatory, policy and institutional frameworks for water markets in the Murray–Darling Basin are extremely complex, fragmented and inconsistent across jurisdictions and regions. Some differences exist for good reasons, but many do not.

Basin governments take different approaches on key rules and policies, such as metering, carryover arrangements and allocation policies, which continue to develop in divergent directions over time. Policy makers can find it difficult to develop coordinated, timely and integrated solutions to emerging problems impacting connected trading regions.

Key areas where fragmented governance roles are an issue for water markets are in supporting effective compliance and enforcement regimes, collecting accurate water market information and developing appropriately consistent and harmonised policies and processes.

Where responsibility for market governance is dispersed across jurisdictions, failure to collaborate results in:

- divergent policy development, adding to complexity as jurisdictions solve the same problem in different ways. For example, trade approval processes that are not simple and standardised across states and trading zones, particularly in the Southern Connected Basin. Standards and agreed processes are aspirational or voluntary, not mandatory—see section 8.7.2.
- a lack of harmonised data collection and dissemination frameworks, which results in both missing information (for example no data on ‘struck date’¹³⁶⁴ or reasons for allocation trades—see section 11.1), better access to information by some parties (brokers and exchanges in particular have more information than other market participants—also see section 11.1), and a lack of clarity about how to interpret some information (zero dollar trades; average spot price for water).

15.1.3. Conflicting roles and functions

Conflicting objectives and functions impede the effective operation of the institutions entrusted with overseeing the efficient operation of markets. Actual and perceived conflicts of interest lead stakeholders to distrust institutions and undermine market confidence. Structural conflicts can be exacerbated by the very different operational culture and approach required to perform each of these roles effectively.

OECD Principles on Water Governance recommend clearly allocating and distinguishing roles and responsibilities for water policy-making, policy implementation, operational

¹³⁶⁴ ‘Struck date’ refers to the date on which a trade is actually agreed, rather than the date which it is approved, or the transfer of water is actually executed.

management and regulation, and foster co-ordination across these responsible authorities.¹³⁶⁵

The key areas where overlapping governance roles, or multiple roles for a single entity are resulting in conflicts include:

- Irrigation infrastructure operators operate trading platforms and/or offer brokerage services, while acting as a trade approval authority. This puts them in a position where they could prioritise the approval of trades facilitated by their own brokers or trading platforms over other trade approval requests—see section 6.10.
- The MDBA is responsible for multiple roles. These include setting water use limits (Sustainable Diversion Limits), enforcing water use limits, assessing water resource plans, advising, developing and enforcing the Basin Plan water trading rules, and operating the River Murray system under two different governance frameworks (the *Water Act 2007* (Clth) and Basin Plan, and the Murray–Darling Basin Agreement). Many of the MDBA’s roles require collaboration with Basin States (for example, river operations decisions), and some of its functions are paid for directly by Basin States. This situation makes it difficult for MDBA to fulfil its enforcement and compliance roles.¹³⁶⁶

15.1.4. Regulatory or governance gaps

Having multiple levels of governance can result in regulatory gaps that would be covered under a more centralised regulatory regime.

The key areas where gaps in the governance framework are an issue for water markets are:

- Water market intermediaries such as brokers and water-exchange platforms operate in a mostly unregulated environment, allowing conflicts of interest to arise, and opportunities for transactions to be reported improperly—see sections 6.5 and 6.8.
- There are scant rules to prevent conduct that manipulates market prices, and no particular body has been given the responsibility or resources to monitor the trading activities of market participants—see section 6.8.
- There is little direct regulation of irrigation infrastructure operators’ roles as trade approval authorities and providers of brokerage and exchange services, and very few requirements for these operators to publish water market data for trades within their networks—see section 6.10.
- There is no requirement for private exchanges or brokers to publish core market data – see section 6.7.

¹³⁶⁵ Organisation for Economic Cooperation and Development (OECD), *Principles on Water Governance*, <https://www.oecd.org/governance/oecd-principles-on-water-governance.htm>, viewed June 2020. See principle 1.

¹³⁶⁶ See discussion on institutions and governance from p. 341 in Productivity Commission, *Murray–Darling Basin Plan: Five-year assessment, Final Report*, 2018, <https://www.pc.gov.au/inquiries/completed/basin-plan#report> viewed June 2020.

15.2. There is a need to realign the Basin's water market governance frameworks

The ACCC's preliminary view is there is a need to realign governance frameworks to focus on the development, oversight and regulation of markets, and to promote open and fair trade across the Basin. This could include:

- separating market governance roles from broader water management governance to enable clear and independent decisions on the development of market settings
- consolidating or harmonising fragmented roles and / or institutions, to assist in improving trade processes, transparency, market oversight capability, and enforcement and compliance activities
- reducing regulatory gaps by creating and assigning new roles or functions
- addressing conflicting roles
- committing resources to support effective collaborative governance models or move away from consensus-based decision-making models.

The ACCC will consider whether there are market-focused roles and functions currently performed by each of the Basin States separately where there would be benefit in consolidating into more centralised governance arrangements. Such changes may require governments to revisit the division of responsibility for managing water in Australia's federal system.

The ACCC will be considering governance issues further for its final report. At this time, the ACCC seeks stakeholders' feedback on its preliminary views, and stakeholders' views on governance issues more generally.

Questions for stakeholders

- In what ways is the 'governance' of the Murray–Darling Basin's water-rights markets helping or harming those markets? Please give examples to help explain your answer.
- What changes to the governance arrangements (if any) should be made; how, and why?

Appendix A—Irrigator engagement with water markets

Entitlement trade

- Irrigators' engagement with entitlement markets in the Southern Basin (measured as having bought or sold an entitlement at least once) has been increasing over time. Between 2000-01 and 2015-16, the percentage of irrigators reporting at least one entitlement trade increased from less than 10 per cent to just under 50 per cent.
- However, as at 2016, approximately half of irrigators reported never having traded an entitlement, and only a small proportion (less than 10 per cent) reported having bought and sold entitlements within the previous five years.

Allocation trade

- Irrigators' engagement with allocation markets in the Southern Basin (measured as having bought or sold an allocation at least once) has also been increasing over time. Between 2000-01 and 2015-16, the percentage of irrigators reporting at least one allocation trade increased from less than 15 per cent to more than 75 per cent.
- However, as at 2016, approximately 25 per cent of irrigators reported never having traded an allocation, and only a small proportion (less than 15 per cent) reported having bought and sold allocations within the previous five years.

Some key differences in irrigators' use of entitlement and allocation trade

- Irrigators in the Southern Basin are significantly more engaged with entitlement and allocation markets than irrigators in the Northern Basin. Between 2008-09 and 2017-18, Southern Basin irrigators were, on average, 4.8 times more likely to have conducted a water allocation trade, and 7.9 times more likely to have conducted a water entitlement trade compared with irrigators in the Northern Basin.
- The sale of water entitlements over 2006-07 to 2014-15, particularly by dairy farmers in the Southern Basin, has resulted in an increase in the proportion these irrigators relying on water allocation purchases from 2011-12 onwards as drier conditions returned.
- The flexibility of annual cropping irrigators, such as rice farmers, allows them to more easily switch from using/buying water allocations in wetter years, to not using/selling water allocations in drier years. These irrigators tend to demonstrate more variable and higher level of net allocation trade over time.
- In contrast, the more constant water needs of permanent plantings, such as nut and fruit plantations, means horticultural farmers have less flexibility to trade temporary water, and so demonstrate a more stable and lower level of net allocation trade over time.

Leases and newer water products

- Available evidence indicates that a small minority of irrigators across the whole Basin (less than 7 per cent as at 2018) use water from leased entitlements. The evidence indicates that:
 - irrigators with larger holdings of permanent water rights are more likely to use leases than irrigators with smaller holdings of permanent water rights
 - where smaller irrigators use leases, they are more likely to lease from friends and relatives, their own self-managed super fund, or from other irrigators
 - where larger and corporate irrigators use leases, they are more likely to use longer-term leases sourced from commercial operators, either as part of leasing land or as a stand-alone lease from an investor.

- Available evidence indicates that only a very small proportion of irrigators use carryover parking or forward contracts.

Irrigator views on the benefits of water trading

- Irrigators have become increasingly negative about water trading over the last 20 years. The proportion of irrigators believing that water trading was a 'good idea' or 'good for farming' has declined from three quarters of irrigators in the GMID in 1999 to less than 30 per cent of irrigators in the Southern Basin by 2016.
- Over the same period, the proportion of irrigators believing that water trading was not a 'good idea' or not 'good for farming' has increased from just 14 per cent of irrigators in the GMID in 1999 to over 50 per cent of irrigators in the Southern Basin in 2016.
- A high proportion of irrigators (85 per cent in 2016) in the Southern Basin disagreed with the idea that non-farm entities should be allowed to buy water, while almost half (48 per cent in 2016) disagreed that retired farmers should be allowed to retain and trade water.

Irrigator views on the ease of trading and confidence in water markets

- Majorities of irrigators in 2015 and 2016 expressed positive views on the ease of making temporary and permanent trades, being able to access the information needed to trade, and feeling confident in trading water for their farm. However, relatively significant minorities of irrigators also expressed opposing views on each of these issues, with:
 - 12 to 18 per cent of irrigators not agreeing that trading temporary or permanent water was easy
 - 17 to 19 per cent not agreeing that the information needed to trade water was easy to access
 - 25 to 28 per cent not agreeing that they felt confident in using water trading.
- Irrigators expressed low levels of confidence in the fairness of water markets, and water market rules in 2015 and 2016, with:
 - only 23 per cent to 32 per cent of irrigators agreeing that water markets were fair for all users
 - only 16 per cent to 26 per cent of irrigators expressing confidence in water market rules.
- Majorities of irrigators in 2015 and 2016 expressed confidence in the security of their water rights, while a quarter or more did not (32 per cent and 24 per cent). However, only a quarter or less of irrigators agreed that entitlements held by the government were subject to the same rules and charges as other participants' entitlements (13 per cent and 26 per cent in 2015 and 2016 respectively), while more than four in ten disagreed that these entitlements were treated equally.

Views held by irrigators who trade and do not trade

- Irrigators who engaged in water entitlement and allocation trade in the Southern Basin had significantly more positive attitudes to water trading, to investors owning water, to environmental water recovery and the Basin Plan, and less traditional attitudes to farming, relative to irrigators who did not trade.

This appendix describes:

- irrigator numbers across the Basin
- the type and level of irrigator engagement with different types of water markets, including water allocation and entitlement markets, leases and newer water products such as carryover parking and forward contracts
- irrigator attitudes to water markets and water trading, and possible associations between these attitudes and an irrigator’s decision to trade or not trade water.

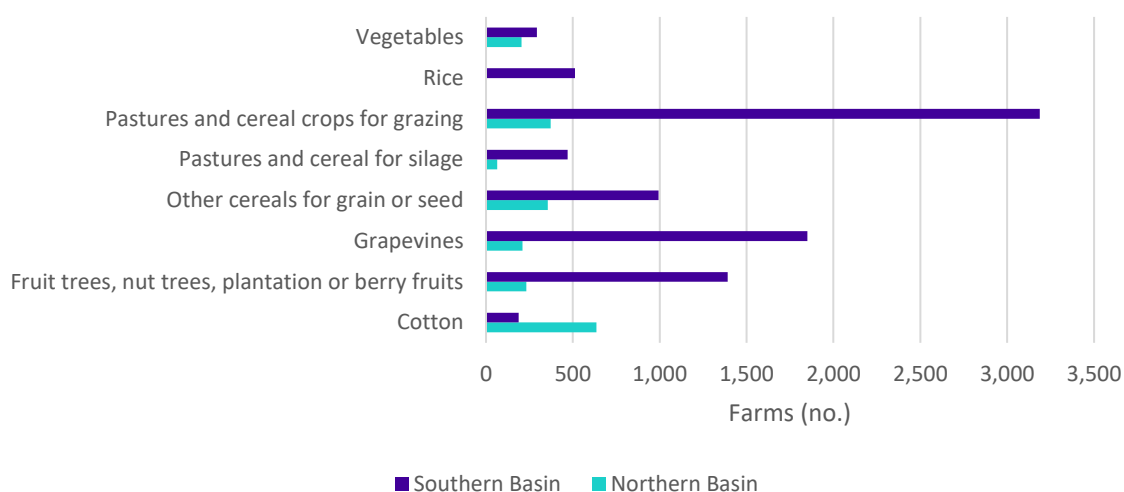
A.1 Snapshot of irrigator numbers across the Basin

In 2017–18 (the latest year for which ABS data is available), it is estimated there were just under 10 000 agricultural businesses irrigating land across the Murray Darling Basin. Of these, an estimated 7329 operated in the Southern Basin and 1998 in the Northern Basin.¹³⁶⁷

Figure A.1 compares the estimated number of farms irrigating different crops in the Northern and Southern Basins in 2017–18. It shows that approximately a third of irrigated farms in the Northern Basin grew cotton in 2017–18 (636 of 1998 farms). This was significantly more than the 188 cotton irrigators in the Southern Basin. It also shows that approximately 19 per cent of irrigated farms in the Northern Basin (372 farms) grew pasture and cereal crops for grazing, 18 per cent (355 farms) grew cereal grain and seed (including wheat, oats, maize), while only eight farms grew rice.

In the Southern Basin, approximately 44 per cent of irrigated farms (3187 of 7329 farms) reported growing pasture and cereal crops for grazing in 2017–18. Approximately 25 per cent (1850 farms) grew grapevines, 19 per cent (1390 farms) irrigated fruit and nut tree plantations and berry fruits, and 7 per cent (513 farms) grew rice. Just 3 per cent (188 farms) reported growing cotton.

Figure A.1: Estimated number of farms irrigating in the Northern and Southern Murray–Darling Basin, by farm type, 2017–18



Source: ABS 4618.0—Water Use on Australian Farms, 2017–18.

Note: This figure shows estimates for the number of farms producing each commodity. These figures are not additive as a single farm may produce multiple commodities.

¹³⁶⁷ Estimates based on ABS 4618.0 - Water Use on Australian Farms, 2017–18.

Table A.1 reports the estimated numbers of farms in the Murray Darling Basin growing different crop types reporting to have irrigated land in 2017–18 by natural resource management (NRM) region. This table shows that the Condamine NRM regions had the highest proportion of the Northern Basin's irrigated farms in 2017–18 (28 per cent or 558 of 1992 farms in the Northern Basin). Irrigated farms in the Condamine NRM regions predominantly grew a mix of cotton, cereal grain and seed, and pasture and crops for grazing. The distribution of irrigated farms in the other Northern Basin NRM regions included:

- the North West New South Wales NRM regions with 21 per cent or 422 of all Northern Basin farms, most commonly growing cotton
- the Queensland Murray Darling Basin and the Western NRM regions, both with approximately 14 per cent or 285 and 278 farms respectively. Farms in the Queensland Murray Darling Basin NRM regions most commonly grew a mix of cotton and horticulture, while farms in the Western NRM regions predominantly produced grapes and horticulture
- the Central West NRM regions with 13 per cent or 263 farms, growing a mix of cotton, cereal grain and seed, and pasture and crops for grazing
- the Central Tablelands NRM regions with 10 per cent or 192 of all Northern Basin farms, predominantly irrigating permanent crops of fruit and nut trees, berry fruits and grapes.

In the Southern Basin, the Goulburn Broken NRM regions contains the highest proportion of the Southern Basin's irrigated farms, with 23 per cent or 1688 of the 7329 farms in the Southern Basin. In 2017–18 these most commonly grew pasture and cereal crops for grazing. The distribution of irrigated farms in the other Southern Basin NRM regions included:

- the North Central NRM regions with 19 per cent or 1386 farms of all Southern Basin farms, mostly growing pasture and cereal crops for grazing
- the South Australian Murray Darling Basin NRM regions with or 16 per cent or 1159 farms, irrigating mainly permanent plantings of grapevines and fruit and nut trees
- the Riverina NRM regions with 15 per cent or 1131 farms, predominantly irrigating permanent plantings but also growing a mix of cereals, pasture and cotton
- the Murray NRM regions with 13 per cent or 931 farms, mostly growing pasture and cereal crops for grazing, and cereal grains and seed
- the Mallee NRM regions with 9 per cent or 665 farms, predominantly irrigating permanent plantings of grapevines, fruit and nut trees and berry fruits.

Table A.1: Estimated number of farms irrigating in the Murray Darling Basin, by crop type and NRM region, 2017-18

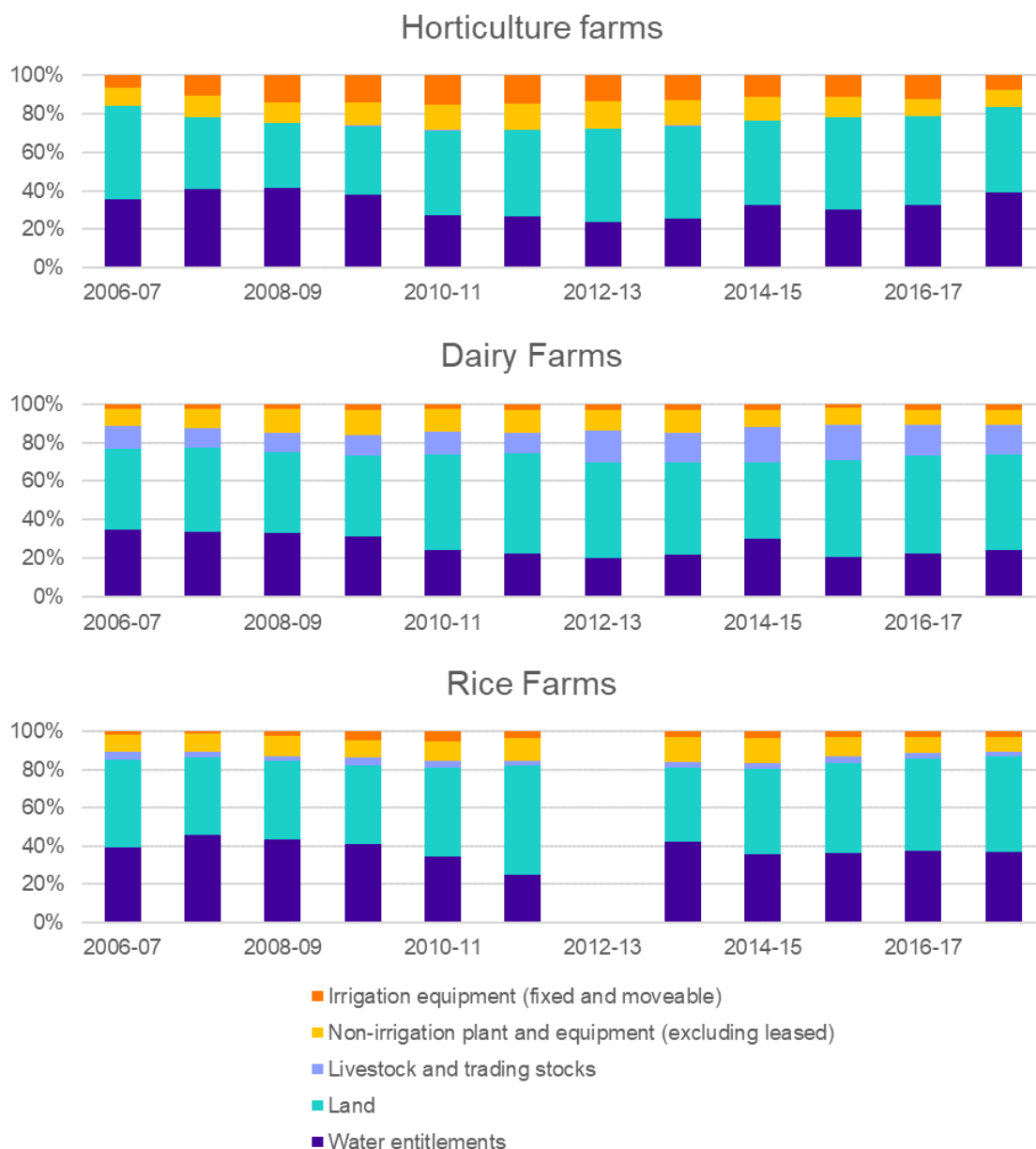
NRM Region*	Cotton	Fruit, nut trees, berry fruits	Grapevines	Cereal grain, seed (wheat, oats, maize)	Pastures & cereal crops for silage (d)	Pasture & cereal crops for grazing	Rice	Vegetables	Total no. of farms irrigating**
Northern Basin	636	231	211	355	64	372	4	205	1 998
Central Tablelands	-	55	45	13	3	34	-	25	192
Central West	81	3	4	65	3	66	3	29	263
Condamine	198	4	-	137	20	136	-	55	558
North West NSW	231	5	-	101	30	64	1	2	422
Queensland MDB	111	78	12	21	7	19	-	58	285
Western***	16	87	150	17	-	53	-	37	278
Southern Basin	188	1 390	1 850	994	470	3 187	513	292	7 329
ACT	-	1	1	1	-	-	-	-	6
Goulburn Broken	-	235	72	116	290	1 113	-	34	1 688
Mallee	-	154	456	19	-	11	-	35	665
Murray	7	35	29	302	29	559	248	26	931
North Central	-	132	101	259	123	981	-	76	1 386
North East	-	57	99	-	19	203	-	5	364
Riverina	181	306	306	279	5	239	265	37	1 131
SA MDB		471	786	19	5	82	-	79	1 159

Source: ABS 4618.0—Water Use on Australian Farms, 2017–18.

Notes: *NRM boundaries do not perfectly overlap with MDB Boundaries. NRM regions have been chosen to achieve the best matched based on geography and how well the sum of the NRM regions compare to the aggregate ABS "MDB" NRM Region. **Numbers across rows may exceed the total number of farms irrigating as some agricultural businesses report grow more than one food type. ***The "Western" NRM regions cut across the northern and Southern Basin, and is also partially outside the MDB. For the purposes of deriving estimates for Northern MDB and Southern MDB, 'Western' is treated as Northern MDB. The ABS has a minimum threshold (by value of operations) for reporting so some very small agricultural businesses who irrigate may be excluded.

Figure A.2 shows that water access entitlements comprise a substantial proportion of the capital assets of most irrigated farms, but this varies by sector (Figure A.2). ABARES data shows that on average for the Southern Basin, water entitlements comprise around 40 per cent of capital assets for horticulture farms, 37 per cent for rice farms, and 25 per cent for dairy farms, as at 2017-18. Importantly, for some farms, the value of entitlements held is equal to or even exceeds the value of land assets.

Figure A.2: Average proportion of capital assets by asset class, by farm type, 2006-07 to 2017-18



Source: ABARES irrigation survey.

Notes: Average per farm. For horticulture: average of 3 regions (Goulburn, Murray, Murrumbidgee); for rice: average of two regions (Murray and Murrumbidgee); for dairy: average of two regions (Murray and Goulburn-Broken).

A.2 The type and level of irrigator engagement with different types of water markets

Water market engagement generally refers to the extent to which an irrigator buys or sells a particular water product, including water access entitlements, water allocations, leases, carryover parking or forward contracts.

As noted in chapter 4, the type and level of water market engagement by an irrigator can vary depending on a diverse range of drivers, including:

- **market-based drivers:** including current and future trends or changes in commodity prices, demand for agricultural products, seasonal weather or longer term climate conditions etc. that can impact water use and water availability (demand and supply) and so drive a decision to buy and sell a water product at a given time
- **institutional and infrastructure drivers:** including trading and operational rules and physical constraints that can impact if, when and how an irrigator can buy or sell water
- **government policy drivers:** including policies governing access to carryover and interventions such as water buybacks or irrigation infrastructure subsidies that can alter the incentives for an irrigator to engage in certain types of water ownership and trade
- **an irrigator's individual circumstances and characteristics:** including the characteristics of the irrigator's business (that is, their farm type, size, location, profitability, debt levels, access to capital etc.), the types of risks they face and their attitudes to managing risk, their access to and use of government programmes, and characteristics of the irrigator themselves, which can include:
 - their ability to collect, process and use market related information (that is, do they have the experience, skills and knowledge to trade, the time and money to meet the informational transaction costs of trading, or access to a water market intermediary to advise or act of their behalf?)
 - their future plans (that is, do they intent to expand, adjust or exit their business?)
 - their attitudes to and confidence in water markets and trading (that is, do they have confidence in water markets and the security of their water rights, or are they uncertain or expect the rules to change?).

Based on various measures outlined below, significant numbers of irrigators are engaging with allocation and entitlement markets across the Basin and the level of this engagement has increased significantly over time. However, the available data also indicates that a relatively significant proportion of irrigators either do not use allocation or entitlement markets at all, or uses them infrequently. Evidence also indicates that only a small proportion of irrigators used leases and even fewer irrigators use the newer water products such as forward contracts and carryover parking. This section summarises the extent to which irrigators engage and do not engage with water markets in the Basin. It makes findings on irrigator engagement with each type of water product and asks questions to inform further analysis.

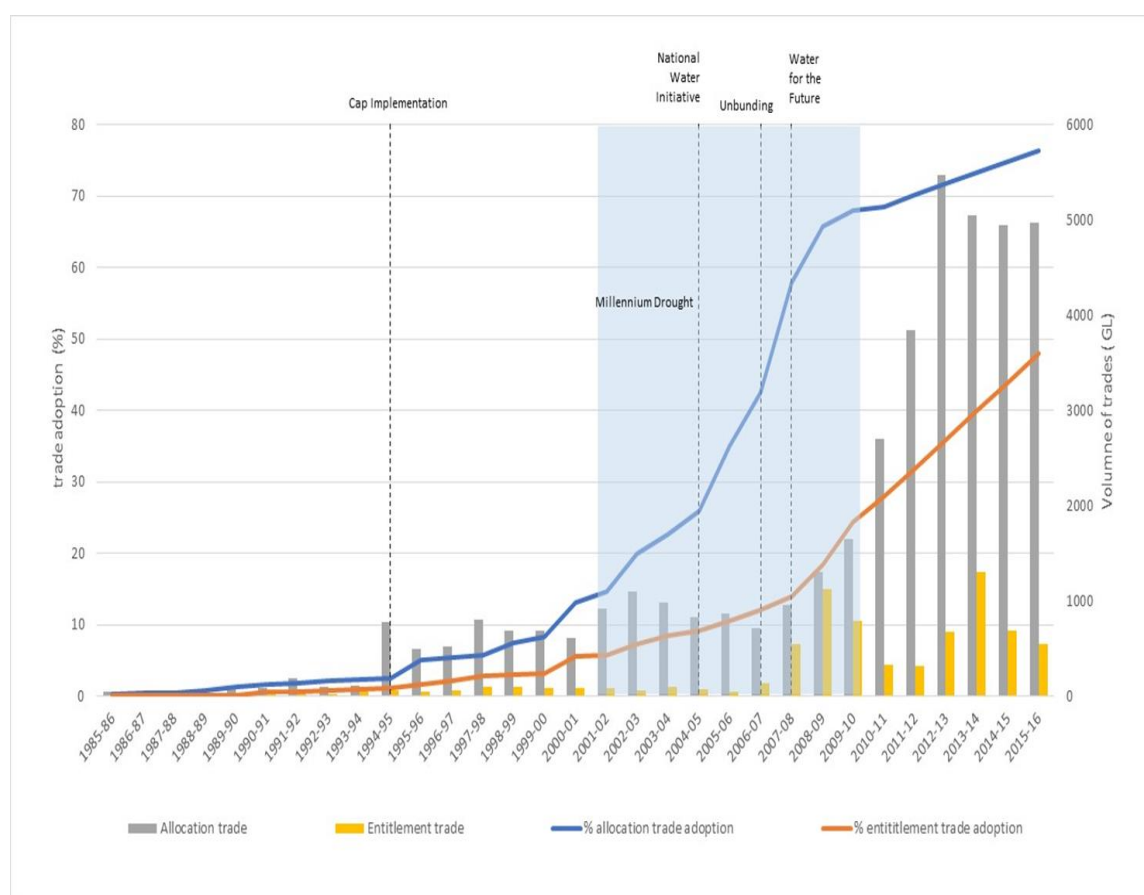
Irrigator engagement with allocation and entitlement trade

One of the highest level indicators of irrigator engagement with water markets is whether they have ever traded an entitlement or allocation. Figure A.3 reports the percentage of surveyed irrigators in the Southern Basin who stated that they had conducted at least one entitlement trade, or at least one allocation trade. The figure also shows the volume of entitlements and allocations traded over time.

Figure A.3 shows that a higher proportion of irrigators in the Southern Basin report having traded allocations than report having traded an entitlement in every year of the time series. It also shows that the proportion of irrigators reporting to have engaged in both types of trade has been increasing year on year. Between 2000-01 and 2015-16, the percentage of irrigators reporting at least one entitlement trade increased from less than 10 per cent to just under 50 per cent. Over the same time period, the percentage of irrigators reporting at least one allocation trade increased from less than 15 per cent to more than 75 per cent.

Figure A.3 shows that the proportion of irrigators reporting a temporary trade increased rapidly with the introduction of National Water Initiative reforms in 2004, while the proportion of irrigators reporting a permanent trade increased with the implementation of the Water for the Future program (water buyback scheme) in 2007–08.

Figure A.3: Irrigator participation in Southern Basin water markets, by proportion of irrigator who have conducted at least one market trade, by volume of trade, 1985 to 2015–16



Source: S Wheeler and others, Water market literature review and empirical analysis, Consultant report prepared for the ACCC Water Market inquiry, 2020, figure 2.1, p. 36.

Note: Graph constructed using historical irrigator survey datasets and various state water market registries.

Alternative indicators of water market engagement that measure irrigator trading behaviour over shorter periods of time can give additional detail on the level of irrigator engagement with allocation and entitlement markets.

Figure A.4 reports the proportion of irrigators in the Southern Basin who stated they had purchased or sold an entitlement or allocation, done both, or done neither, in the five years before being surveyed in 2007–08 and 2014–15.

Similar to Figure A.3, Figure A.4 shows that a higher proportion of irrigators reported trading (purchasing or selling) water allocations in the previous five years than reported trading (purchasing or selling) water entitlements.

For entitlement trade, Figure A.4 shows that a higher proportion of irrigators reported selling an entitlement than purchasing an entitlement in both years surveyed. It also shows an increase in all types of entitlement trade between the two time periods (that is, the proportion of irrigators reporting to have purchased, sold, and purchased and sold an entitlement in the previous five years). Between 2007-8 and 2014-15, the proportion of irrigators reporting they had purchased an entitlement in the previous five years increased from 7 per cent to 20 per cent, the proportion of irrigators reporting they had sold an entitlement increased from around 8 per cent to 34 per cent, while the proportion who purchased and sold increased from 1 per cent to 8 per cent.

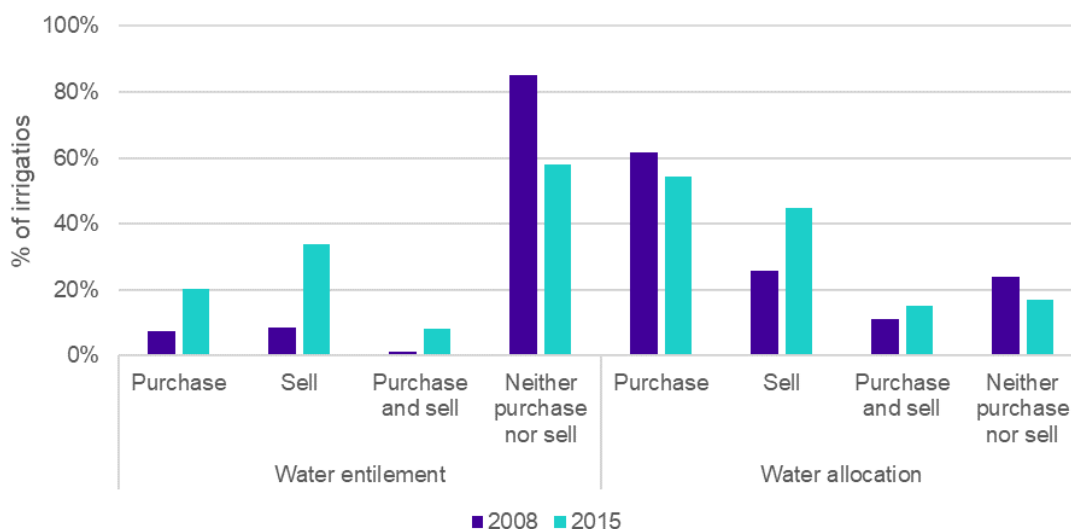
The increase in the proportion of irrigators reporting entitlements trade between 2008-09 and 2014-15 coincides with the end of Millennium drought and the implementation of the government buyback of water entitlements under the Restoring the Balance Programme.

Corresponding to the increase in entitlement trade, Figure A.4 also shows a decrease in the proportion of irrigators reporting no entitlement trade (neither purchasing nor selling) in the previous five years from 85 per cent of irrigators to 58 per cent between 2007-08 and 2014-15. While this data is indicative of irrigators' increasing engagement with entitlement markets, it also highlights that as at 2015, almost 6 out of 10 irrigators in the Southern Basin reported not having bought or sold a water entitlement in the previous five years.

For allocation trade, Figure A.4 shows that in both years surveyed, a higher proportion of irrigators purchased an allocation in the previous five years than sold an allocation. In addition, between 2007-8 and 2014-15, the proportion of irrigators who reported purchasing an allocation decreased slightly, while the proportion reporting selling an allocation increased significantly. This may be reflective of the fact that more irrigators had to enter the temporary market to buy water during the Millennium drought period prior to 2008, compared with the five year period prior to 2015 where water was more available.

Figure A.4 also shows that the proportion of irrigators reporting to have purchased and sold allocations in the last five years increased from 11 per cent to 15 per cent, and that there was a corresponding decrease in the proportion of irrigators reporting no engagement with allocation markets (the proportion of irrigators reporting they had neither purchased nor sold an allocation in the previous five years falling from 24 per cent to 17 per cent of irrigators). As with the entitlement trade data above, while this is indicative of irrigators' increasing engagement with allocation markets, it also highlights that as of 2015, 17 per cent of irrigators in the Southern Basin reported not having bought or sold temporary water in the previous five years.

Figure A.4: Trade in the last five years, (South Australia, Victoria) and Southern Basin



Source: S Wheeler and others, Water market literature review and empirical analysis, Consultant report prepared for the ACCC Water Market inquiry, 2020, figure 6.2, p. 129.

Note: The last five years is the five years before each survey date year in 2007–8 and 2014–15. The questions were: 'We are interested in the changes you have made to your farm operation during the last five years. Have you done any of the following: purchased water entitlements (permanent water rights); sold water entitlements; purchased water allocations (temporary/seasonal water); sold water allocations?'

Figure A.5 shows irrigator trade behaviour in the Southern Basin within a water year in three separate years. It reports the proportion of irrigators who stated they had purchased or sold an entitlement, an allocation, and used carryover in 2009–10, 2010–11 and 2014–15. We emphasise that there are many factors that can cause entitlement and allocation trade to change year on year and these results should be interpreted with caution.

Figure A.5 shows that a higher proportion of irrigators reported trading (purchasing or selling) allocations compared with entitlements within each of the three years surveyed.

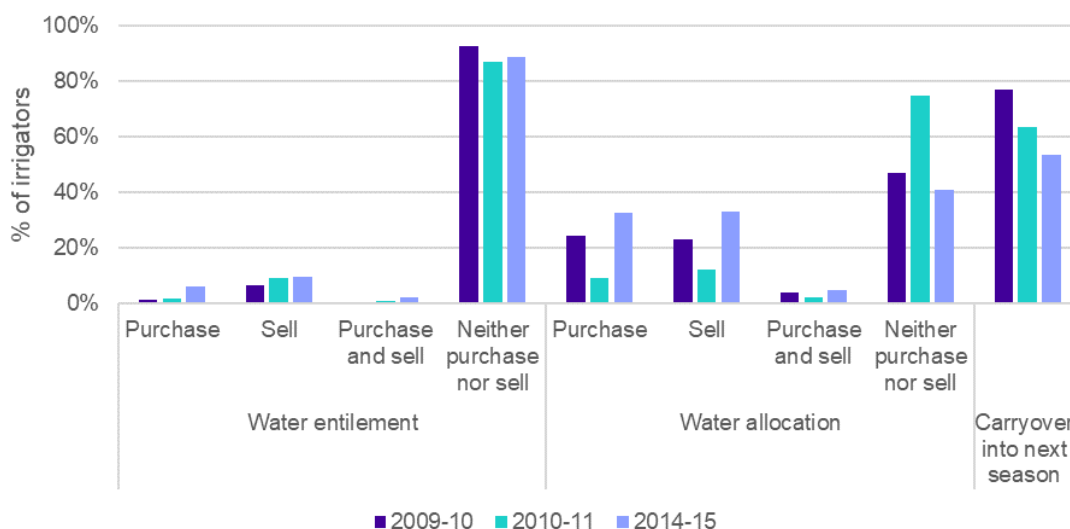
For entitlement trade, Figure A.5 (consistent with Figure A.4) shows that in each of the three years surveyed, a higher proportion of irrigators reported selling a water entitlement compared with buying an entitlement. It also shows that between 2009–10 and 2014–15, the proportion of irrigators who reported trading an entitlement increased (with the proportion reporting a purchase increasing from 1 per cent to 6 per cent, and that reporting a sale increasing from 6 per cent to 10 per cent). Only 2 per cent or less of irrigators reported purchasing and selling an entitlement in any one of the three years surveyed.

The relative infrequency of irrigators engaging in entitlement trade is highlighted in Figure A.5, with between 87 per cent and 90 per cent of irrigators reporting no entitlement trade within any one of the three years surveyed.

For allocation trade, Figure A.5 shows that between 9 per cent and 33 per cent of surveyed irrigators reported purchasing an allocation in a given year, while between 12 per cent and 33 per cent reported selling an allocation in one of these years. Five per cent or less of irrigators reported purchasing and selling an allocation in the same year, and between 41 per cent and 75 per cent of irrigators reported engaging in no allocation trade in any one of the three years surveyed.

The figure also shows a majority of irrigators reported carrying water over in each of the years surveyed. However, the proportion of irrigators reporting use of carryover declined from 77 per cent in 2009–10 to 54 per cent in 2014–15.¹³⁶⁸

Figure A.5: Trade and carryover percentage in a given year, Southern Basin



Source: S Wheeler and others, Water market literature review and empirical analysis, Consultant report prepared for the ACCC Water Market inquiry, 2020, figure 6.1, p. 128.

Finding

Irrigators’ engagement with entitlement markets in the Southern Basin has been increasing over time. Between 2000–01 and 2015–16, the percentage of irrigators reporting at least one entitlement trade increased from less than 10 per cent to just under 50 per cent by 2015–16. However, as at 2015–16, approximately half of irrigators reported never having traded an entitlement, and only a small proportion (less than 10 per cent) reported having bought *and* sold entitlements within the previous five years.

Finding

Irrigators’ engagement with allocation markets in the Southern Basin has been increasing over time. Between 2000–01 and 2015–16, the percentage of irrigators reporting at least one allocation trade increased from less than 15 per cent to more than 75 per cent by 2015–16. However, as at 2015–16, approximately 25 per cent of irrigators reported never having traded an allocation, and only a small proportion (less than 15 per cent) reported having bought *and* sold allocations within the previous five years.

¹³⁶⁸ The ACCC will be further examining use of carryover for the final report, drawing on water account data provided by Basin States.

Irrigators in the Southern Basin use entitlement and allocation trade much more than irrigators in the Northern Basin

Research compared the level of irrigator engagement with allocation and entitlement markets in the northern and Southern Basin by measuring the average number of allocation and entitlement transactions per irrigation business from 2008–09 to 2017–18 (table A.2). They found that irrigation businesses in the Southern Basin were, on average, 4.8 times more likely to have conducted a water allocation trade, and 7.9 times more likely to have conducted a water entitlement trade.

Table A.2: Comparison of key factors influencing irrigator participation in entitlement and allocation markets in the Northern and Southern Basins, various time-periods between 2006–07 and 2017–18

Factor influencing water market engagement	Northern Basin	Southern Basin
Annual average allocation trade rate per business	0.4	2
Average entitlement trade rate per business	0.26	0.51
Regulated Entitlements on issue	53 per cent	85 per cent
Unregulated Entitlements on issue	32 per cent	4 per cent
Groundwater Entitlements on issue	15 per cent	11 per cent
Share of Groundwater of Total Farm Water Extractions	17 per cent	10 per cent
Share of On-fam dam storage (floodplain harvesting) of Total Farm Water Extractions	32 per cent	3 per cent
Share of Irrigation channels of Total Farm Water Extractions	12 per cent	64 per cent
Share of Surface-water of Total Farm Water Extractions	44 per cent	25 per cent
Number of irrigators	3039	10898
Annual irrigation water volumetric/usage charges per ML extracted	\$12	\$28
Area irrigated per business (ha)	124	84
Water extraction monitored	25-51 per cent	77-84 per cent
Cotton industry use of water	79 per cent	6 per cent
Cereals/rice industry use of water	13 per cent	34 per cent
Pasture industry use of water	6 per cent	32 per cent
Fruit/nut/vegetables industry use of water	1 per cent	28 per cent

Source: S Wheeler and others, Water market literature review and empirical analysis, Consultant report prepared for the ACCC Water Market inquiry, 2020, table 2.4, p. 42.

Notes: Based on means of a variety of years, depending on data available from ABS water use on farms, BOM data. 'Trade' means bought or sold an allocation/entitlement. See Wheeler and Garrick (2020) for exact time-periods, data sources and definitions used for the Northern and Southern Basin.

Wheeler and Garrick (2020) compared a range of institutional and demographic factors across the Northern and Southern Basin and identified a number of key differences that they

propose explain this difference in north-south water market participation by irrigators (Table A.2). These included:

- greater hydrological connectivity and storage in the Southern Basin
- greater amount of unregulated water entitlements in the Northern Basin compared with the Southern Basin (32 per cent and 4 per cent respectively)
- greater reliance on groundwater as an irrigation source in the Northern Basin compared with the Southern Basin (17 per cent and 10 per cent respectively)
- greater use of on-farm irrigation storage from flood plain harvesting in the Northern Basin compared with the Southern Basin (32 per cent versus 3 per cent respectively)
- higher water usage charges in the Southern Basin compared with the Northern Basin (133 per cent higher per mega litre extracted in the south compared to the north)
- greater number of irrigators in the Southern Basin compared with the Northern Basin (3.6 times more)
- lower average irrigated area per business in the southern (a third less) than the Northern Basin
- higher monitoring of water extractions in the Southern Basin (77–84 per cent of water extractions are monitored) compared to the Northern Basin (25–51 per cent extractions are monitored)
- greater water use homogeneity in the Northern Basin (cotton industry uses on average 79 per cent of extractable water) than Southern Basin (cereals/rice, pasture and fruit/nut/vegetables all extract around a third each of the total water) (Wheeler and Garrick 2020).

Finding

Irrigators in the Southern Basin use entitlement and allocation markets much more frequently than irrigators in the Northern Basin. Between 2008–09 and 2017–18, Southern Basin irrigators were, on average, 4.8 times more likely to have conducted a water allocation trade, and 7.9 times more likely to have conducted a water entitlement trade compared with irrigators in the Northern Basin.

Irrigator engagement in entitlement and allocation markets differs by farm type

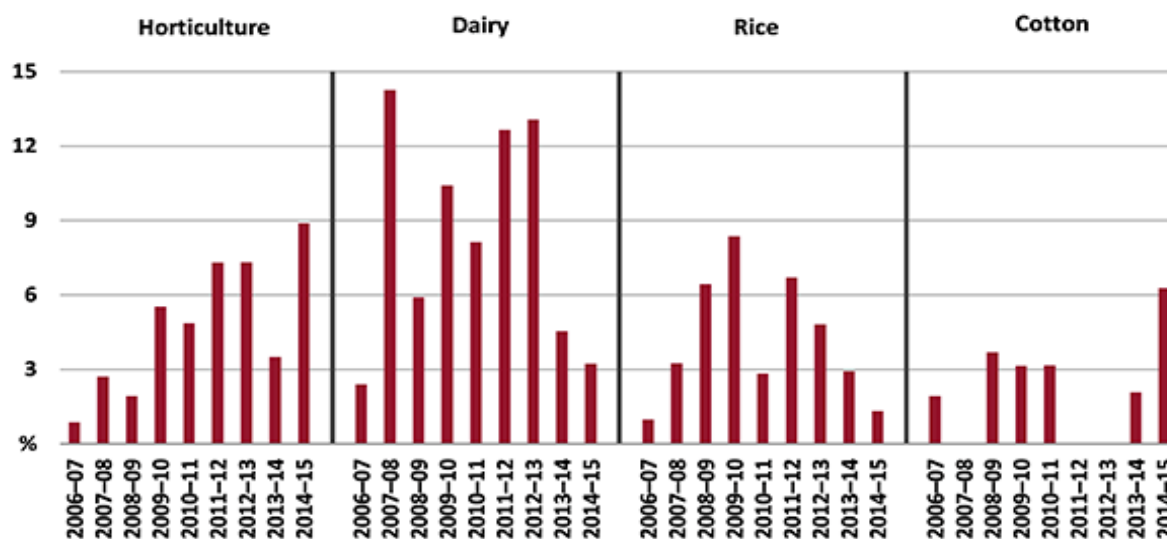
Figure A.6 reports ABARES population estimates on the proportion of farms who reported selling water entitlements, by farm type from 2006–07 to 2014–15.

It shows that from 2006–07 to 2014–15, a relatively small proportion of irrigators of all farm types in the Basin sold water entitlements each year. Dairy farmers, on average, had the highest proportion of reported entitlement sales per year while cotton farms had the lowest. An average of 8 per cent of dairy farms, 6 per cent of horticulture farms, 5 per cent of rice farms and 2 per cent of cotton farms sold entitlements each year.

The same ABARES survey data found that lower proportions of irrigators, on average, reported buying entitlements each year relative to selling. On average, 3 per cent of dairy farms, 3 per cent of irrigated broadacre farms and around 1 per cent of horticulture farms bought entitlements each year.¹³⁶⁹

¹³⁶⁹ ABARES, Irrigated agriculture in the Murray–Darling Basin, ABARES, Canberra, www.agriculture.gov.au/abares/research-topics/surveys/irrigation/overview#water--use-and-trade, viewed 30 June 2020.

Figure A.6: Proportion of farms reporting sales of water entitlements, by farm type, Murray–Darling Basin, 2006–07 to 2014–15



Source: ABARES Murray–Darling Basin Irrigation Survey

Note: Derived population estimates. Water trading data for cotton farms are not available for 2007-08, 2010–11 and 2011–12.

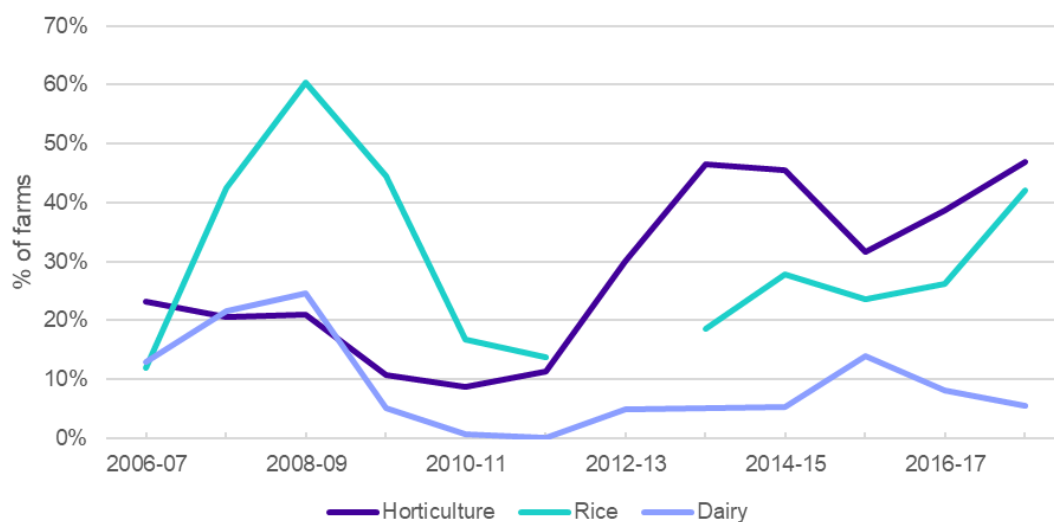
Figure A.7 reports the estimated proportion of farms, by farm type, in the Southern Basin reporting *selling* temporary water in a given year, from 2006–07 to 2017–18. Figure A.8 reports the estimated proportion of farms, by farm type, in the Southern Basin reporting *buying* temporary water in a given year, over the same period of time.

These figures together show that the proportion of irrigation farms trading (buying or selling water allocations) tends to fluctuate closely in line with changes in water availability, with allocation trade lower in wet years (2009–10 and 2010–11), and higher in dry years (pre 2009–10 and post 2010–11), as water is increasingly reallocated to higher value uses as availability declines.

These figures also show how the type of water trading an irrigator undertakes can vary depending on the crop they are growing. From 2006–07, to 2008–09, as water became scarcer during the end of the Millennium Drought, the proportion of rice and dairy farms selling water allocations increased as these farms increasingly reduced output and sold water to generate income (Figure A.7), while the proportion of horticulture farms buying water allocations increased as they were needed to continue watering their permanent plantings (Figure A.8). As water availability increased in 2009–10 and 2010–11, the proportion of irrigators of all farm types buying and selling water decreased as allocations accruing to their permanent water rights increased.

Further, Figure A.8 provides some evidence of the longer term impact on allocation markets of the high rate of water entitlement sales by dairy farmers from 2007–08 to 2011–12 (as reported in Figure A.6 above). The figure shows that from 2012–13 onwards as water availability in the Basin began to decrease again, the proportion of dairy farmers buying water allocations increased dramatically as dairy farmers who had previously sold their permanent water rights increasingly purchased water allocations on the temporary market. Figure A.8 shows that this impact on the allocation market has been ongoing, as the proportion of dairy farmers buying allocations from 2012–13 to 2017–18 remained above that of dairy farmers buying allocations during the last years of the Millennium drought from 2006–07 to 2009–10.

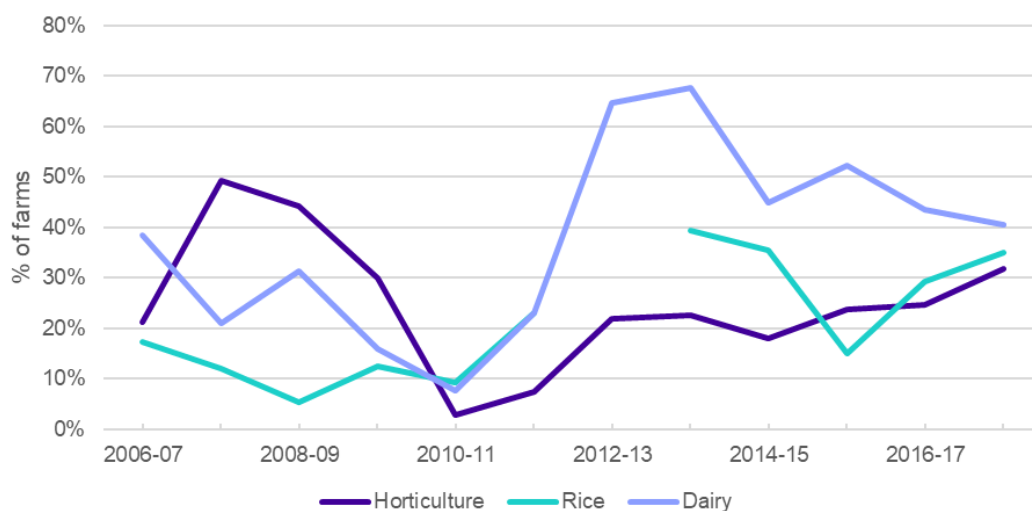
Figure A.7: Proportion of farms selling temporary water, by farm type (per cent), 2006–07 to 2017–18, selected Southern Basin regions



Source: ABARES Murray–Darling Basin Irrigation Survey.

Notes: For Horticulture: average of 3 regions (Goulburn, Murray and Murrumbidgee) for Rice: average of two regions (Murray and Murrumbidgee) for dairy: average of two regions (Murray and Goulburn-Broken).

Figure A.8: Proportion of farms buying temporary water, by farm type (per cent), 2006–07 to 2017–18, selected Southern Basin regions

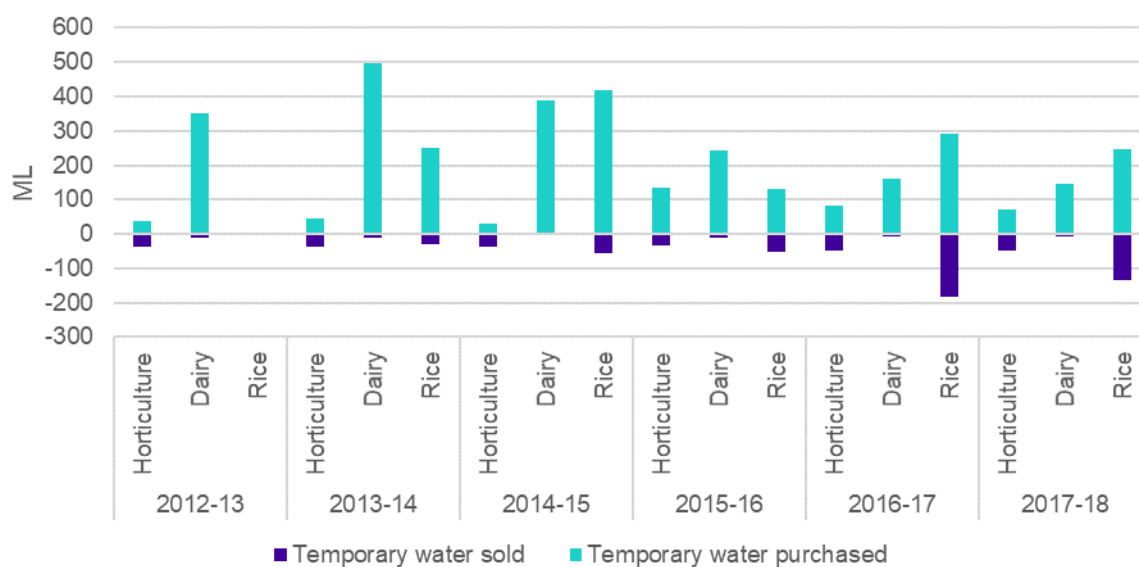


Source: ABARES Murray–Darling Basin Irrigation Survey.

Notes: Data for select Southern Basin regions. For Horticulture: average of three regions (Goulburn, Murray and Murrumbidgee) for Rice: average of two regions (Murray and Murrumbidgee) for dairy: average of two regions (Murray and Goulburn-Broken).

Figure A.9, which reports the average volumes of water traded (sold and purchased) per farm, by farm type, in the Southern Basin in a given year, provides further evidence on how engagement with allocation market differs by farm type.

Figure A.9: Temporary trades, average per farm (ML), by farm type, 2012–13 to 2017–18, selected Southern Basin regions



Source: ABARES Murray–Darling Basin Irrigation Survey.

Notes: For Horticulture: average of three regions (Goulburn, Murray and Murrumbidgee) for Rice: average of two regions (Murray and Murrumbidgee) for dairy: average of two regions (Murray and Goulburn-Broken).

Figure A.9 shows that over the six years surveyed, dairy farmers, on average, have been large net buyers of allocations in the Southern Basin. This is consistent with the analysis of Figure A.7 and Figure A.8 above, and submissions to the inquiry that state that dairy farmers have become more reliant on temporary water markets after sales of water entitlements in past years.¹³⁷⁰

Figure A.9 also shows that while rice farmers, on average, have also been net buyers of temporary water over the years surveyed, there has been an increase in average allocation sales in later years, possibly reflecting the ability of rice farmers to more easily respond to higher water prices by choosing to sell their water rather than producing. In contrast, horticultural farmers, on average, demonstrate the lowest level of net trade per farm and the least variability in trade, which could be indicative of the more stable and less flexible water demands of permanent plantings, or that these farmers adopt a more risk-averse strategy by choosing to hold entitlements which reflect their average water needs, rather than rely on markets.

Finding

The sale of water entitlements over 2006–07 to 2011–12, particularly by dairy farmers in the Southern Basin, has resulted in an increase in the proportion of some irrigators relying on water allocation purchases as drier conditions returned to the Basin from 2011–12 onwards.

Finding

The flexibility of annual cropping irrigators, such as rice farmers, allows them to more easily switch from using/buying water in wetter years, to not using/selling water in drier years. These irrigators tend to demonstrate more variable allocation trade behaviours over time.

¹³⁷⁰ Australian Dairy Industry Council submission, p.1.

In contrast, the more constant water needs of permanent plantings, such as nut and fruit plantations, means horticultural farmers have less flexibility to trade temporary water, and so tend to demonstrate more stable allocation trade behaviours over time.

Irrigators use of other water products

There is a range of water market products such as leases of water entitlements, carryover parking and forward contracts that can be useful tools for securing water while managing price and supply risks. Irrigators have been leasing entitlements from family, friends and other irrigators for many years. However, reforms to water ownership have facilitated the growth of non-landholding investors who hold portfolios of permanent and temporary water and sell a variety of water market products including carryover parking, single or multi-year leases and forward contracts.

There is limited data on the extent to which irrigators are making use of leases and these newer water market products. This section summarises the available information on the type and level of irrigator engagement with these water products.

Leases

Surveys of irrigators have found that only a small minority of irrigators use water from leased entitlements (less than 7 per cent of irrigators across the whole Basin in 2018).¹³⁷¹ Of all irrigators in the Basin surveyed in 2018 who reported using water for irrigation:

- 64 per cent reported using only water sourced from their own entitlements
- 28 per cent reported using water from their own entitlements and allocations purchased on the temporary market
- 1.4 per cent reported using water from their own entitlements and from entitlements they leased from others
- 3.6 per cent reported using water from own entitlements, leased entitlements, and allocations purchased on the temporary market
- 3.2 per cent reported using no water from their own entitlements (all water from purchases on the temporary market and/or leased entitlements).

Information on irrigators' use of leases also comes from semi-structured qualitative interviews undertaken in 2018 with 64 key trade stakeholders in the Basin.¹³⁷² These results suggest that:

- most irrigators and many agribusinesses did not use leases
- the use of leases was strongly associated with the amount of water owned, with smaller irrigators with less permanent water ownership being less likely to use leases than irrigators with larger water holdings
- where a smaller irrigator did use a lease, they are more likely to lease from friends and relatives, from their own self-managed super accounts, or from other irrigators

¹³⁷¹ J Schirmer and D Peel, Understanding participation in water trading by irrigators in the Murray-Darling Basin, Consultant report prepared for the ACCC Water Market Inquiry, 2020, table 8, p. 13. Basin irrigators using surface water (excludes those who rely solely on groundwater).

¹³⁷² S Wheeler and others, Water market literature review and empirical analysis, Consultant report prepared for the ACCC Water Market Inquiry, 2020, p. 142. The results, qualitative data and method are described further on p. 109 of the Consultant's Report and in Seidl, C, Wheeler, SA & Zuo, A 2020a, 'High turbidity: Water valuation and accounting in the Murray-Darling Basin', Agricultural Water Management, vol. 230, and Seidl, C, Wheeler, SA & Zuo, A 2020b, 'Treating water markets like stock markets: Key water market reform lessons in the Murray-Darling Basin', Journal of Hydrology, vol. 581, p. 124-399.

- larger and corporate irrigators who use leases are more likely to use longer-term leases sourced from commercial operators, either as part of leasing land or as a stand-alone water lease from non-landholder investors.¹³⁷³

Finding

A minority of irrigators across the whole Basin (less than 7 per cent) use water from leased entitlements. The available evidence indicates that:

- irrigators with larger holdings of permanent water rights are more likely to use leases than irrigators with smaller holdings on permanent water rights
- where smaller irrigators use leases, they are more likely to lease from friends and relatives, from a self-managed super fund, or from other irrigators
- where larger and corporate irrigators use leases, they are more likely to use longer-term leases sourced from commercial operators, either as part of leasing land or as a stand-alone lease from an investor.

Carryover parking and forward contracts

Carryover parking involves the renting of carryover capacity to a counterparty from one water accounting period to the next, while forward contracts involve the sale of rights to future volumes of water at one or more specific dates at fixed prices. A forward contract may be for one or more years (that is, single-year or multi-year forwards).

There is limited data available on the level of irrigators' use of carryover parking and forward contracts. The ACCC's preliminary analysis of what is available indicates that while relatively significant volumes of water are being transferred under carryover parking and forward contracts, the number of irrigators using these water products is likely to be very small.

ACCC analysis of trading activity undertaken by the water investors in Victoria in 2018–19 shows that these investors took in approximately 17GL of water from irrigators under carryover parking contracts and returned approximately 10 GL to irrigators that year. The same analysis showed that the same investors provided just over 50 GL of water under forward contracts in Victorian in 2018–19.¹³⁷⁴

Other analysis, undertaken by ACCC consultants, of a sample of trade data from a large Southern Basin water broker¹³⁷⁵, found that over the three years from 2016–17 to 2018–19, the broker mediated a total of 40 carryover parking contracts and 48 forward contracts for irrigators supplied by various counter parties, including other irrigators, investors, IIOs other (unidentified) parties.¹³⁷⁶ This analysis, which indicates a relatively small number of carryover parking and forward contracts are being used by irrigators, has been supported by recent academic research on this topic.¹³⁷⁷

¹³⁷³ S Wheeler and others, Water market literature review and empirical analysis, Consultant report prepared for the ACCC Water Market Inquiry, 2020, p. 142 and Seidl, C, Wheeler, SA & Zuo, A 2020a, 'High turbidity: Water valuation and accounting in the Murray-Darling Basin', Agricultural Water Management, vol. 230, and Seidl, C, Wheeler, SA & Zuo, A 2020b, 'Treating water markets like stock markets: Key water market reform lessons in the Murray-Darling Basin', Journal of Hydrology, vol. 581, p. 124-39.

¹³⁷⁴ Chapter 5, figure 5.7.

¹³⁷⁵ The broker was responsible for approximately 11 per cent of all non-zero-price Basin allocation trade volumes in 2018–19.

¹³⁷⁶ S Wheeler and others, Water market literature review and empirical analysis, Consultant report prepared for the ACCC Water Market Inquiry, 2020, p. 142–144.

¹³⁷⁷ Seidl, C, Wheeler, SA & Zuo, A 2020b, 'Treating water markets like stock markets: Key water market reform lessons in the Murray-Darling Basin', Journal of Hydrology, vol. 581, p. 124–39.

Finding

Preliminary ACCC analysis indicates that only a very small proportion of irrigators use carryover parking or forward contracts.

The ACCC will be further investigating the level of use of carryover parking and forward contracts by irrigators for the final report, using trade and water account data provided by Basin States. Chapter 5 includes analysis of the role of investors in providing these water products.

A.3 Irrigator attitudes to water trading and water markets

Stakeholders at public forums and in submissions have expressed to the ACCC a range of positive and negative views on issues directly and indirectly related to water markets and water trading.

Some of these attitudes relate to support or opposition to the idea of water trading in principle, the ease or difficulty of the trading process and the level of confidence people have in water markets and trading rules.

A range of attitudes have been expressed on the reforms that have been implemented over the years to create the current regulatory arrangements governing water ownership and trading, including reforms to separate water from land allowing water to be traded independently from land, the relaxing of trade restrictions on out-of-area trade, changes to allow non-land holders to buy and trade permanent and temporary water, and the compliance and enforcement mechanisms used by State and Commonwealth governments.

Stakeholders have also expressed divergent views on various government policies that indirectly impact water trading and water markets, including government reforms to establish the Basin Plan, the setting of the SDLs, and programmes to recover water for the environment through the buyback of water entitlements and on-farm infrastructure grants.¹³⁷⁸

The ACCC has commissioned analysis of data collected in a number of surveys undertaken across the Basin between 1998 and 2018 to gain a clearer and representative understanding of what views irrigators hold of water markets and trading.

The surveys were undertaken by researchers at the Centre for Global Food and Resources at the University of Adelaide, and the Health Research Institute at the University of Canberra (box A.1). These surveys, amongst other things, asked irrigators about their views and attitudes on:

- water markets
- the process of trading
- water market rules and regulations
- Basin water policy more generally.

This section presents some of the key results from the analysis of this attitudinal data. It also examines associations between attitudes and whether an irrigator engages or does not engage in water trading.

¹³⁷⁸ Submissions to the inquiry can be found on the ACCC's water inquiry webpage at: www.accc.gov.au/focus-areas/inquiries-ongoing/murray-darling-basin-water-markets-inquiry/submissions

Box A.1: Water inquiry consultancies on irrigator engagement with water markets

The ACCC commissioned two consultants to undertake and report on analysis of data from surveys of Basin irrigators collected between 1998 and 2018. The aim of the work was to gain a clearer and more representative understanding of irrigators' water ownership and trading behaviours, and their attitudes to water trading and water markets.

The Centre for Global Food and Resources at the University of Adelaide has conducted various surveys of irrigators across the Basin from 1998 to 2016. These surveys, amongst other things, asked irrigators about their water ownership, water trading and farm management behaviours, and included a limited number of attitudinal questions.

The Health Research Institute at the University of Canberra undertakes an annual survey—the Regional Wellbeing Survey—of people in Australian regional areas. The 2015 and 2016 surveys, amongst other things, asked Basin irrigators about their water use, water ownership and water trading and farm management behaviours. They also asked irrigators to indicate to what degree they agreed or disagreed with various statements related to the process of trading water, their confidence in water markets and water market rules, and the security of their permanent water rights.

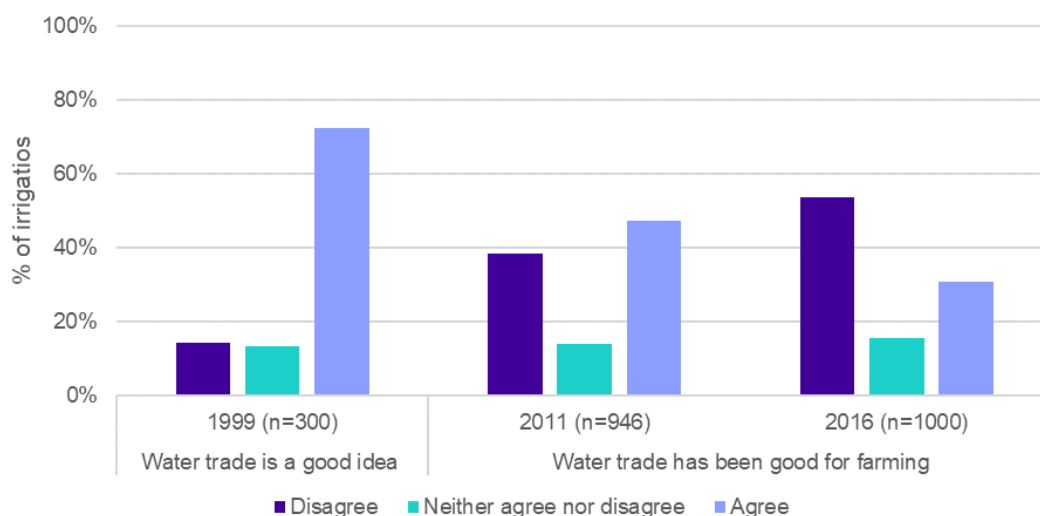
The ACCC has incorporated relevant data and analysis from the consultants' reports in the interim report and will further consider their analysis in the ACCC's final report.

Irrigators' views on water trading

Researchers from the Centre for Global Food and Resources (CGFR) at the University of Adelaide have asked irrigators in various areas of the Basin their views on water trading over a number of years.

Figures A.10 and A.11 present data from four questions asked in irrigator surveys conducted in Northern Victoria in 1999, and more widely across the Southern Basin in 2011 and 2016.

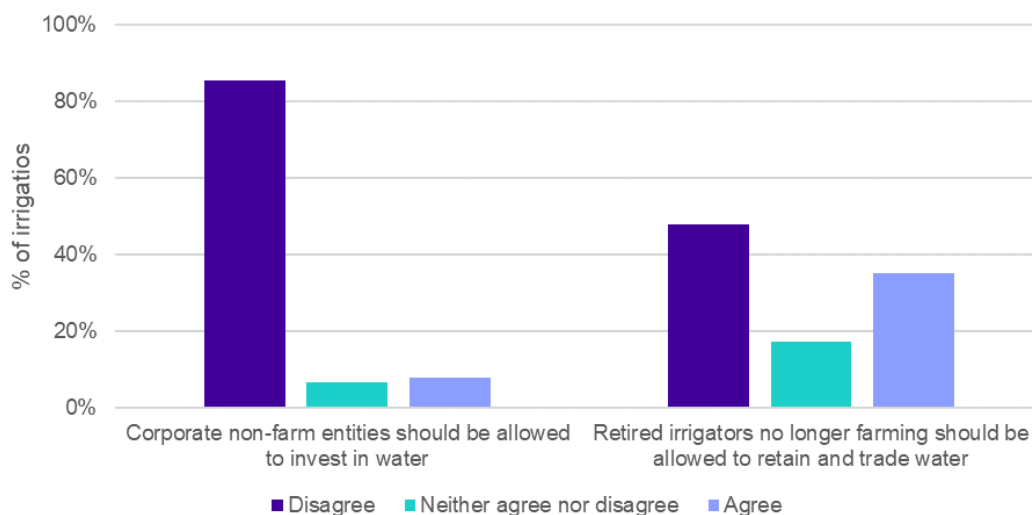
Figure A.10: Irrigators’ attitudes towards water trading in 1999 (GMID), 2011 (sMDB) and 2016 (sMDB)



Source: S Wheeler and others, Water market literature review and empirical analysis, Consultant report prepared for the ACCC Water Market inquiry, 2020, figure 6.9, p. 150.

Note: The question for 1999 is 'Please indicate to which extent you agree with the statements using a 1 to 5 scale with 1 being strongly disagree and 5 strongly agree' and the statement is 'Water trade is a very good idea'. The question for 2010 and 2015 is 'Using the scale strongly disagree (1) to strongly agree (5) could you respond to the following?' and the statement is 'I believe water trading has been a good thing for farming' For clearer illustration, Likert scale answers from 1 to 5 were converted to Disagree (1 and 2), Neutral (3) and Agree (4 and 5). GMID = Goulburn-Murray Irrigation District, Victoria. sMDB = Southern Basin.

Figure A.11: Irrigators’ attitudes towards water trading and water markets, Southern Basin, 2016 (n=1000)



Source: S Wheeler and others, Water market literature review and empirical analysis, Consultant report prepared for the ACCC Water Market inquiry, 2020, figure 6.13, p. 153.

Note: The exact question is 'Using the scale strongly disagree (1) to strongly agree (5) could you respond to the following?' The statements are exactly the same as appeared in the figure. For clearer illustration, Likert scale answers from 1 to 5 were converted to Disagree (1 and 2), Neutral (3) and Agree (4 and 5).

Figure A.10 shows that almost three quarters of irrigators (73 per cent) in the GMID in 1999 agreed (agreed or strongly agreed) with the statement that 'water trading was a good idea' while only 14 per cent disagreed (disagree or strongly disagree). In 2011, less than half of irrigators (46 per cent) in the Southern Basin agreed with the statement that 'water trading

had been good for farming' while 41 per cent disagreed. In 2016, the positive attitude to water trading declined further with only 28 per cent of irrigators in the Southern Basin in 2015 agreeing that 'water trading had been good for farming' while a majority (56 per cent) disagreed with that statement.

Figure A.11 shows that in 2016, the same year that a majority of irrigators in the Southern Basin expressed a negative view on the benefits to farmers of water trading, a strong majority of irrigators (85 per cent) also did not support non-farm entities being allowed to buy water, while almost half of irrigators (48 per cent) did not support retired farmers being allowed to retain and trade water.

Findings

Irrigators in the Southern Basin appear to have become more negative about the idea of water trading over time, with more than half of irrigators surveyed in 2016 believing that water trading had not 'been good for farming'.

A very high proportion of irrigators in the Southern Basin appear to not support the idea that non-farm entities (investors) should be allowed to buy water, with 85 per cent of irrigators surveyed in 2016 not supporting the proposition.

Approximately half of irrigators in the Southern Basin appear to not support the idea that retired farmers should be allowed to retain and trade water.

Irrigators' views on the process of water trading and their confidence in water markets

In the 2015 and 2016 Regional Wellbeing Surveys, irrigators across the Basin were asked to select to what degree they agreed or disagreed with statements related to different aspects of water trading and water markets, including whether irrigators:

- found it easy to trade permanent and temporary water and access the information needed to trade
- felt that water markets were fair and they had confidence in market rules
- felt that environmental water entitlements were subject to the same rules as other entitlements
- felt that their permanent water rights were secure (Figure A.12).

Figure A.12 Attitudinal statements in the Regional Well Being Survey

Thinking about your personal experience, do you agree or disagree that:	Strongly DISAGREE					Strongly AGREE		Don't know
	①	②	③	④	⑤	⑥	⑦	
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
My rights to access water (when it is available) are secure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is easy to trade temporary water if I want to	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is easy to trade permanent water entitlements if I want to	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The water trade market is fair for all users	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel confident to use water trading as part of my farm management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It's easy to access the information I need to make water trading decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Water entitlements held by the government are subject to the same rules and charges as other participants in the water market	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Water market rules are stable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What are the biggest challenges or issues you face when trading water, if any?								

Source: Health Research Institute, University of Canberra, Regional Wellbeing Survey 2015 and 2016.

Figures A.13 and A.14 present the results from of these surveys using four categorises of disagree, neither agree or disagree, agree, and don't know. Overall, the pattern of the views were similar in each year. Views were slightly more positive in 2016 compared to 2015 with the increase in positivity for some views being statistically significant.¹³⁷⁹ Key results from figures A.13 and A.14 are summarised below.

A majority of irrigators across the Basin in 2015 and 2016 agreed that trading temporary water was easy. However, a relatively significant minority of irrigators in both years did not agree that temporary trade water was easy:

- 65 per cent and 71 per cent of irrigators in 2015 and 2016 respectively, agreed that it was easy to trade temporary water
- 17 per cent and 12 per cent of irrigators in 2015 and 2016 respectively, did not agree that it was easy to trade temporary water.

¹³⁷⁹ J Schirmer and D Peel, *Understanding participation in water trading by irrigators in the Murray–Darling Basin*, Consultant report prepared for the ACCC Water Market Inquiry, 2020, section 4, p. 25–7.

A majority of irrigators across the Basin in 2015 and 2016 also agreed that trading permanent water was easy. However, a relatively significant minority in both years did not agree that permanent trade was easy.

- 57 per cent and 63 per cent of irrigators in 2015 and 2016 respectively, agreed that it was easy to trade permanent water.
- 18 per cent and 14 per cent of irrigators in 2015 and 2016 respectively, did not agree that it was easy to trade permanent water.

A majority of irrigators in 2015 and 2016 agreed that the information needed to trade water was easy to access. However, a relatively significant minority of irrigators in both years did not agree with this statement.

- 53 per cent of irrigators in 2015 agreed that it was easy to access the information they needed to trade, while 59 per cent and 64 per cent of irrigators in 2015 and 2016 respectively, agreed that they knew how to access the information they needed to trade.
- 19 per cent of irrigators in 2015 did not agree that information was easy to access, while 17 and 16 per cent of irrigators in 2015 and 2016 respectively, did not agree that they knew where to access the information needed to trade.

Around half of irrigators in 2015 and 2016 felt confident in trading water as part of their farm management. However, a quarter or more of irrigators did not:

- 48 per cent and 53 per cent of irrigators in 2015 and 2016 respectively, agreed that they felt confident in using trade as part of their farm management.
- 28 per cent and 25 per cent of irrigators in 2015 and 2015 respectively, did not express confidence in using water trading as part of their farm management.

Less than a third of irrigators across the Basin in 2015 and 2016 expressed confidence in the fairness of water markets or in water market rules:

- Only 23 per cent and 32 per cent of irrigators in 2015 and 2016 respectively, agreed that the water market was fair for all users.
- Only 16 per cent and 26 per cent of irrigators in 2015 and 2016 respectively, agreed that market rules were stable, while 22 per cent of irrigators in 2015 agreed that recent changes to rules had increased their confidence in water markets.¹³⁸⁰
- 48 per cent and 37 per cent of irrigators in 2015 and 2016 respectively, did not agree that water markets were fair for all users.
- 49 per cent and 43 per cent of irrigators in 2015 and 2016 respectively, did not agree that market rules were stable, while 48 per cent in 2015 did not agree that recent rule changes had increased their confidence in water markets.¹³⁸¹

While a majority of irrigators in 2015 and 2016 expressed confidence in the security of their permanent water access rights, between a quarter and a third of irrigators did not:

- 54 per cent and 60 per cent of irrigators in 2015 and 2016 respectively, agreed that their rights to access water were secure.
- 33 per cent and 24 per cent of irrigators in 2015 and 2016 respectively, did not express confidence in the security of their permanent water access rights.

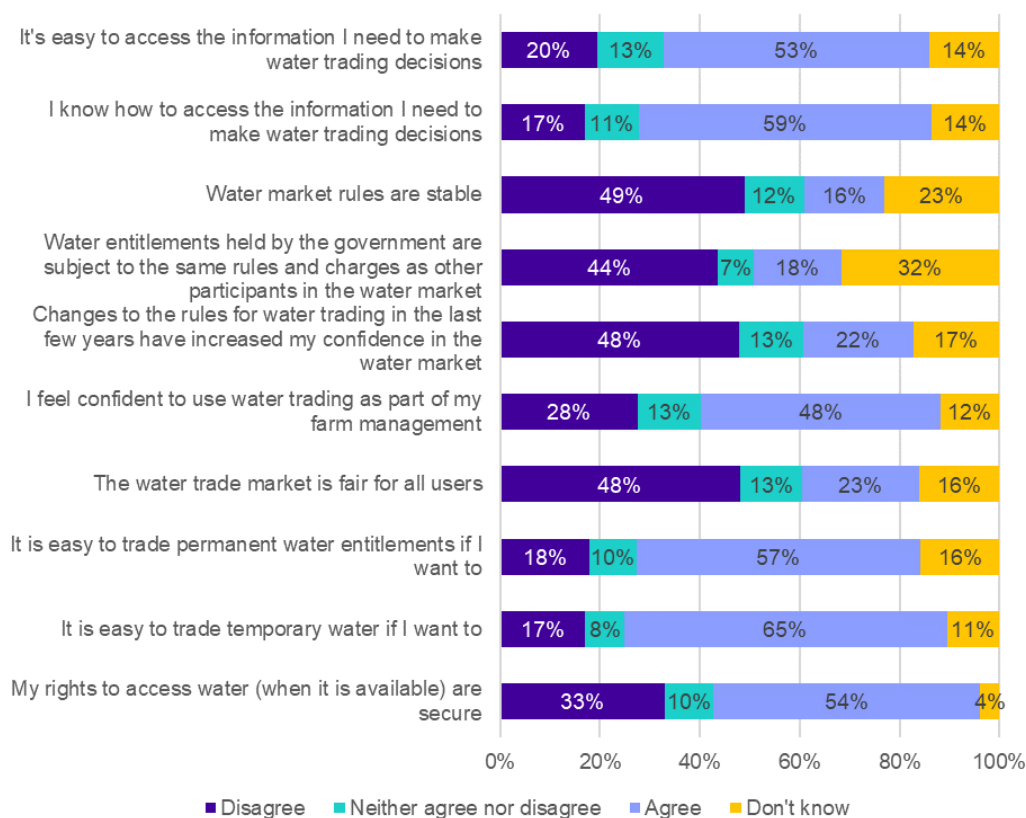
¹³⁸⁰ This question was not asked in 2016.

¹³⁸¹ This question was not asked in 2016.

However, only a quarter or less of irrigators in 2015 and 2016 agreed that entitlements held by the government were subject to the same rules and charges as other participants' entitlements, while more than four in ten irrigators disagreed:

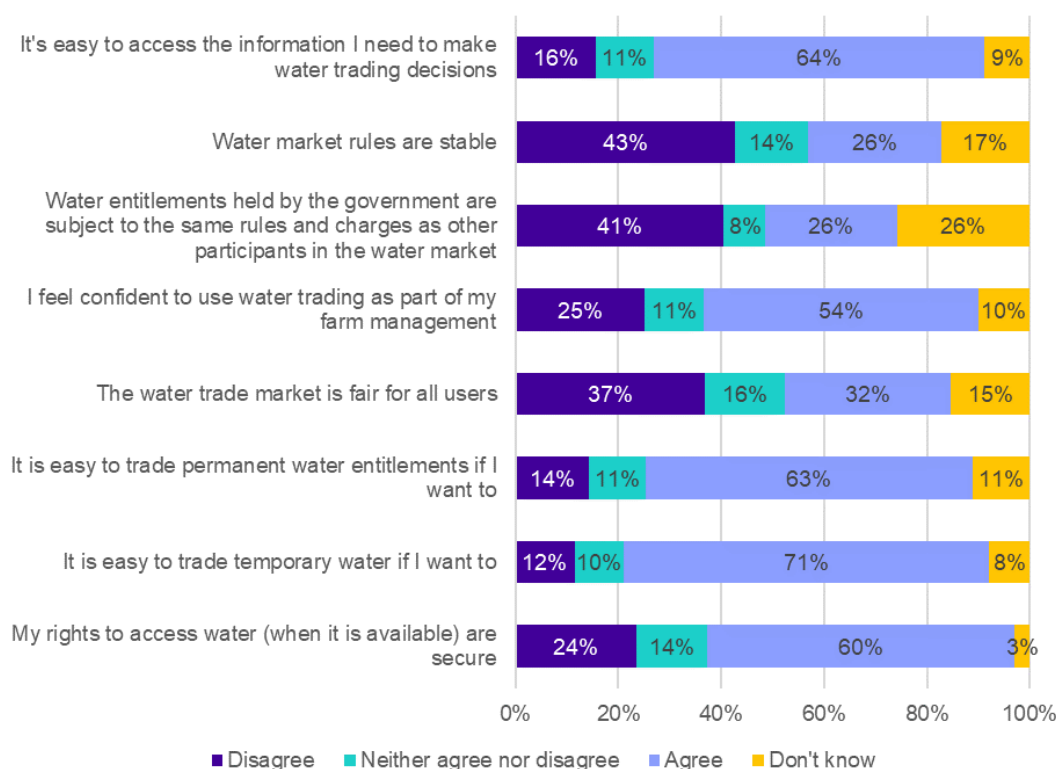
- Only 17 per cent and 26 per cent of irrigators in 2015 and 2016 respectively, agreed that entitlements held by the government were subject to the same rules and charges as other participants' entitlements.
- 44 per cent and 41 per cent of irrigators in 2015 and 2016 respectively, did not agree that government and non-government held entitlements received equal treatment.

Figure A.13: Irrigator views about water markets—Basin irrigators, 2015



Source: J Schirmer and D Peel, Understanding participation in water trading by irrigators in the Murray–Darling Basin, Consultant report prepared for the ACCC Water Market inquiry, 2020, section 4, pp. 25–27.

Figure A.14: Irrigator views about water markets—Basin irrigators, 2016



Source: J Schirmer and D Peel, Understanding participation in water trading by irrigators in the Murray–Darling Basin, Consultant report prepared for the ACCC Water Market inquiry, 2020, section 4, pp. 25–27.

Note: In comparison to Figure A.13, several questions were not asked in the 2016 survey.

Finding

While majorities of irrigators express positive views on the ease of making temporary and permanent trades, being able to access the information needed to trade, feeling confident in trading water, and in the security of their permanent water rights, relatively significant minorities of irrigators express opposing views on each of these issues, including:

- 12 to 18 per cent of irrigators not agreeing that trading temporary or permanent water was easy
- 17 to 19 per cent not agreeing that the information needed to trade water was easy to access
- 25 to 28 per cent not agreeing that they felt confident in using water trading
- 24 to 33 per cent not agreeing that their rights to access water were secure.

In contrast to the relatively positive views on the ease of trading permanent and temporary water, irrigators express low levels of confidence in the fairness of water markets, water market rules, and the treatment of government owned water entitlements, with only 23 per cent to 32 per cent of irrigators believing that water markets were fair for all users.

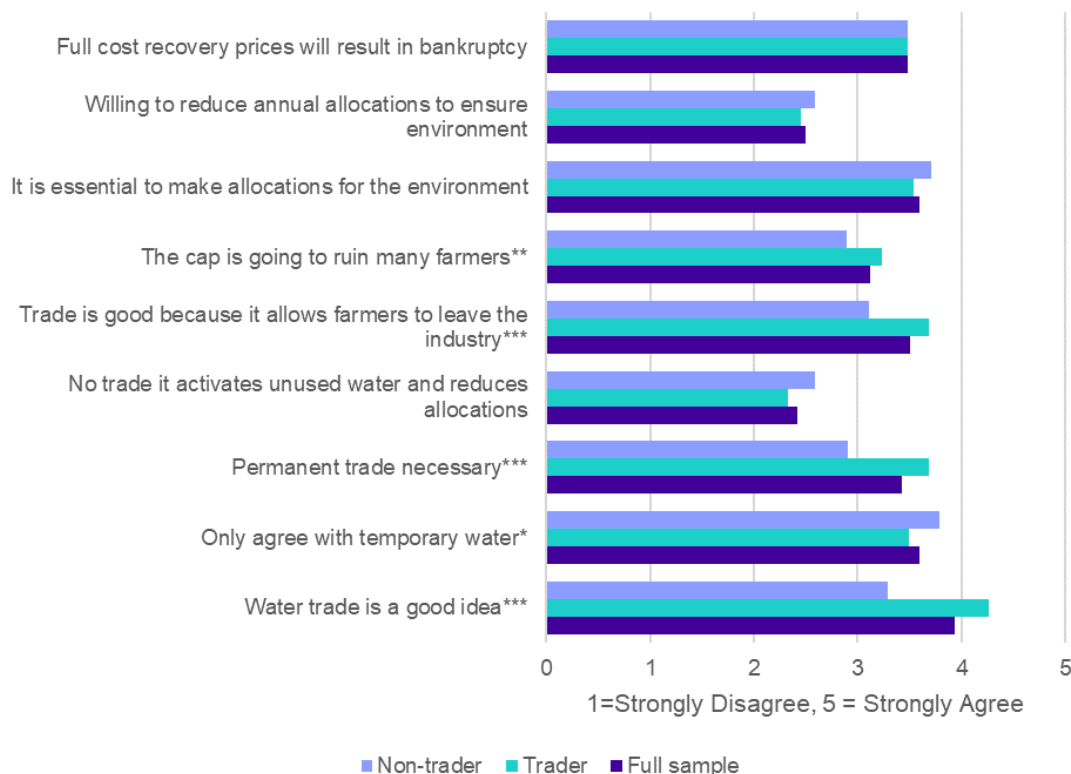
Some attitudes vary significantly between irrigators that trade and those that do not

There is limited data on if or how an irrigator’s attitudes to water trading, water markets or water policy may affect whether they engage or do not engage in water trading. To examine this questions, the ACCC asked its consultants to analysed irrigator survey data from 1999

to 2016 to see if there were significant differences between the attitudes of trading and non-trading irrigators.

Figure A.15 compares various attitudes on water trading and water policy held by irrigators who traded and did not trade allocations in the GMID in 1999. The figure shows that irrigators, on average, who engaged in allocation trading held more positive attitudes to water trading. Allocation traders were, on average, significantly¹³⁸² more likely to agree than non-traders with the statements that ‘trade is good because it allows farmers to leave the industry’, ‘permanent trade is necessary’ and ‘water trading is a good idea’.

Figure A.15: Irrigators’ attitudes in 1999 towards water trading and water markets, 1998–99, GMID



Source: S Wheeler and others, Water market literature review and empirical analysis, Consultant report prepared for the ACCC Water Market inquiry, 2020, figure 6.10, p. 151.

Note: *, ** and *** represents significant differences between trader and non-traders at the 0.10, 0.05 and 0.01 significance level, respectively. GMD = Goulburn-Murray Irrigation District, Victoria.

Figure A.16 compares attitudes towards water trading and behaviour held by irrigators in 2011 who traded and did not trade allocations and entitlements in Southern Basin in 2009–10.

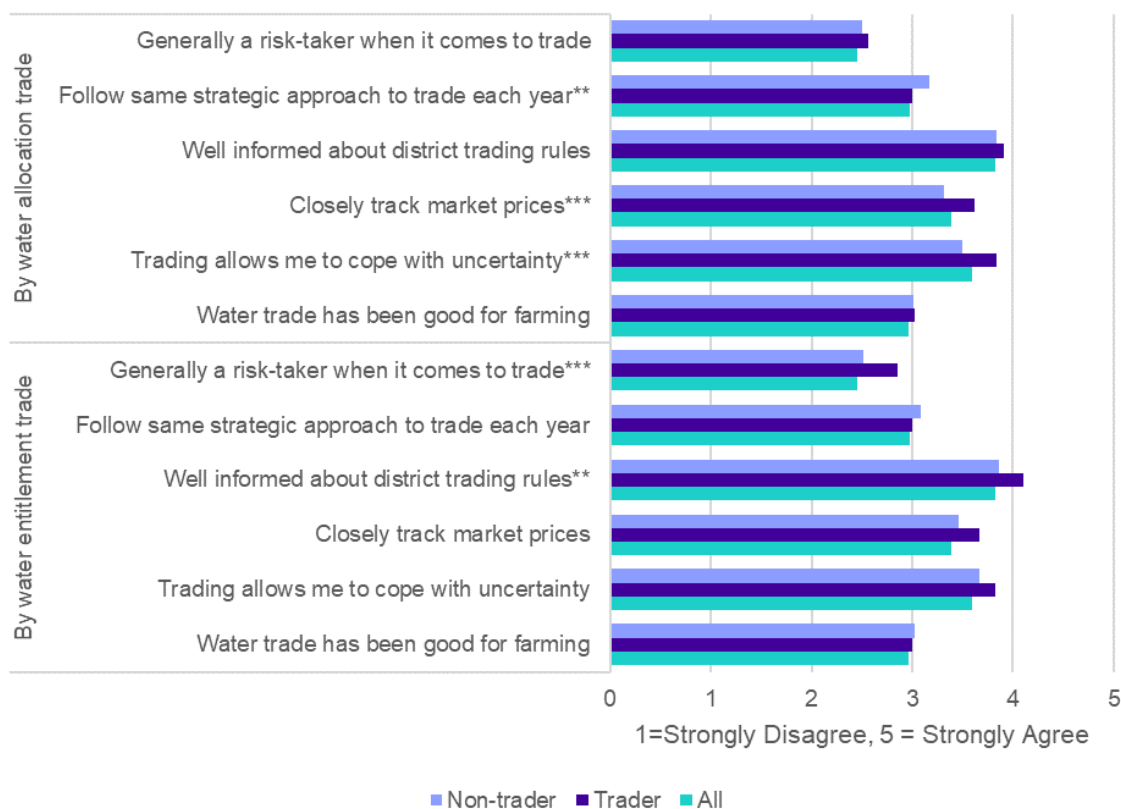
The figure shows that, on average, irrigators who engaged in allocation trade held more positive attitudes to water trading. Allocation traders were, on average, significantly¹³⁸³ more likely to agree than non-traders with the statements that ‘trading allows me to cope with uncertainty’ and ‘closely track market prices’. Irrigators who engaged in entitlement trade also held more positive attitudes to risk taking and about being well informed about trading. Irrigators who engaged in entitlement trade were, on average, significantly more likely to agree than non-traders with the statements that they were ‘generally a risk taker when it

¹³⁸² ‘Significantly’ should be interpreted to refer to statistical significance to a 0.01 significance level, unless stated otherwise.

¹³⁸³ ‘Significantly’ should be interpreted to refer to statistical significance to a 0.01 significance level, unless stated otherwise.

comes to trade’, and to a lesser extent, that they were ‘generally well informed about district trading rules’.

Figure A.16: Irrigators’ attitudes in 2011 towards water trading and behaviours, Southern Basin, 2009–10



Source: S Wheeler and others, Water market literature review and empirical analysis, Consultant report prepared for the ACCC Water Market inquiry, 2020, figure 6.12, p. 152.

Note: ** and *** represents significant differences between trader and non-traders at the 0.05 and 0.01 significance level, respectively.

The exact question is ‘Using the scale strongly disagree (1) to strongly agree (5), could you respond to the following?’ The statements related to this figure are ‘I am generally a risk taker when it comes to allocation trades’, ‘I usually follow the same strategic approach to allocation trading each year’, ‘I am well informed about the trading rules in my district’, ‘I closely track water market prices to obtain maximised trade outcomes’, ‘Trading water allows me to cope with seasonal uncertainty’, ‘I believe water trading has been a good thing for farming’.

Tables A.3 and A.4 compare various attitudes expressed in 2016 by irrigators who traded and did not trade allocations and entitlements in the Southern Basin in 2014–15. Grey rows signify a statistically significant difference in the attitude score between traders and non-traders.

Table A.4 shows that in 2016 irrigators who traded allocations in the Southern Basin, relative to irrigators who did not trade, had a significantly:

- more positive attitude to water trading (that is, they agreed more than non-traders with the statement ‘I believe water trading has been a good thing for farming’)
- more positive attitude to investors (that is, they agreed more than non-traders with statements ‘Retired irrigators no longer farming should be allowed to retain and trade water’ and ‘Corporate non-farm entities should be allowed to invest in water’)
- more positive attitude to environmental water recover and the Basin Plan (that is, they agreed less than non-traders with the statements that ‘The Commonwealth

Environmental Water Holder belongs in the agriculture not the environment department' and 'I believe the Basin Plan should be suspended')

- less traditional attitude to farming (that is, they agreed less than non-traders with the statements 'Farming is the only occupation I want to do' and 'I could never imagine living anywhere other than this area').

Table A.5 shows that in 2016 irrigators who traded entitlements in the Southern Basin, relative to irrigators who did not trade, had a significantly:

- more positive attitude to water trading (they agreed more than non-traders with the statement 'I believe water trading has been a good thing for farming')
- more positive attitude to water investors (they agreed more than non-traders with the statement 'Corporate non-farm entities should be allowed to invest in water')
- more positive attitude to environmental water recovery and the Basin Plan (they agreed more than non-traders with the statements 'Most irrigators think increasing environmental water flows is a good thing', 'It is essential to make allocations to the environment otherwise irrigation will not be long-term sustainable', 'The Murray–Darling Basin Authority is serious about helping our community to solve our own environmental flow problems' and 'More money should be spent on water buybacks by the Commonwealth', they agreed less than non-traders with the statements 'The Commonwealth Environmental Water Holder belongs in the agriculture not the environment department' and 'I believe the Basin Plan should be suspended').

Finding

In 2016, Irrigators who engaged in water entitlement and allocation trade in the Southern Basin, relative to irrigators who did not trade, had a significantly more positive attitude to water trading, to investors owning water, to environmental water recovery, and the Basin Plan, and less traditional attitudes to farming.

Table A.3: Attitudes of water allocation traders vs non-traders in 2016, NSW, VIC, SA Southern Basin survey (based on 2014–15 trading history)

Farm and farmer characteristics	Non-water allocation trader (n=404)	Allocation trader (n=595)	Two sample t-test (p-value)
Farming is the only occupation I can imagine doing	3.84	3.65	0.03a
Financial gain is the only reason for my involvement in farming	2.56	2.44	0.11a
I am generally a risk taker when it comes to operating my farm business	3.10	3.04	0.48a
I believe water trading has been a good thing for farming	2.22	2.70	0.00a
I could never imagine living anywhere other than this area	3.49	3.24	0.00a
Knowing about new technology that becomes available is important to me	4.12	4.22	0.10a
We would be willing to have our seasonal allocations reduced to ensure sufficient water for the environment	1.59	1.58	0.95a
Most irrigators think increasing environmental water flows is a good thing	1.93	2.03	0.19a
Generally I feel optimistic about my future in this region	3.30	3.26	0.59a
It is essential to make allocations to the environment otherwise irrigation will not be long-term sustainable	2.52	2.63	0.23a
I want to continue farming for as long as I am able	4.25	4.18	0.21a
I like to make my own decisions and not be too influenced by others	4.41	4.30	0.04a
The CEWH belongs in the agriculture not the environment department	4.17	4.05	0.08a
The water portfolio belongs in the agriculture not environment department	4.39	4.29	0.11a
Corporate non-farm entities should be allowed to invest in water	1.52	1.69	0.01a
Retired irrigators no longer farming should be allowed to retain and trade water	2.58	2.92	0.00a
Water buybacks for the Basin Plan should be suspended	3.91	3.93	0.80a
More money should be spent on on-farm irrigation infrastructure by the Commonwealth	3.88	3.75	0.08a
More money should be spent on water buybacks by the Commonwealth	2.05	1.96	0.28a
The Murray–Darling Basin Authority is serious about helping our community to solve our own environmental flow problems	2.44	2.44	0.92a
I believe the Basin Plan should be suspended	3.60	3.43	0.06a
Irrigation infrastructure money has been wasteful and	3.54	3.37	0.04a

inefficient

I would rather irrigation infrastructure money was spent instead on rural health and education services 2.72 2.66 0.39a

Source: S Wheeler and others, Water market literature review and empirical analysis, Consultant report prepared for the ACCC Water Market inquiry, 2020, table 6.5, p. 118–119

Notes: Attitudinal statements are measured by Likert scales from 1=strongly disagree to 5=strongly agree. a Two sample equal mean test (t-stat) for continuous and Likert scale variables were used. b Two sample equal proportion test (z-score) for binary variables were used. c Pearson Chi-squared test was used for categorical variables.

Table A.4: Attitudes of water entitlement traders vs non-traders in 2016, NSW, VIC, SA Southern Basin survey (based on 2014–15 trading history)

Farmer attitude	Entitlement trade in 2014-15 (1=yes; 0=no)		
	Non-entitlement trader (n=864)	Entitlement trader (n=135)	Two sample t-test (p-value)
Farming is the only occupation I can imagine doing	3.73	3.70	0.85a
Financial gain is the only reason for my involvement in farming	2.48	2.54	0.60a
I am generally a risk taker when it comes to operating my farm business	3.06	3.08	0.84a
I believe water trading has been a good thing for farming	2.42	3.04	0.00a
I could never imagine living anywhere other than this area	3.36	3.21	0.23a
Knowing about new technology that becomes available is important to me	4.16	4.33	0.05a
We would be willing to have our seasonal allocations reduced to ensure sufficient water for the environment	1.57	1.68	0.20a
Most irrigators think increasing environmental water flows is a good thing	1.93	2.34	0.00a
Attitude: Generally I feel optimistic about my future in this region	3.27	3.36	0.40a
It is essential to make allocations to the environment otherwise irrigation will not be long-term sustainable	2.54	2.86	0.01a
I want to continue farming for as long as I am able	4.21	4.22	0.86a
I like to make my own decisions and not be too influenced by others	4.34	4.33	0.80a
The CEWH belongs in the agriculture not the environment department	4.14	3.84	0.00a
The water portfolio belongs in the agriculture not environment department	4.36	4.14	0.01a
Corporate non-farm entities should be allowed to invest in water	1.59	1.80	0.03a
Retired irrigators no longer farming should be allowed	2.75	2.96	0.11a

to retain and trade water

Water buybacks for the Basin Plan should be suspended	3.96	3.70	0.03a
More money should be spent on on-farm irrigation infrastructure by the Commonwealth	3.79	3.86	0.53a
More money should be spent on water buybacks by the Commonwealth	1.97	2.20	0.03a
The Murray–Darling Basin Authority is serious about helping our community to solve our own environmental flow problems	2.38	2.79	0.00a
I believe the Basin Plan should be suspended	3.55	3.15	0.00a
Irrigation infrastructure money has been wasteful and inefficient	3.51	3.02	0.00a
I would rather irrigation infrastructure money was spent instead on rural health and education services	2.70	2.53	0.08a

Source: S Wheeler and others, Water market literature review and empirical analysis, Consultant report prepared for the ACCC Water Market inquiry, 2020, table 6.7, p. 123–124

Notes: Attitudinal statements are measured by Likert scales from 1=strongly disagree to 5=strongly agree. a Two sample equal mean test (t-stat) for continuous and Likert scale variables were used. b Two sample equal proportion test (z-score) for binary variables were used. c Pearson Chi-squared test was used for categorical variables.

Appendix B—Overview of Exchanges

H2OX

H2OX launched in 2015, with an aim to make water trading more transparent and financially secure. In particular, its objective was to bring all the intermediaries operating in the Murray–Darling Basin together so that trading was in one spot to provide price discovery and transparency.¹³⁸⁴ The intention was to take the financial and settlement administration side out of the brokers business to develop a central clearing house.¹³⁸⁵ H2OX operates an online real-time exchange for entitlements and allocations, including trading between a client’s own licences. Users of the exchange include water users, brokers and their clients, and non-irrigator market participants.

Users choose which offers they match with on the exchange, providing flexibility for sellers and buyers to choose the trading zones they match with and to offer partial or full volume trades.

H2OX’s broker member agreements and trading rules do not allow brokers to be principal to a trade, and the exchange was designed to eliminate mark-up by brokers.¹³⁸⁶

H2OX also provides advisory services and can facilitate trading arrangements for other water products such as options, forwards, parking and leasing.

H2OX also provide services for managing client internal transfers between zones affected by inter-valley and Barmah Choke trade restrictions, and the provision of presentations on Southern Murray–Darling Basin water markets.

The H2OX exchange allows for trade across New South Wales, Victoria and South Australia.

H2OX supports trading of temporary and permanent water trading on their exchange, and manage leases, parking, forwards and options off their exchange.

H2OX maintains an escrow account to facilitate trades and holds the buyer’s funds until trades are approved by relevant authorities, at which point the funds are released to the seller.¹³⁸⁷

Waterexchange/WEX Water

Waterexchange offers both live auctions and listings with buy it now pricing. Waterexchange operates a live market and clearing house for trading in the Southern Connected Murray–Darling Basin, but has also extended trading to Queensland in recent years. Waterexchange has automatic matching, and where the platform finds a match it will automatically create a transaction and notify parties to the trade, and the rules do not allow a broker to act as a principal in a trade.¹³⁹⁰

Waterexchange was originally established in 1994¹³⁹¹, and prior to 2017, Waterexchange was limited to Ruralco brokers.¹³⁹²

¹³⁸⁴ S Locke, 'A stock exchange for water trading as H2OX launches but irrigators say it is just another tool for trading', *ABC News*, 5 August 2015, <https://www.abc.net.au/news/rural/2015-08-05/water-stock-exchange/6674982>, viewed May 2020.

¹³⁸⁵ *ibid.*

¹³⁸⁶ *ibid.*

¹³⁸⁷ H2OX, 2020, www.h2ox.com/how-much-can-i-save/, viewed April 2020.

¹³⁹⁰ Waterexchange, *Client Registration Pack Terms and Conditions*, 2011, https://www.waterexchange.com.au/files/EULA_client_agreement_20111128.pdf, viewed 23 June 2020.

¹³⁹¹ WEX Water Pty Ltd, Submission to the Murray–Darling Basin water markets inquiry, February 2020, p. 1.

¹³⁹² A Marshall, 'Ruralco opens its water trading floodgates to wider market', *Farm Online*, 19 July 2017, <https://www.farmonline.com.au/story/4799402/ruralco-opens-its-water-trading-floodgates/>, viewed 23 June 2020.

Waterexchange lists its customers as individuals, brokers and also approval authorities such as Sunwater, Murrumbidgee Irrigation and others. Both the buyer and seller are charged fees for completed trades.

Waterexchange facilitates spot allocation trades, entitlement sales, forward allocation agreements, entitlement leases and carryover capacity.

They provide services such as preparing contracts and lodging trade forms with the relevant authorities.¹³⁹³ Waterexchange also offers connection to local water brokers for brokerage services.

Waterexchange also provides services to a number of approval authorities, who are able to use Waterexchange to approve trades online.¹³⁹⁴

Waterfind

Waterfind operates an online real-time trading exchange for temporary and permanent water on spot and forward markets. Orders are matched on the exchange based on price, volume and tradability. The matching process is 'based on trading rules built into [the] exchange and amended from time to time when temporary restrictions are in place.'

Users of Waterfind's exchange include brokers and water users, including irrigators, investors, corporations, government and authorities. Waterfind offer water brokerage services to water market participants regardless of scale and whether government or corporate.

Waterfind can also facilitate arrangements for carryover parking and long-term leasing and provide brokerage, valuation, advisory and prospecting services. Waterfind also offers historical data on trade volumes and prices, allocations, storage levels, climate and commodity prices.

Waterfind facilitates trade in the Murray–Darling Basin across New South Wales, Victoria and South Australia.

Waterfind facilitates trading of temporary and permanent water in spot and forward markets on their exchange, and can arrange carryover parking and leases off exchange.

Waterfind operates a trust account that receives monies from buyers. Waterfind distributes payments to sellers after approval.¹³⁹⁹

Waterfind also precludes brokers from acting as principals in trades.¹⁴⁰⁰

Waterpool

Waterpool Trading operates a not-for-profit online trading exchange offering both a real-time regular trade room and a weekly pool for water trading. Participation in the weekly pool does not require any additional registration from sellers and is managed by an opt-out process. Traders include water users, agribusinesses and investors.¹⁴⁰¹

¹³⁹³ Waterexchange, *Client Registration Pack Terms and Conditions*, 2011, https://www.waterexchange.com.au/files/EULA_client_agreement_20111128.pdf, viewed 23 June 2020.

¹³⁹⁴ WEX Water Pty Ltd, Submission to the Murray–Darling Basin water markets inquiry, 13 February 2020, p. 1.

¹³⁹⁹ Waterfind, *Trading Water in Queensland*, 2017, www.waterfind.com.au/wp-content/uploads/2017/05/2017-water-trading-in-qlld-fact-sheet.pdf, viewed June 2020.

¹⁴⁰⁰ ACCC, *Water market intermediaries: industry developments and practices*, December 2010, Canberra, p. 15. A copy of the report is available at: www.accc.gov.au/system/files/Water%20market%20intermediaries%20-%20industry%20developments%20and%20practices_0.pdf.

¹⁴⁰¹ Waterpool, 2020, <https://www.waterpool.org.au/content/about>, viewed May 2020.

While matching on the weekly pool is automated, the real-time trade room requires buyers and sellers to accept offers for sale or purchase that have been posted onto the exchange. Unmatched offers are subsequently included in the weekly pool. Trade can occur anonymously while information on historical trades and current offers are publicly available. Trades processed through the pooled exchange are limited to Victoria. Waterpool Trading's exchange is limited to temporary and permanent water trading.

Waterpool operates a holding account that receives water purchase monies from buyers. Waterpool distributes payments to sellers following approval of the trade.¹⁴⁰²

Waterpool communicates with the Victorian Water Register to process allocation trade approvals, and also lodges relevant forms with other trade approval authorities.

Water Exchange (Murray Irrigation Limited)

Murray Irrigation Limited's (MIL) Water Exchange is an online real-time exchange that facilitates the trading of temporary water and water delivery rights on a spot market only. The trade of delivery rights is limited to members of MIL.

Users can submit sell offers and buy bids, which are matched by the exchange (lowest sell offer to highest buy bid). Buyers can also accept offers for sale that have been posted onto the exchange. Current offers and a daily aggregate of historical trades for the current water year are publicly available.

MIL's Water Exchange is limited to temporary water and water delivery rights.

MIL operates a separate non-interest bearing account for Water Exchange that receives commission fees, any applicable transfer fees and water purchase monies from buyers. MIL subsequently distributes payments to sellers, less commission fees, any applicable external transfer fees and any other debt owed to MIL.

The individual licence holder is responsible for paying the WaterNSW transfer fee to WaterNSW, and MIL will transfer the water allocation after approval for the trade has been received from WaterNSW.

WaterMart (Coleambally Irrigation Co-operative Limited)

The Coleambally Irrigation Co-operative Limited (CICL) WaterMart Exchange is an online real-time exchange that facilitates the trading of temporary water within the Coleambally Irrigation Area and provides CICL members with access to the Southern Connected Basin water markets. All market participants can register to trade on the exchange.¹⁴⁰⁸

WaterMart does not offer brokerage services and does not offer any water market advice.

CICL describe the volumes of their trades as 'not significant' compared to the total transactions in the Murrumbidgee.¹⁴⁰⁹

CICL's WaterMart is limited to the trade of temporary water only.

In addition to the matching service, WaterMart also provides electronic invoicing, settlement and approvals. Buyers and sellers are charged the same flat fees when both parties are

¹⁴⁰² Waterpool 2019, *Pooled Water Exchange & Traderoom Trading Rules*, July 2019, <https://www.waterpool.org.au/data/resources/files/Policies/waterpool%20trading%20rules%20v6%20july%202019.pdf>, viewed May 2020.

¹⁴⁰⁸ Coleambally Irrigation Co-operative Limited, Submission to the Murray–Darling Basin inquiry, February 2020, p. 4.

¹⁴⁰⁹ Coleambally Irrigation Co-operative Limited, op. cit., February 2020, p. 3.

within CICL, and WaterNSW lodgement fees are paid to WaterNSW when CICL members use WaterMart to access the external market.

WaterMart provides electronic documents to approval authorities to facilitate real-time approvals.

Informal irrigation infrastructure operator brokerage services

A number of irrigation infrastructure operators have also indicated that they offer informal brokerage services to their members. Such services involve maintaining a list of members wanting to sell water and a list of members wanting to buy water.

Appendix C—Monetary Transaction Costs

Basin State trade approval application fees

Allocation trades

For the 2019–20 water year, Victoria and New South Wales have comparable fees for allocation trades (\$47.50 for Victoria when submitted via their online system, \$49.94 for New South Wales) while South Australia’s fee for allocation trades is over five times greater (\$259). New South Wales also applies bulk rural water usage charges for allocation trades to interstate licences.¹⁴¹⁰ In 2019–20, the charges are \$2.01/ML for allocation water purchased from the Murray Valley and \$3.49/ML from the Murrumbidgee Valley.¹⁴¹¹

While Victoria also has a paper-based allocation trade submission option available, the \$89.50 charge is significantly greater than for online processing. This cost differential reflects the smaller labour costs incurred by Victoria due to their automated online processing system.

South Australia’s high fees reflect the relatively high cost for the trade approval authority to process trades. South Australia currently relies on labour to manage its paper-based system, but it is modernising its water registry¹⁴¹², which is expected to improve trade processing capability in the future.¹⁴¹³

Figure shows trade approval fees have not changed significantly since 2015–16, except in New South Wales. Up to the 2016–17 water year, allocation trade fees in New South Wales comprised of a fixed cost (the minimum fee) and a variable cost for the volume of water traded, with a maximum fee in place. Since 2017–18, the trade fee has been a fixed cost regardless of the quantity of water traded.

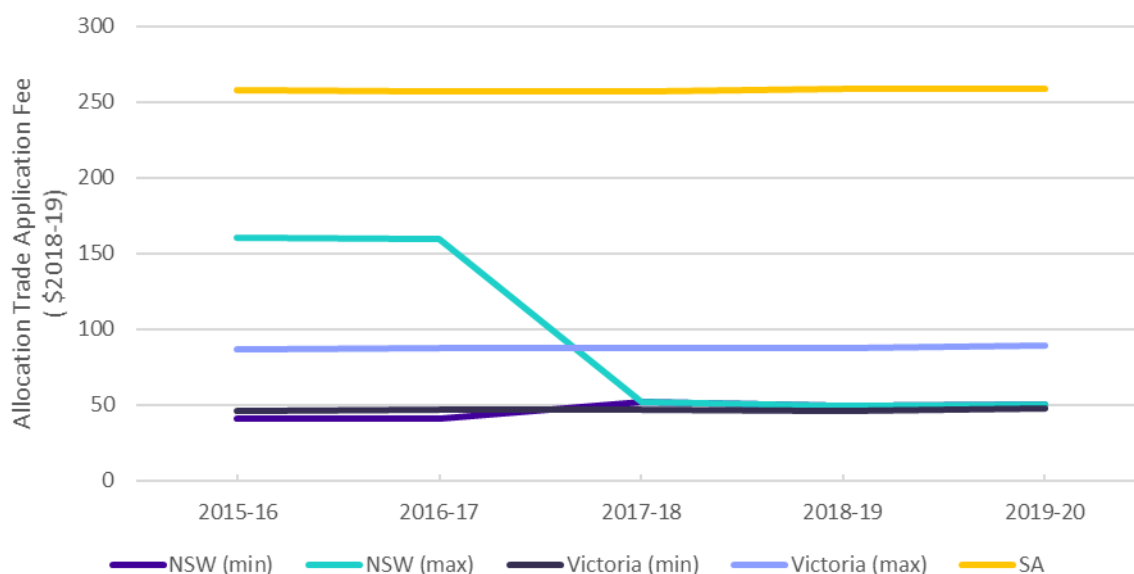
¹⁴¹⁰ This charge is applied to all allocation trades where the destination water access licence does not hold a New South Wales works approval, and so also applies to non-water users such as investors and certain categories of water users such as environmental water holders.

¹⁴¹¹ These charges are determined by the New South Wales Independent Pricing and Regulatory Tribunal (IPART) as part of its economic regulation of monopoly providers of water services, such as WaterNSW.

¹⁴¹² Department of Agriculture, Submission to the Murray-Darling Basin inquiry, January 2020, p. 10.

¹⁴¹³ Department for Environment and Water (South Australia), *2018–19 Annual Report*, 2019, p. 20.

Figure C.1: Trade approval application fees for allocation trade, by state and year

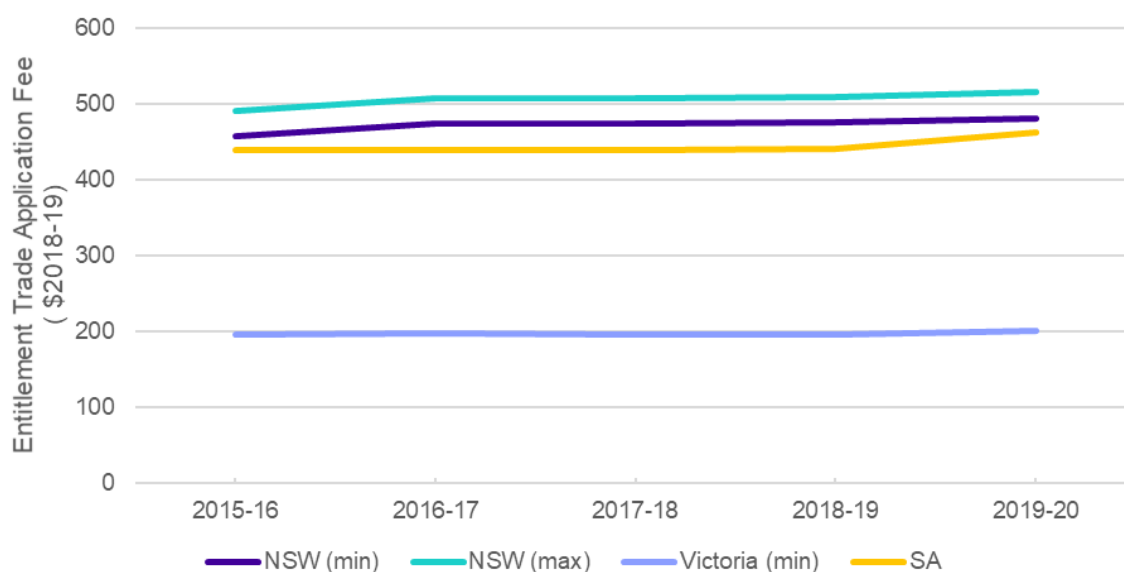


Source: ACCC analysis based on ACCC, IPART, Department for Environment and Water (SA) and Victorian Water Register.

Entitlement trades

Entitlement transfer fees in each state are greater than for allocation trades, although the difference is most significant in New South Wales where its \$515.35 fee (\$480.86 when submitted online) is about ten times that of its allocation trade fee. Entitlement fees for the other states ranged from \$201 in Victoria to \$462 in South Australia. Figure C.2 shows entitlement trade approval fees have increased only marginally in real terms since 2015–16.

Figure C.2: Trade approval application fees for entitlement transfers, by state and year



Source: ACCC analysis based on ACCC, IPART, Department for Environment and Water (SA) and Victorian Water Register.

Irrigation infrastructure operator trade approval application fees

Temporary trades

Water users are generally able to undertake temporary trades within the network of their irrigation infrastructure operator (IIO) or buy water from outside of the IIO and only incur a small trade approval fee of up to \$75 per trade. However, trading water into and out of the IIO's network can incur more significant costs, and also attract Basin State trade approval authority fees. Combined IIO and trade approval authority fees for a 100 ML trade can range from \$79.94 to \$1309.94 (table C.1)

Table C.1: Irrigation infrastructure operator (IIO) fees for allocation trades within and external to IIO network, exclusive of Basin State trade approval authority fees.

Irrigation infrastructure operator	Internal trade fee (\$)	External trade fee (\$)	Fee for 100 ML external trade (\$)	Fee for 100 ML external trade, including trade approval authority fees (\$)
NSW				
Coleambally*	75.00	130.00	130.00	179.94
Hay	30.00	30.00	30.00	79.94
Jemalong*	-	6.66 per ML**	666.00	715.94
Moira	-	90.00 + 8.0 per ML	890.00	939.94
Murray Irrigation Limited*	No charge	85.00	85.00	134.94
Murrumbidgee Irrigation Limited	No charge***	90.00	90.00	139.94
West Corugan*	30.00	110.00 + 11.5 per ML	1,260.00	1,309.94
Western Murray Irrigation	28.00	69.00	69.00	118.94
South Australia				
Central Irrigation Trust	No charge	60.00	60.00	319.00
Renmark*	25.00	35.00	35.00	294.00

Source: ACCC analysis of data provided and published by irrigator infrastructure operators analysed for this report. Notes: (*) Fees advertised inclusive of GST. (**) This fee only applies to water transferred out of the Jemalong network. Water transferred in does not attract this charge, but conveyance fees may be charged for water use. (***) Murrumbidgee Irrigation Limited does not charge for the first ten internal transfers each season, but charges \$50 thereafter.

Entitlement trades and leases

Water users within IIOs are also able to permanently trade their irrigation rights. Fees range from \$70 to \$350 for each trade within their IIO's network (table C.2).

Permanent trading or leasing of irrigation rights outside of the IIO district is more complex as the irrigation right must be transformed into a water entitlement. 'Transformation' is a process that allows irrigators with an irrigation right against IIOs in New South Wales and South Australia to permanently transform their irrigation right into a water access entitlement in their own name.¹⁴¹⁴

Fees for permanent trade or leasing of irrigation rights outside of the IIO's network range from \$70 to \$500 including transformation fees (Table 6).

Trading the transformed irrigation right as an entitlement or lease outside of the IIO network also attracts Basin State trade approval authority fees. Irrigators in New South Wales without a water access licence are required to establish one prior to the transformation of their irrigation rights to entitlements, incurring an additional \$344.60 charge (\$308.56 online) to the \$515.35 entitlement transfer fee (\$480.86 online). This charge can be avoided if the irrigator sells their water right to a buyer who already has a water access licence and the transformation is processed directly into the buyer's name. However, it is unavoidable for irrigators who do not yet have a licence and choose to hold the subsequent entitlement for leasing or trading allocations.

¹⁴¹⁴ Transformation processes are governed by the *Water Market Rules (2009)* (Cth) and enforced by the ACCC, where Rule 22 provides for recovery of the amount of loss or damage suffered as a result of conduct, or an omission, of another person that contravenes the rules.

Table 6: Irrigation infrastructure operator (IIO) fees for irrigation right transfers within and external to IIO network.

Irrigation infrastructure operator	Internal transfer fee (\$)	External transfer fee (\$)	External transfer fee including maximum trade approval authority fees (\$)
NSW			
Coleambally*	250.00	250	1 109.95
Hay	-	350.00	1 209.95
Jemalong	400.00	-	-
Moira	-	300.00	1 159.95
Murray Irrigation Limited*	310.00	385.00	1 244.95
Murrumbidgee Irrigation Limited	225.00	225.00	1 084.95
Narromine	70.00	70.00	929.95
West Corurgan*	350.00	500.00	1 359.95
Western Murray Irrigation	209.00	319.00	1 178.95
South Australia			
Central Irrigation Trust	365.00	365.00	827.00
Renmark*	No charge	330.00	792.00

Source: ACCC analysis of data provided and published by irrigator infrastructure operators analysed for this report.

Note: (*) Fees advertised inclusive of GST.

Broker and exchange fees

Water brokers and exchanges provide a variety of advisory, matching and information services. While there are many intermediaries that can match buyers and sellers for allocation and entitlement trades, water market participants seeking to trade other products may need to incur some research transaction costs to choose a service provider that meets their needs.

Table C.3 provides an overview of broker and exchange fees. Simple bulletin board style services tend to have the lowest fees and clear guidance on the parties responsible for payment of trade approval authority fees. However, more complex trades are less-suited to bulletin boards and water market participants may prefer to use a broker rather than spend time and resources understanding trading rules, finding trading partners and negotiating the contract.

Table C.3: Sample of intermediary fees for allocation trades, forwards, options, entitlement trades, entitlement leases and carryover

Fee model	Buyer's fees	Seller's fees
Allocation trades		
Variable (volume-based) fee, parties charged equally but buyer pays all trade approval authority fees	\$2/ML, with a \$75 minimum plus all trade approval authority fees. ¹⁴¹⁵	\$2/ML, with a \$75 minimum. ¹⁴¹⁶
Variable (volume and value-based) fees, where buyer pays more but both parties pay trade approval authority fees	1.9% of trade value, with a \$100 minimum, additional fees of \$1.90/ML plus trade approval authority fees. ¹⁴¹⁷	\$2/ML, with a \$100 minimum, plus trade approval authority fees. ¹⁴¹⁸
Combination of fixed and variable fees. Payment of trade approval authority fees to be negotiated between parties.	Fixed fee range: \$0–\$300. Variable trade value fee range: 0.0–4.0%. Alternate variable volume fee: \$0.00–\$1.50 per ML.	
Forward allocation agreements		
Variable (annual volume-based) fee, parties charged equally but buyer pays all trade approval authority fees	1% per ML per annum plus all trade approval authority fees. ¹⁴¹⁹	1% per ML per annum. ¹⁴²⁰
Combination of fixed and variable fees. <i>Payment of trade approval authority fees to be negotiated between parties.</i>	Fixed fee range: \$0–\$500 Variable trade value fee range: 0.0–5.0%. Alternate variable volume fee: \$0.00–\$1.50 per ML.	
Options		
Fixed and variable (value-based) fees.	\$275 establishment fee plus 1.1% of option premium (minimum of \$0.55 per option) and strike price. ¹⁴²¹	Not specified—provided by a private supplier. ¹⁴²²
Entitlement trades		
Variable (value-based) fee, parties charged equally but buyer pays all trade approval authority fees	0.75% of value, with a \$750 minimum, plus all trade approval authority fees. ¹⁴²³	0.75% of value, with a \$750 minimum ¹⁴²⁴

¹⁴¹⁵ H2OX 2018, www.h2ox.com/fees/, viewed 23 April 2020.

¹⁴¹⁶ *ibid.*

¹⁴¹⁷ Waterpool 2019, www.waterpool.org.au/data/resources/files/Forms/waterpool%20fee%20schedule_19_20%20season.pdf, viewed 8 April 2020.

¹⁴¹⁸ *ibid.*

¹⁴¹⁹ H2OX 2018, www.h2ox.com/water-products/forwards/, viewed 23 April 2020.

¹⁴²⁰ *ibid.*

¹⁴²¹ H2OX 2018, www.h2ox.com/water-products/options/, viewed 23 April 2020.

¹⁴²² *ibid.*

¹⁴²³ H2OX 2018, www.h2ox.com/fees/, viewed 23 April 2020.

¹⁴²⁴ *ibid.*

Fixed and variable (value-based) fees, where both parties are charged equally and both pay trade approval authority fees	\$750 plus 3.5% of trade value plus trade approval authority fees. ¹⁴²⁵	\$750 plus 3.5% of trade value plus trade approval authority fees. ¹⁴²⁶
Combination of fixed and variable fees. <i>Payment of trade approval authority fees to be negotiated between parties.</i>	Fixed fee range: \$0–\$750 Variable trade value fee range: 0.0–4.0%.	
Entitlement leases		
Variable (volume or value-based) fee, parties charged equally but buyer pays all trade approval authority fees	1% per ML per annum (or \$1/ML for low reliability water) plus all trade approval authority fees. ¹⁴²⁷	1% per ML per annum (or \$1/ML for low reliability water). ¹⁴²⁸
Combination of fixed and variable fees. <i>Lessee may become responsible for any fees associated with the entitlement being leased.</i>	Fixed fee range: \$0–\$100 Variable trade value fee range: 0.5-4.0% of trade value, although some individual brokers are moving to a variable volume charge.	
Carryover		
Variable (volume) fee, parties charged equally but buyer pays all trade approval authority fees	\$1/ML plus all trade approval authority fees. ¹⁴²⁹	\$1/ML. ¹⁴³⁰
Combination of fixed and variable fees. <i>Payment of trade approval authority fees to be negotiated between parties.</i>	Fixed fee range: \$0–\$300 Variable trade value fee range: 0.0–4.0%. Alternate variable volume fee: \$0.00–\$2.0 per ML.	

Source: Information from intermediaries' websites.

¹⁴²⁵ Waterpool 2019, www.waterpool.org.au/data/resources/files/Forms/waterpool%20fee%20schedule_19_20%20season.pdf, viewed 8 April 2020.

¹⁴²⁶ *ibid.*

¹⁴²⁷ H2OX 2018, www.h2ox.com/water-products/leasing/, viewed 23 April 2020.

¹⁴²⁸ *ibid.*

¹⁴²⁹ H2OX, 2018, <https://h2ox.com/water-products/carryover/>, viewed 23 April 2020.

¹⁴³⁰ *ibid.*

Appendix D—Mechanisms to allow water to trade between locations

Trade can involve changing the ownership or location of the traded right. When only the ownership changes, the right to extract water available remains in the same zone and river operators supply a different user in the same trading zone. For the river operator, this is relatively simple to do.

However, when trade involves changing the location of the traded right, there may be additional factors to consider. This depends on whether the change significantly alters the physical arrangements for allocating water to the entitlement, or supplying the right holder after the trade. In principle, trades which change the extraction point from one valley or trading zone to another need an assessment to avoid unintentionally affecting third parties. This is especially so in the case for trades of water access entitlements because these rights are ongoing or perpetual in nature.

The development of different entitlement frameworks in each state has resulted in significant differences in water access entitlements between jurisdictions. In particular, there are differences in the underlying reliability of entitlements (the expected allocation based on historical inflow patterns), and the underlying statutory conditions. In some states, the specification of entitlements also varies between individual catchments. This means that to move an entitlement from one valley or zone to another, assuming there is sufficient hydrological connectivity, the underlying characteristics such as reliability must be considered and any physical losses in transporting water from one location to another, accounted for.

Basin governments have employed two methods for managing the trade of water access entitlements between valleys or zones in regulated systems: exchange rates and tagging.

Exchange rates for entitlement trade

Basin governments previously sought to give effect to inter-valley trade of water access entitlements by ‘converting’ the entitlement in the source region into an entitlement in the destination region by means of an ‘exchange rate’ system. This approach was adopted in the Murray Darling Basin Commission’s pilot interstate water trading project.

Moving a water access entitlement using exchange rate trading rules results in the full legal and administrative conversion of the entitlement from one water resource to another. The exchange rate is the rate of conversion calculated and agreed for application to water to be traded from one water resource to another. Essentially, this cancelled water shares in the origin system and issued replacement water shares in the destination system with an exchange rate applied. This created a standing commitment for the origin system to deliver water to the destination system every year.

However, this exchange rate system was seen as very complicated, and there were also concerns that it led to adverse impacts on other entitlement holders by reducing the reliability of their entitlements.¹⁴³¹ Negative impacts occur if the allocations to the original entitlement and the converted entitlement in the new region are anything less than perfectly correlated. For example, if a Goulburn entitlement was traded to the Lower Murray and the allocation in the Lower Murray is more than the Goulburn allocation, then this potentially impacts other Goulburn entitlement holders.

¹⁴³¹ ACCC, *Water trading rules—Final advice*, 2010, <https://www.accc.gov.au/system/files/Water%20trading%20rules%20-%20final%20advice.pdf>, viewed 17 June 2020.

Recognition of the problems with the exchange rate system led Basin governments to shift to a ‘tagging’ approach, and the Basin Plan Water Trading Rules now specify that exchange rates in general must not be used to facilitate entitlement trade in regulated systems.¹⁴³² However, water entitlements converted under the initial exchange rate approach continue to cause problems for water management (see discussion of legacy trades below).

Tagged entitlement trade

Tagged trading of water access entitlements allows a traded entitlement to retain its original characteristics when traded to a new water resource, rather than being converted into a form that is issued in the new water resource. The entitlement remains subject to the relevant legislative and administrative arrangements of the valley of origin. The recipient valley is responsible for issuing the site-use approval that allows water available under the entitlement to be used. This is in contrast to the exchange rate mechanism explained above.

This ‘tagged’ approach to transfers of entitlements between regions protects against the negative third-party effects of the exchange rate approach, because the characteristics of the water access entitlement are maintained and the entitlement remains on the register in the original water resource.

Once established, ordering against a tag involves the same process as an interstate water allocation trade process; however the approval authorities undertake the administrative process rather than the irrigator. In general, water ordered under a tagged water access entitlement is subject to the same restrictions that would apply to a trade of a water allocation. Section 12.23 of the Basin Plan states that if a state restricts trade of water allocations between two places, the state must equally impose the same restriction on an order for water under the tagged water access entitlement.

However, section 12.23 provides an exemption for tags established prior to 22 October 2010. This exemption allows holders of exempted tagged water access entitlement (also referred to as ‘grandfathered’ tags) to continue to use water available under that entitlement even when restrictions on trading between the ‘origin’ and ‘destination’ locations of the tag are binding.

Issues with legacy exchange rate trades¹⁴³³

The exchange rate trades discussed above still have ongoing impacts on river operations today. For example, before exchange rate trade was abolished in 2007, approximately 100 GL of water shares were cancelled in the Goulburn and re-issued in the Murray, including some to South Australia. There is also 40 GL of water in the Goulburn for environmental flows in the Snowy and Murray rivers.

As a result of both of these ‘legacy commitments’, up to 140 GL of water entitlement in the Goulburn system is owed to the Murray system. This water needs to be delivered to the Murray every year. The legacy exchange rate trades add to the Goulburn IVT account when Goulburn entitlements receive a seasonal determination.

¹⁴³² *Basin Plan 2012* (Cth), s.12.21. Note that the Basin Plan Water Trading Rules do permit exchange trade to the extent that it reverses or ‘undoes’ legacy exchange rate trades, or where the purpose of the exchange rate is to address transmission losses.

¹⁴³³ A more detailed discussion of this issue is covered in the following discussion paper: Victorian Department of Environment, Land, Water and Planning, *Changes to the Goulburn to Murray trade rule*, 2020 https://engage.vic.gov.au/download_file/26084/3373, viewed 17 June 2020.

Appendix E—Inter-valley trade limits and trade restrictions

Goulburn inter-valley trade limit¹⁴³⁴

The Goulburn inter-valley trade (IVT) account balance limit represents the volume of undelivered water owed by the Goulburn system to the Murray system. Trade is not allowed from the Goulburn, Campaspe, Broken and Loddon systems to the Victorian Murray, or to New South Wales and South Australia, if more than 200 GL of water is owed to the Murray by the Goulburn at any one time. Trade will open again when the volume that the Goulburn owes the Murray falls below 200 GL. The limit is needed to protect Victorian Murray water entitlements stored in dams and prevent the volume of trade adversely affecting storage levels.

Victoria is currently reviewing the Goulburn IVT policy due to concerns that higher flows required to deliver water into the Murray in recent years from higher demand caused by the drought, are having adverse environmental impacts.¹⁴³⁵ This is in part due to the current IVT policy restricting the net amount of water owed to the Murray but not the flow of water in the river which is causing the environmental side effects. There has also been an increasing reliance on the Goulburn IVT account for delivery of water, due to less water is being traded out of the Murrumbidgee due to low allocations and high cotton prices,¹⁴³⁶ and Menindee Lakes being under New South Wales control in recent years due to its low levels of water in storage.

Murrumbidgee inter-valley trade limit¹⁴³⁷

The Murrumbidgee IVT account balance is set by and tracked by the New South Wales Government, and the end-of-month balance is reported to the Murray–Darling Basin Authority (MDBA). The balance reflects the net balance of surface water allocations traded out of the Murrumbidgee. This represents water that is still owed to the New South Wales Murray from those trades.¹⁴³⁸ When water allocations are traded out of the Murrumbidgee the balance increases, while water allocations traded into the Murrumbidgee causes a decrease.

The IVT limit operates between two bands:

- Lower limit of 0 GL—this means that Murray cannot owe water to the Murrumbidgee, as a negative balance would require water to be delivered upstream into the tributary to clear the valley account.¹⁴⁴¹ Trade reopens when the balance reaches 15 GL.¹⁴⁴²
- Upper limit of 100 GL—Murrumbidgee owes the Murray 100 GL. Trade opens when the IVT drops to 85 GL. This is set to limit third party impacts during:
 - wet periods, due to Murray water occupying space in Murrumbidgee storages, increasing the risk of spill and preventing inflows from being captured

¹⁴³⁴ Victorian Department of Environment, Land, Water, and Planning, 'Understanding the Goulburn to Murray trade limit', 2019, waterregister.vic.gov.au.

¹⁴³⁵ Victorian Department of Environment, Water, Land and Planning, *Changes to the Goulburn-Murray trade rule consultation paper*, 2020, https://engage.vic.gov.au/download_file/26084/3373.

¹⁴³⁶ Victorian Department of Environment, Water, Land and Planning, *Changes to the Goulburn-Murray trade rule consultation paper*, 2020, https://engage.vic.gov.au/download_file/26084/3373.

¹⁴³⁷ New South Wales Department of Industry, *Murrumbidgee Inter-Valley Trade account (IVT)*, 2020, https://www.industry.nsw.gov.au/_data/assets/pdf_file/0018/209412/murrumbidgee-ivt-fact-sheet.pdf.

¹⁴³⁸ *ibid.*

¹⁴⁴¹ Although it is possible due to pipeline infrastructure owned by Murray Irrigation and Snowy Hydro.

¹⁴⁴² New South Wales Department of Industry, *Murrumbidgee Inter-Valley Trade account (IVT)*, 2020, https://www.industry.nsw.gov.au/_data/assets/pdf_file/0018/209412/murrumbidgee-ivt-fact-sheet.pdf.

- dry periods, due to high evaporation costs associated with delivering water in dry conditions, which are socialised reducing future water allocations to Murrumbidgee users.

New South Wales considers the 100 GL limit ‘represents approximately five per cent of general security allocations in the Murrumbidgee system and is viewed as an acceptable level of risk to third parties’.¹⁴⁴³

Lower Darling inter-valley trade limit

The Lower Darling is only considered part of the Southern Connected Murray–Darling Basin for trade purposes when Menindee Lakes is under MDBA control. MDBA controls releases from Menindee Lakes until the total storage volume falls below 480 GL, in which case control is shifted from the MDBA to New South Wales. Control reverts back to the MDBA once storage levels rise above 640 GL.^{1444, 1445} Therefore the Lower Darling is usually unavailable for inter-valley trading purposes in dry periods.

When the Lower Darling is under MDBA control, river operators will release water from the Menindee Lakes to meet demand downstream of the junction of the Lower Darling and the River Murray rather than releasing water from Hume Dam. In general, allocation trade out of the Lower Darling is only allowed when the Menindee Lakes are under the MDBA’s control.

Trade of water access entitlements between the Lower Darling and other zones in the Southern Connected Murray–Darling Basin is not allowed because the Lower Darling does not always flow to the Murray. Trade of water access entitlements can only be permitted between zones if the water can be delivered to the buyer’s zone on an ongoing basis.

Barmah Choke trade restriction^{1447, 1448}

Basin governments have imposed a restriction on net allocation trade across the Barmah Choke. This means that water users upstream of the choke can only sell water allocations to buyers downstream of the Barmah Choke if water has first been traded from downstream to upstream of the Barmah Choke.

The Barmah Choke trade restriction was implemented to manage downstream demand and the difficulties in sending increasingly larger volumes down the river.

The Barmah Choke trade account balance is cleared at the start of every year. The account balance is then adjusted to take into account environmental water for the Snowy River. In 2019–20 this resulted in an opening balance of around 25 GL (although this changes depending on the level of allocations in a given year). This is the initial volume available to be traded from above to below the Barmah Choke.

The Barmah Choke trade rules are specified in the *Permissible Transfers between Trading Zones (Permissible Transfers) Protocol 2010*. The MDBA is responsible for keeping track of the balance of trade when the restriction activity is in place, and will lift or adjust the restriction if conditions permit.

¹⁴⁴³ *ibid.*

¹⁴⁴⁴ SA Department of Environment, Water and Natural Resources, *Restrictions on River Murray water allocation trade into SA*, 2020, <https://www.environment.sa.gov.au/files/sharedassets/public/water/water-trade-restrictions.pdf>.

¹⁴⁴⁵ *Murray-Darling Basin Agreement (Schedule D — Permissible Transfers between Trading Zones) Protocol 2010* (Cth), s. 11(1).

¹⁴⁴⁷ Murray–Darling Basin Authority, *The Barmah Choke*, 2019, <https://www.mdba.gov.au/sites/default/files/pubs/The-Barmah-Choke-fact-sheet-Aug-2019.pdf>, viewed 17 June 2020.

¹⁴⁴⁸ Snowy transfer accounts are defined in the Protocol as ‘environmental transfer accounts’, as there is no non-environmental trade between the Murray and the Snowy Scheme. However the Snowy River does influence the Barmah Choke restrictions (as outlined in this section).

The restriction may be relaxed in severe drought conditions when overall downstream demands are very low due to very low allocations. During the Millennium Drought, the trade restriction across the Barmah Choke was relaxed and the relaxation remained in place until October 2014. Since October 2014, the MDBA has actively managed the Barmah Choke trade account balance with States accessing the MDBA's online accounting tool to process trades across the Barmah Choke.

Limit on interstate trade from New South Wales to Victoria

In addition to the IVT limits above, Victoria has imposed a general limit on trades from New South Wales into Victoria to prevent spills, which can occur as a result of trade. If users from one state hold so much water in storage, then there is no storage capacity to capture new inflows, resulting in a 'paper' spill to the benefit of other state's water users or in water being 'lost' down the river. Victoria manages this risk through the use of this trade rule which limits when trade can occur.

This limit operates in two parts¹⁴⁴⁹:

- First, trade into Victoria is not permitted if Victoria's share of Hume and Dartmouth Dams has a risk of spill of 50 per cent or more.
- Second, total trade from New South Wales into Victoria is limited to 200 GL per year.

Victoria considers these rules provide a safety net to 'avoid the need for future sudden trade suspensions that affect how people can manage their water'.¹⁴⁵⁰ This is to help manage dam capacity constraints.

¹⁴⁴⁹ Victorian Water Register 2012, *Victoria refines controls on water allocation trade between valleys Explanatory note*, Department of Environment, Land, Water and Planning, Melbourne, https://waterregister.vic.gov.au/images/documents/Victoria%20refines%20controls%20on%20allocation%20trade%20between%20valleys_November2012.pdf, viewed 30 June 2020

¹⁴⁵⁰ *ibid.*

Appendix F—System constraints and river operation factors

The Murray–Darling Basin is a complex river system, with natural constraints and other factors that make meeting demand and managing the river difficult for river operators.

Across the system, long term climate and trade trends and changing water use are also making operating the river system more challenging:

- Evolving water trade, carryover and changing land use are changing where and when water is being used, making it harder for river operators to anticipate water needs ahead of the irrigation season
- The acquisition of water for the environment is reshaping seasonal delivery patterns.
- Channel capacity through the Barmah Choke and other constraints has been declining, further reducing capacity for downstream delivery.¹⁴⁵¹
- Climate change will increase the variability of rainfall, and inflows may continue to trend downwards. The projected greater frequency of hot days is likely to increase water demand, conveyance losses and unanticipated peaks in demand.¹⁴⁵² The Menindee Lakes may be less regularly available to contribute to shared system needs, resulting in a greater reliance on water deliveries from storages in the Murray and its tributaries.

In the River Murray system, river operators have to manage that:

- water is stored in headwater storages in the upper catchments
- there is limited storage capacity close to irrigation demand (Lake Victoria is especially important for managing South Australian water demands)
- there are long delivery times (22 days, or longer, for water to travel from Hume Dam to Lake Victoria)¹⁴⁵³
- losses to seepage and evaporation reduce the volume of water in storages and as it travels along the river to the point of extraction
- natural constraint points in the river channel limit the flow rate able to be delivered
- the variance of inflows, the magnitude of losses to seepage and evaporation, and the timing, location and volume of demand from users all vary significantly depending on weather conditions.

System operators must also consider the impact of other capacity constraints

There are many other flow constraints in the River Murray system. Some examples include in the Mitta Mitta River between Dartmouth Dam and Hume Dam (limited to 9800 ML/day, though flows over 5000 ML/day are avoided), in the Edward River downstream of Stevens Weir (up to 2700 ML/day) and the inlet to Lake Victoria (Frenchman’s Creek, up to 10 000

¹⁴⁵¹ Independent Panel for Capacity Project Review, *Report to Murray Darling Basin Ministerial Council*, 17 December 2019, <https://www.mdba.gov.au/sites/default/files/pubs/jpcpr-minco-final-report-2019.pdf>, p.10.

¹⁴⁵² Victorian Water Register 2018, *Water Delivery Fact Sheet*, Department of Environment, Land, Water and Planning, Melbourne, www.waterregister.vic.gov.au/images/documents/Water_delivery_fact_sheet.pdf, viewed 30 June 2020. .

¹⁴⁵³ Murray–Darling Basin Authority 2019, *Annual Operating Outlook 2018–19*, Murray–Darling Basin Authority 2019, Canberra, www.mdba.gov.au/sites/default/files/pubs/190731-%20RM-Annual%20Operating%20Outlook-summary_0.pdf, viewed 30 June 2020. This number is contested, with significantly longer travel times also report, the Murray–Darling Basin Constraints Modelling Report by the New South Wales and Victorian Ministers’ Independent Expert Panel (Constraints Modelling Report) notes up to nine weeks for deliveries from upstream storages to the South Australian border.

ML/day depending on the water level in Lake Victoria).¹⁴⁵⁴ Additionally, the maximum regulated capacity of the lower Goulburn is 9000 ML/day, though sustained flows above 940 ML/day in summer can cause environmental degradation.¹⁴⁵⁵ The rate normally required for delivering Goulburn IVT flows is usually around 2600 ML/day.¹⁴⁵⁶

There is existing infrastructure that can bypass the Barmah Choke

The Mulwala Canal, which diverts water from the Murray River at Lake Mulwala, via the Edward River in New South Wales before re-joining the Murray downstream of the Barmah Choke offers an option for circumventing the Barmah Choke. Mulwala Canal has an offtake capacity of 10 000 ML/day.¹⁴⁵⁷ The Capacity Panel reports that river operators' ability to use the Mulwala Canal for this purpose is restricted in dry seasons with high water allocations. The lack of a long term agreement between the MDBA and Murray Irrigation Limited for use of the Mulwala Canal poses a risk to effective river operations.¹⁴⁵⁸

On the Victorian side, the MDBA may also use channels in the Goulburn-Murray Water network to bypass the Barmah Choke via the Yarrawonga Main Channel into lower Broken Creek and back into the Murray downstream of the Choke.¹⁴⁵⁹ Yarrawonga Main Channel has a discharge capacity of 3100 ML/day.¹⁴⁶⁰

¹⁴⁵⁴ Murray–Darling Basin Authority, *River Murray System Annual Operating Outlook 2019-20*, <https://www.mdba.gov.au/sites/default/files/pubs/River-Murray-system-Annual-Operating-Outlook-2019-20.pdf>, p. 6. Note that a number of these flow constraints are measured in gauge height primarily, which corresponds to an approximate flow rate.

¹⁴⁵⁵ *ibid.*

¹⁴⁵⁶ Victorian Department of Environment, Water, Land and Planning, Changes to the Goulburn-Murray trade rule consultation paper, 2020, https://engage.vic.gov.au/download_file/26084/3373.

¹⁴⁵⁷ Goulburn-Murray Water, 'Yarrawonga Weir', <https://www.g-mwater.com.au/water-resources/catchments/storages/murray/yarrawongaweir>, viewed 20 March 2020.

¹⁴⁵⁸ Independent Panel for Capacity Project Review, *Report to Murray Darling Basin Ministerial Council*, 17 December 2019, <https://www.mdba.gov.au/sites/default/files/pubs/ipcpr-minco-final-report-2019.pdf>, p. 12.

¹⁴⁵⁹ Murray–Darling Basin Authority, *Conveyance Losses in the River Murray System 2018–19*, March 2019, <https://www.mdba.gov.au/sites/default/files/pubs/River-murray-system-losses-report.pdf>.

¹⁴⁶⁰ Goulburn-Murray Water, 'Yarrawonga Weir', <https://www.g-mwater.com.au/water-resources/catchments/storages/murray/yarrawongaweir>, viewed 20 March 2020.