



Murray-Darling Basin water markets inquiry

Final report

February 2021



Australian Competition and Consumer Commission
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Overview

The Australian Competition and Consumer Commission (ACCC) conducted 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). This report makes recommendations to enhance markets for tradeable water rights, including their operation, transparency, regulation, competitiveness and efficiency.

The report draws on the views of a broad range of stakeholders with interests in the use and trade of water in the Basin, analysis of wide-ranging water market data from 2012 onwards, and other information and documents gathered from various large water users, investors, market intermediaries and government entities. The ACCC thanks all those who contributed their views and information to this inquiry.

Summary

Basin water markets are critical to the efficiency and productivity of Australian agriculture.

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. Over the past two decades it has evolved into a complex, Basin-wide set of markets with an annual average value of more than \$1.8 billion per year.¹

Water trading has brought substantial benefits to many 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. In turn, water trading promotes efficiency of dependent industries and delivers broader benefits to the Australian economy.

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 2010–11.²

The benefits derived from 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, in close connection to the river system’s physical characteristics and appropriately managing the impacts of trade
- a clear and consistent framework for trading across the Basin
- regulation that promotes open, fair and transparent trading, which is robustly and consistently enforced across the Basin.

1 ACCC analysis based on Bureau of Meteorology and Australian Bureau of Statistics, Cat. No. 6401. Average annual total real value of trade, 2012–13 to 2019–20, in \$2019–20 terms. Includes temporary and permanent trade, including irrigation right trade reported to the Bureau of Meteorology by irrigation infrastructure operators. This statistic has been revised since the interim report to take account of more recent data, and to account for inflation using 2019–20 as the basis, rather than 2018–19.

2 Since 2010–11, the Gross Value of Irrigated Agricultural Production (GVIAP) in the Southern Basin has increased on average 2.9% a year in real terms (adjusted for inflation to 2019–20 dollars). However, the GVIAP has not uniformly increased over this period, falling in 2011–12, 2013–14, 2015–16 and 2016–17. For further details, see section 3.2.2 of this report.

There are significant deficiencies in current water trading arrangements

Basin water markets lack many features that make markets work effectively. A range of deficiencies in the settings for and governance of, water trading undermine the efficiency of water markets and the agricultural industries that depend on them.

The ACCC found that:

- there is a lack of quality, timely and accessible information for water market participants
- there are scant rules governing the conduct of market participants, and no particular body to oversee trading activities, undermining confidence in fair and efficient markets. In particular, water market intermediaries such as brokers and exchange platforms currently operate in a mostly unregulated environment, resulting in a lack of clarity regarding the role brokers play and permitting undisclosed conflicts of interest to arise
- trading behaviours that can undermine the integrity of markets, such as market manipulation, are not prohibited, insider trading prohibitions are insufficient, and information gaps make these types of detrimental conduct difficult to detect
- 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
- irrigators and traders would benefit from governments providing better information on key policies and river operations as this information would help them to develop informed expectations about water supply and to make business decisions
- 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 and large agribusinesses with the time and knowledge to analyse and navigate them
- the way the Southern Basin's 'market architecture'³ manages the hydrological characteristics of storages and river systems does not always adequately reflect scarce storage and delivery capacity or signal the cost of trading decisions. This results from a series of 'disconnects' between the time of trade and the actual movement of water, leading to river channel congestion and negative impacts on other water users and the environment
- changing conditions, such as reduced inflows, shifts in water use, declining channel capacity and increasingly binding trade restrictions, are challenging key assumptions that underpin trade arrangements and the design of tradeable water rights. These assumptions need to be reassessed so that water markets operate more efficiently in close connection with the river system's physical characteristics into the future.

A serious additional consequence of these problems is that many water users reported that they 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 caused by these problems are 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 ownership 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.

Instead, the ACCC has recommended a package of reforms which aim to restore confidence in water markets across the Basin, and to improve their operation and efficiency so that they work better for market participants and deliver enhanced benefits for the Australian economy.

³ That is, the rules, policies and arrangements that enable and support trade (see chapter 13).

Basin water markets need decisive and comprehensive reform

The settings for the markets for tradeable water rights need to change. This report contains a set of recommendations to enhance these markets. The ACCC's recommendations work together as a package to maximise the benefits from the proposed reforms. The recommendations centre around four themes:

- governance of the Basin water markets
- market integrity and conduct
- trade processing and water market information
- market architecture.

Governance of the Basin water markets

Proposed reforms to governance arrangements are central to the ACCC's recommendations. These reforms would give market design, integrity and oversight the prominence and coordination necessary to make water markets work effectively.

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 ACCC's analysis of governance improvements for water markets has focused on:

1. rule-making processes and how decisions impacting markets are made and communicated
2. the delivery of administrative, regulatory and other roles that support or contribute to the functioning of markets.

Market arrangements are interlinked with water management more broadly.⁴ As governments have focused on critically important water management issues, particularly the implementation of the Basin Plan, the efficiency and effectiveness of water markets, and institutions to coordinate and oversee this, have not been prioritised.

This focus is understandable. However, the Basin water markets are now of a size and complexity that require recalibration of priorities. It is important that institutions and other governance arrangements are designed to focus on making the markets work – to ensure users are able to maximise the benefits, for themselves and for the economy, from vital, scarce resources.

The Basin's governance arrangements need to make sure due consideration is given to market issues, without overriding existing decision making powers. There is also a need to help manage regulatory and policy uncertainty for market participants, by improving transparency and communication around decision making processes.

To achieve this, the ACCC recommends:

1. establishing a new independent Basin-wide Water Markets Agency, that will focus on facilitating efficient water markets – by helping users to navigate markets, ensuring markets operate fairly and with integrity, and providing a market focused perspective for water management decisions through advice to governments
2. realigning processes across the Basin so that there is a consistent, clear, transparent and well understood process for amendments to trading rules and other decisions with significant impacts on water markets and where advice from the Water Markets Agency is considered, while existing decision makers retain current water management responsibilities.

The ACCC considers the proposed Water Markets Agency would be best established through a cooperative legislative scheme between the Australian and Basin State governments.

⁴ 'Water management' includes, for example: the management of Basin water resources to meet critical human water needs; the Basin Plan, which provides for limits on the quantity of water that may be taken from the Basin water resources; arrangements for sharing water between the Basin States; and management of water quality and salinity.

Market integrity and conduct

To strengthen market integrity, the ACCC recommends introducing new, Basin-wide legislation to address harmful conduct and practices. The ACCC recommends that the proposed Water Markets Agency administer and enforce this legislation.

Conducting this role will allow the proposed Water Markets Agency to improve transparency of market conduct through surveillance and regular reporting, pursue enforcement action if any detrimental conduct is identified, and help maintain the integrity of water markets. It would also equip the proposed Water Markets Agency with information to provide valuable insights about market behaviour and operations, to help it develop its approach to performing its other roles aimed at improving markets, and inform any advice to governments on potential reforms.

The new legislation should include an enforceable mandatory code for water market intermediaries. The legislation should more broadly include integrity protections such as price reporting requirements, and conduct prohibitions such as prohibitions of market manipulation and insider trading.

Trade processing and water market information

There is a need to improve the quality and flow of water market data and other related information, to reduce the complexity of trade for market participants and to ensure they have all the information they need to make efficient trading decisions. In addition, to achieve effective oversight of trading activity, it is critical that the quality of water market data is improved and that timely and robust data is available to the proposed Water Markets Agency.

Linked to the need to improve information is the need to improve trade services provided by private entities and government agencies.

There is an opportunity to build on recent public and private initiatives to improve trade services, and the quality and flow of water market information by:

- implementing Water Market Data Standards, to provide a consistent framework for collecting, storing and transmitting information; and requiring providers of trade services, including intermediaries and Basin State trade approval authorities, to comply with the standards
- upgrading trade processing systems and interoperability protocols, to ensure consistency for market participants wanting to trade across zones
- introducing mandatory service standards for trade approvals and prescribed rules and process for water market announcements
- implementing three new core digital technologies for trade services: a comprehensive 'Digital Messaging Protocol' which executes collection, storage, transmission and publication of water market data in a consistent way across all trade service providers; a 'Backbone Platform' to act as a single hub for trade processing and a single repository for water market data and related information; and a public-facing Water Market Information Portal
- introducing a Basin-wide water market education program.

The proposed Water Markets Agency should have a central role in progressing these trade data and information reforms, including involvement in setting data standards and in delivering trade data and information to market participants.

Market architecture

Problems with the design, development and functioning of the Basin's 'market architecture' – the framework of laws, rules, policies and arrangements for water markets – should be addressed to better align current market settings with the physical characteristics of the river system and manage the impacts of trade.

Improving market settings would deliver better signals to market participants about the costs of trade. This will improve market efficiency by ensuring the unpriced costs and benefits of trade are more effectively factored into decisions about the trade, use and delivery of water.

In some instances, changes to market settings may lead to a reduction in trade between regions. If this is the case, it would be because more accurate signals are provided to market participants about the costs of moving water between locations. This would direct investment to areas where water use would be more beneficial – not only to individuals but across the system as a whole.

Redesigning key market architecture elements to deliver clearer signals and be more efficient requires investing in, and developing, improved knowledge and tools to manage the impacts of trade. This report outlines a proposal for a two-streamed approach to enhancing the Southern Basin's market architecture. The first stream involves a range of investments and system enhancements to improve the functioning of the existing market architecture. The ACCC recommends:

- improving intervalley trade mechanisms, through changes to how access to trade opportunity is managed within system limits
- enhancing hydrological modelling capabilities to better reflect irrigator behaviour, help manage water deliveries and understand the impacts of trade, including on conveyance losses
- continuing to improve metering and monitoring of water take, including to support capturing improved time of use data and better modelling
- formalising and communicating plans for managing delivery shortfall risks, improving the understanding users have of those risks and actions to mitigate them
- updating guidance to more explicitly address how river operators should make trade-offs between different operational objectives
- increasing the transparency of water allocations decisions and improving information to help water users understand influences on supply.

The second stream of work involves further developing a range of technical options to deliver more comprehensive reforms. These options range from changes to water accounting to better align trade with delivery, to developing potential alternative market models that integrate coordination of trade and delivery. This work, which could be coordinated by the proposed Water Markets Agency, will enable governments – in consultation with stakeholders – to determine which of this second stream of proposed architecture reforms will provide the greatest benefits at least cost and should therefore be adopted.

Together, the recommended reforms will enhance the markets' operations, transparency, competitiveness, regulation and efficiency.

Findings and recommendations

The remainder of this overview discusses:

- the 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
- details of the ACCC's proposed recommendations to improve the operation and efficiency of water markets.

Water trade benefits users

Trading water rights can allow irrigators to supplement their water supply in the short and long term, expand production, develop new business models or free up capital that can be invested elsewhere in their businesses.

Water trading provides an opportunity not just for buyers but also for sellers, who can earn an income from selling their water rights when they are more valuable to someone else. This includes making water available for others to use when the original owner of the water rights scales down their business, decides not to plant a crop or leaves the industry or region. For example, selling water rights can provide farmers with income to transition their operations away from water intensive production.

Other groups who trade in water markets include:

- investors – that is, parties who hold and trade water assets for financial gain, not production
- irrigation infrastructure operators
- urban water authorities
- environmental water holders
- First Nations and Traditional Owner representative groups
- water brokers.

Particularly since the National Water Initiative⁵ was agreed in 2004, the Basin's water markets have developed and become more complex, and new market participants have emerged.

That is not to say that the benefits derived from water markets have been universal, or equally shared between participants and regions. Some individuals, industries and regions have experienced adverse consequences due to water markets.

The Treasurer's direction to the ACCC to conduct this inquiry specifically excluded analysis of the social and economic impact of water trading on communities in the Basin.⁶ In a separate process, in June 2019, the Australian Government established an independent panel to provide an assessment of social and economic conditions in the Basin's rural and regional communities.⁷

The panel's final report, also known as 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'.⁸

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. Where possible, it is 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.

5 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.

6 Competition and Consumer (Price Inquiry – Water Markets in the Murray–Darling Basin) Direction 2019, clause 5, available via <https://www.accc.gov.au/focus-areas/inquiries-ongoing/murray-darling-basin-water-markets-inquiry/terms-of-reference>.

7 The report is available via: <https://basin-socio-economic.com.au/>. The Australian Government response to that report is available via: <https://www.awe.gov.au/about/reporting/obligations/government-responses/independent-assessment-social-economic-conditions-basin>.

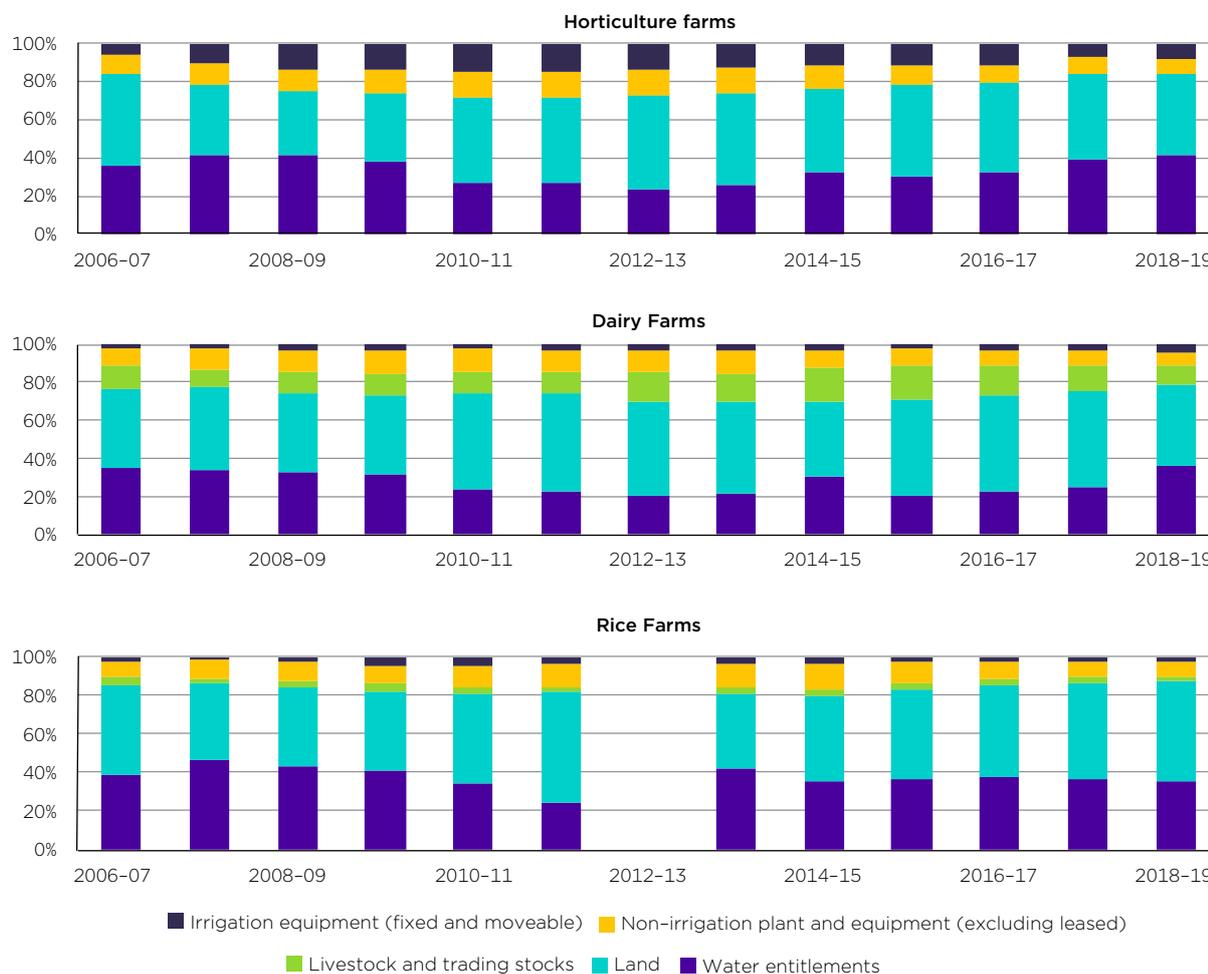
8 *Final Report: Independent assessment of social and economic conditions in the Basin*, April 2020, p. 59, https://s3-ap-southeast-2.amazonaws.com/ehq-production-australia/31d40b0e89a2de81b0b3b852267af296590ece7e/original/1599175006/Final_Report_%28Accessible%29_15_046KB.pdf_33dbb6cf593a857db27cf5dfe4a80e8f?1599175006, viewed 29 January 2021. The panel was chaired by Robbie Sefton.

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 2019–20, held by active and retired farmers and others, including environmental water holders, is estimated at \$26.3 billion.⁹

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 2018–19, water entitlements comprised around 41% of capital assets for horticulture farms, 36% for dairy farms and 35% for rice 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.

Figure 1: Average proportion of capital assets by asset class, by farm type, 2006–07 to 2018–19



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 dairy: average of two regions (Murray and Goulburn-Broken). Data for rice not available for 2012–13.

⁹ Aither, Water markets report, 2019–20 and 2020–21 outlook, see <https://www.aither.com.au/wp-content/uploads/2020/08/2020-Aither-Water-Markets-Report.pdf>, viewed 14 January 2021.

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.

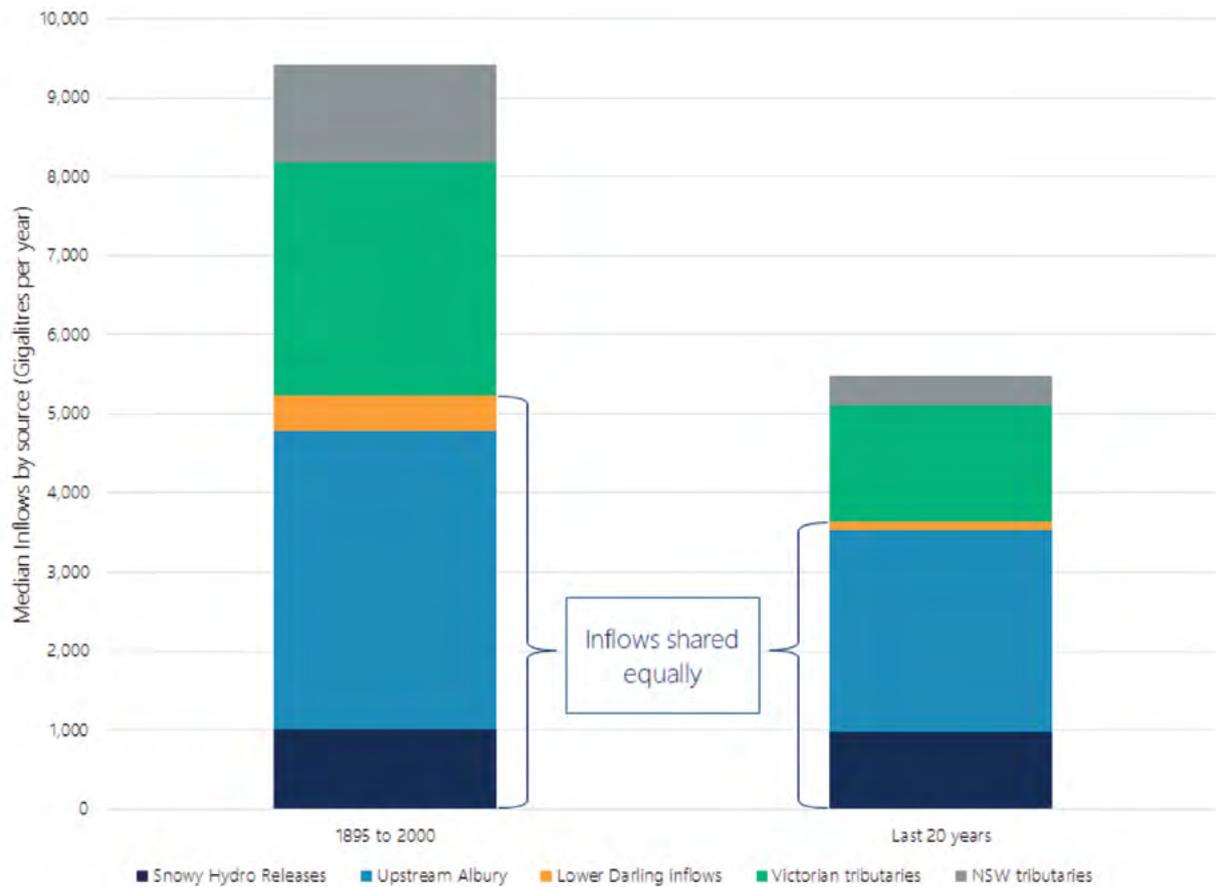
Climate analysis by the Bureau of Meteorology and the Commonwealth Scientific and Industrial Research Organisation indicates that April to October rainfall between 1999 and 2018 was either the lowest on record or very much below average across most of the Basin, compared to average rainfall since 1900.¹⁰

As noted in a 2020 report by then Interim Inspector-General of Murray–Darling Basin Water Resources, Mick Keelty AO, median inflows into the River Murray system in the last 20 years are significantly lower than during the preceding century (figure 2). Figure 2 also shows median inflows from the tributaries of New South Wales (in grey) are approximately 65% lower when comparing the same time periods. 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.¹¹

10 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.

11 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, by source, 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/iig_final_report.pdf, viewed 18 June 2020.

The Bureau of Meteorology’s *State of the Climate 2020* report stated that, over the coming decades, Australia is projected to experience a decrease in cool season rainfall across many regions of the south and east, likely leading to more time spent in drought.¹²

The volume of water that is available in a particular storage or river reach at any one time is influenced 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
- 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 where 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.

¹² Bureau of Meteorology, *State of the Climate 2020*, <http://www.bom.gov.au/state-of-the-climate/future-climate.shtml>, viewed 20 January 2021. Rain in the Southern Basin is ‘winter dominant’: that is, more rain falls in the winter there than in the summer, whereas rain in the Northern Basin is more summer dominant.

Rules and policies introduced by Basin State authorities and the Murray–Darling Basin Authority (MDBA) also strongly influence how much water is available in certain places and at given times. Examples include the determination of trading zones and intervalley trade limits.

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 purchase 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% of irrigators in the Basin had conducted a water trade. By 2015, 78% of Southern Basin irrigators had conducted at least one water allocation trade.¹³

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 are 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. There are large agribusinesses with permanent plantations that rely heavily on the water allocation markets to meet their water needs. They purchase large parcels of water.

New entrants into water markets have also contributed to higher trade volumes. Investors, including fund managers and traders, now account for significant proportions of water allocation and water access entitlement trade in the Southern Basin.

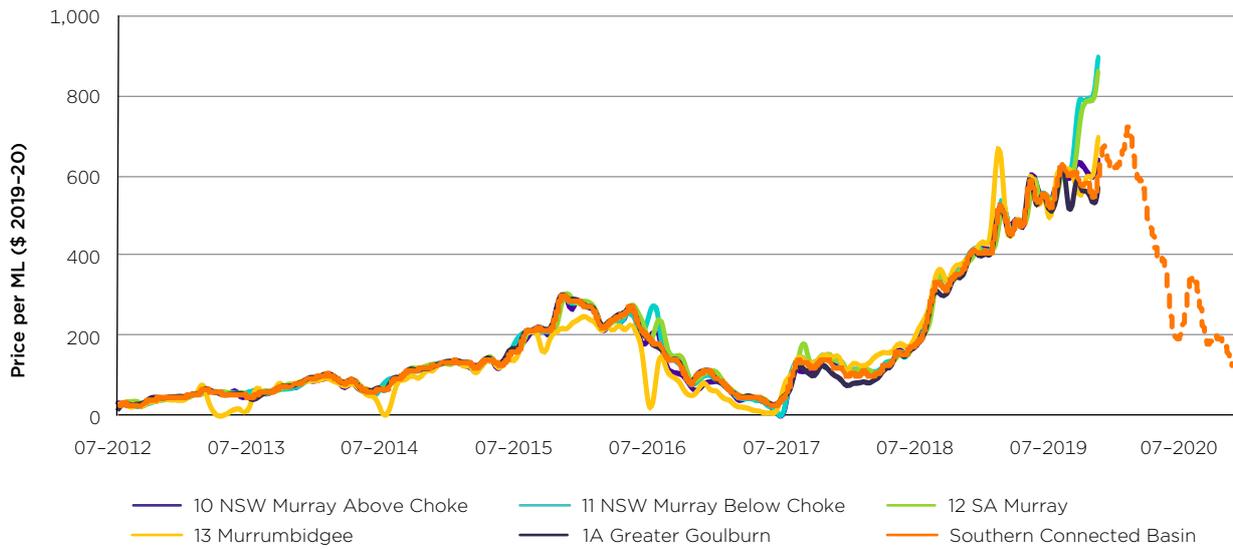
Water allocation prices in 2018–19 and the first half of 2019–20 were generally higher, and much more volatile, than in previous years. This trend is illustrated in figures 3 and 4 below, and is explained in more detail in chapter 3.

The red line in figure 3 below shows the average price for water allocations, per megalitre in 2019–20 dollars, in the Southern Connected Murray–Darling Basin from mid-2012 to the end of 2020.¹⁴

13 S Wheeler and others, *Water market literature review and empirical analysis*, Consultant report prepared for the ACCC Water Market inquiry, 2020, p. xi. 2015 is the most recent year for which this data is available.

14 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.

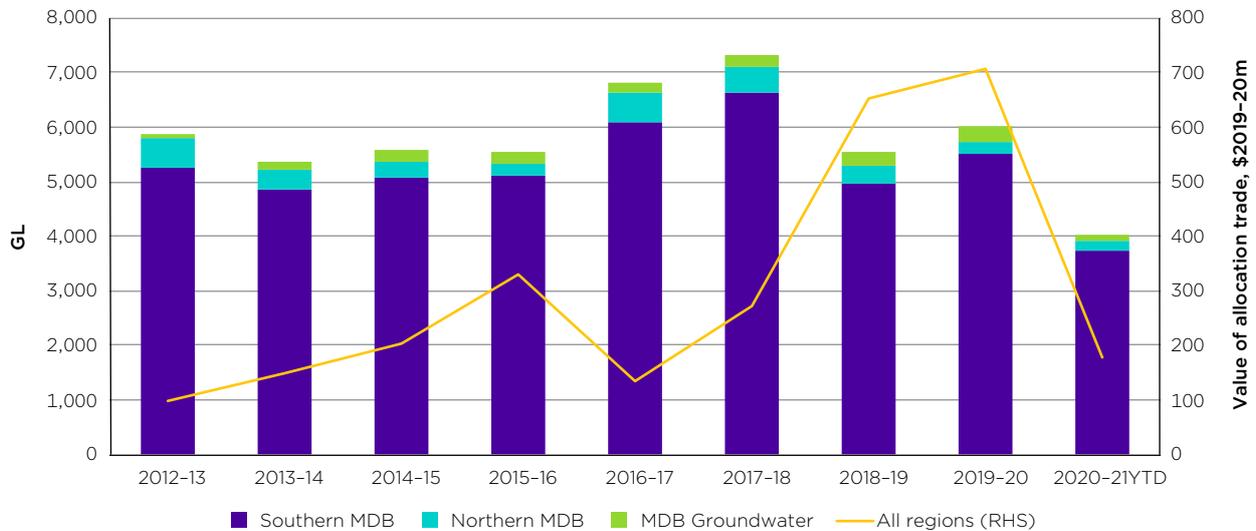
Figure 3: Average allocation prices, by selected trading zones, and average for Southern Connected Basin (\$2019-20)



Source: ACCC analysis based on NSW, SA 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 1 November 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 (\$2019-20 million), 2012-13 to 2020-21



Source: ACCC analysis based on BOM and ABS data.

Note: YTD = year to date (2020-21 year to 31 December 2020).

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

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

The ACCC found 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.

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, may create potential opportunities for some participants to exploit market flaws.

The ACCC notes that stakeholders' concerns about the conduct of some market participants and the impacts of current market architecture and governance arrangements were stronger in the Southern Basin than in the Northern Basin. This reflects that water markets in the Southern Basin are larger, more active and have more participants, and that issues such as deliverability risk and management of intervalley trade are more acute in the Southern Basin.

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

The complexity of water 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.

While 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, 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, water markets have expanded and developed as part of broader water management reform.

The Council of Australian Governments' 1994 water reform framework and the 2004 National Water Initiative were landmarks in encouraging national solutions to Australia's chronic and complex water problems.¹⁵

The *Water Act 2007* (Cth) (Water Act) and the Basin Plan sought to address the 'over-allocation' of water in the Basin, and to put the management of 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 markets' efficient operation has always been 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.

Sound water management remains a fundamental priority. But a sharper focus on the mechanics of water trading arrangements, and how these can be better integrated with water management will deliver better outcomes for water users and the economy.

¹⁵ 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.

Basin State governments have long agreed on objectives for the Basin water markets. The Water Act 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.¹⁶

Although governments have attempted to pursue these objectives, many have not been achieved. The ACCC's recommendations would help to attain these objectives.

Governance arrangements need to enable a greater focus on water markets

Water markets continue to evolve in their of sophistication and levels of trading activity. However, the governance arrangements for water markets have not adapted in line with this evolution. As such, there are significant deficiencies associated with the settings and governance of water trading, which undermines the efficiency of water markets and their dependent industries.

Water **management** governance and water **markets** governance are inherently linked. Under current arrangements, critically important water management issues are often prioritised. However, with the emergence of water markets, governance structures also need to enable a focus on market issues in order to maximise market benefits, without overriding existing water management decision making powers and processes.

The ACCC believes that Basin water markets need a robust and fit-for-purpose market governance framework to help ensure that market regulation and decision-making realises potential market benefits. Without such a framework, the ACCC believes water markets may remain inefficient, and continue to be perceived by many participants as inconsistent and unfair. This would entrench deficiencies in market confidence and public support for the water markets, resulting in an environment that impedes beneficial investment in industry and agriculture and prevents their flow-on benefits to regional communities and the wider economy.

The ACCC considers that many of the challenges facing water markets are caused by underlying governance problems. Several aspects of the existing market governance arrangements impede the fair and efficient working of the Basin water markets. These are:

- a lack of prioritisation of water trade and markets policy
- a lack of focus on delivering administrative functions in a manner that makes it easier for participants to engage in water markets
- differences in rulemaking processes used by Basin governance bodies
- insufficient transparency over existing intergovernmental processes and responsibilities.

¹⁶ Schedule 3 of the *Water Act 2007* (Cth).

Institutional and procedural reform is needed

The ACCC considers that institutional and procedural reforms are required to address the current governance deficiencies.

The ACCC recommends establishing a Water Markets Agency to create a trade-focused regulatory entity to proactively focus on water markets. The ACCC considers this should be established through a cooperative legislative scheme between the Australian and Basin State governments.

The proposed agency's functions would include new functions that have been identified throughout this inquiry, as well as combining functions that currently sit with other bodies. This will help to reduce fragmentation of water markets governance. The proposed functions and their benefits are:

- **Market regulation and surveillance functions** – ongoing monitoring of market activities, investigating allegations of potential market misconduct (such as market manipulation and insider trading), and undertaking enforcement action as required. The Water Markets Agency would also publicly report outcomes of its surveillance and enforcement activities.
 - *Benefits:* These functions would improve market integrity and create a more equal playing field for market participants, and thereby enhance market confidence. It would also enable the identification of any conduct that reduces market efficiency or causes harm.
- **Market information functions** – The Water Markets Agency would provide a 'one-stop-shop' for water users to access market information, such as pricing and availability (timely historical data on approved trades as well as current bids and offers), water storage information, announced allocations and access to policy documents such as for carryover and trade allocation. In addition, it could provide water users with practical guidance on water trading matters, and undertake direct educational campaigns and community engagement.
 - *Benefits:* This would enhance the quality and accessibility of market information, which is critical to the efficient operation of markets as it enables participants to make informed decisions. This would improve market confidence, increase competition and encourage efficient allocation and use of water resources.
- **Market evaluation functions** – proactively undertake whole-of-basin market evaluation and reporting of trading market issues and cross-jurisdictional trade impacts. This would include researching complex trade issues and market design, with a focus on achieving greater cross-jurisdictional coordination and harmonisation. These functions would assist in identifying market issues and trends to inform the Water Markets Agency's advisory, advocacy and regulatory functions.
 - *Benefits:* As water markets continue to develop, market evaluation would allow market problems to be identified, assessed and addressed before they lead to significant harm to markets or market participants. It would also enable the Water Markets Agency to identify opportunities to further improve how the water markets work for their users.
- **Advisory and advocacy functions** – Provide expert and technical advice to the Australian and Basin State governments to support and drive improvements to market architecture design and trade rules. The Water Markets Agency will also advocate for the interests of water markets in broader policy discussions.
 - *Benefits:* This is critical to ensure that governments properly consider water market impacts in broader water policy development processes.

In addition, the ACCC recommends procedural reform so that state and federal decision-makers consider independent and expert evidence from a market perspective. Consistency and transparency in rule making processes will improve the ability of market participants to understand and manage these rule changes.

The proposed Water Markets Agency would not itself be a rule making body. However, the ACCC proposes that for certain types of rule changes, rule makers must obtain and have regard to the advice of the Water Markets Agency before making changes to trading rules. This function would be an addition to state-based rule making process.

Lastly, the ACCC considers that procedural reform will assist market participants to understand the role of key decision making bodies. The ACCC recommends that the Ministerial Council and Basin

Officials Committee publish procedural documents to improve the transparency of the roles, functions and strategic priorities of their intergovernmental committees. This will improve market participants' understanding of these bodies, and increase market confidence.

The ACCC considers that implementing these reforms will be a further important step in the Australian and Basin State governments delivering on the Basin water market and trading objectives specified in the Water Act.

Lack of oversight and market transparency leads to concerns about and opportunities for misconduct and reduces confidence in the market

Many irrigators hold strong concerns about the role of water investors in water markets. These included concerns that investors are using their market power to influence prices and that their trading behaviour artificially inflated prices.

The ACCC did not find evidence that investors exercised market power or manipulated markets to increase water prices in the Southern Connected Basin.

The ACCC undertook extensive analysis to reach this conclusion. The ACCC used its information gathering powers to obtain data from investors and exchange platforms, as well as other information and documents, to supplement the Basin State data. The ACCC also conducted private hearings with representatives of a large investor to examine its investment and trading strategy and activities.

In 2018-19, institutional investors accounted for an estimated 11% of water allocation volumes purchased and 21% of water allocation volumes sold.¹⁷

There are four large water investors in the Basin who collectively held 7% of high reliability entitlements in the Southern Connected Basin as at 30 June 2019. However, there is also a variety of small investors, individuals and small trading firms operating in Basin water markets. Some own little or no entitlements but are active traders. Some actively trade allocation alongside their farming activities.

The ACCC found that one large investor was the largest trader of water allocation in 2018-19. During the first half of the 2018-19 water year when prices were lower, the large investor was a net buyer, accumulating water allocations, but maintaining an active role as a seller. During the second half of the water year when water prices were higher, it was a net seller but it continued to buy water allocations. During this period there were a large number of competing sellers of water allocations in the markets. Even large buyers of water were not forced to purchase water allocations from the one large investor or any one of the other water sellers.

The ACCC found that the difference in price between sell orders and buy orders on exchange platforms was wide. This can result in large movements in trade prices, but may be attributed to low liquidity in water markets rather than trader misconduct.

Water markets are opaque because of poor quality public data. A lack of market transparency also contributes to misconceptions and misinformation about the conduct of market participants.

The perception of misconduct by water investors has reduced water users' confidence in the water markets. Greater market transparency and effective oversight, including data analysis, investigations, and regular reporting, are necessary to build and maintain confidence in water markets.

The ACCC's efforts to gather and analyse trading data and other information to assess the impacts of market conduct made it clear that the current information and data collection arrangements across the Basin are insufficient. This made the analysis of market participants' trading behaviour challenging. Further, while the ACCC was able to scrutinise market activity using the compulsory powers available to it under this inquiry, it only provided a snapshot for a given period of time. Data limitations and the passage of time since the trades occurred meant it was not possible to investigate certain allegations of misconduct about other market participants that the ACCC received.

¹⁷ See section 4.3.2 of this final report. Excludes zero dollar trades.

Ongoing monitoring and reporting of market activities is needed to maintain irrigators' confidence in the integrity and fairness of the water markets over time.

There is currently no single entity responsible for, or capable of, gathering the necessary data to conduct ongoing, effective monitoring of trading behaviour in the Basin, and the current poor quality and siloed state of water market data pose significant practical challenges. Improving data collection and coordination across the Basin is therefore as essential for effective market oversight as creating the oversight role itself.

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

There is a strong basis for concerns about the lack of obligations owed by water market intermediaries to their clients, and inadequate regulatory oversight of intermediaries' practices. Regulatory safeguards, such as those which currently apply to intermediaries in other markets, including real estate agents, stock brokers and stock and station agents, do not apply to water market intermediaries. This creates opportunities and incentives for brokers and exchange platforms to engage in behaviours that would not be permitted in other markets.

The ACCC found that:

- brokers' roles are often unclear as contracts will not commonly set out the obligations brokers owe to their clients. While clients may mistakenly believe their broker is acting solely in their best interests, it is uncommon for such fiduciary responsibility (which is normal for brokers operating in most other markets) to arise within this relationship
- there are perceived or real conflicts of interest arising for intermediaries. These include intermediaries taking a personal position in a trade or brokers providing services to both parties in a trade. For example, a broker is not required to disclose to the other party to a trade that it is trading its own water rights. If a broker's water account is used, the other party to the trade would not be able to confirm if the broker is simply using the account to facilitate the trade or if the broker is a principal in the trade
- intermediaries hold significant amounts of client funds and client water rights on intermediary accounts without any trust-accounting obligations
- information asymmetries exist between intermediaries and water market participants, conferring a significant market advantage on intermediaries
- some market participants rely on intermediaries for market information and advice and this information cannot be verified by clients. This creates an opportunity for intermediaries to provide incomplete or misleading information. There are also no record-keeping requirements for intermediaries, which affects the quality of price-reporting audits and enforcement.

Market participants, brokers and exchange platforms have all called for regulation to address these issues, that undermine confidence and trust in intermediaries. This in turn reduces confidence in the market and its integrity, likely inhibiting full participation by parties that may otherwise engage in trade. To address these concerns, the ACCC recommends the introduction of a mandatory code specific to water-market intermediaries.

Basin-wide legislation is needed to prohibit detrimental conduct and strengthen integrity

There is not a cohesive regulatory framework for Basin water markets comparable to those that exist for other markets, such as the financial services and energy markets. There is a need for new centralised Basin-wide legislation, to prohibit misconduct such as manipulation and to strengthen integrity in Basin water markets. The legislation would be best established through a cooperative legislative scheme, and enforced by a centralised regulator – the proposed Water Markets Agency.

While the ACCC was able to scrutinise market activities under this inquiry, this process only provided a snapshot for a given period of time. Ongoing surveillance is needed. This would help to maintain market

confidence and support market participants to make efficient trading and investment decisions, in water as well as further investment in irrigated agriculture to increase productive output.

The new legislation should include an enforceable mandatory code for intermediaries to address the detrimental conduct and practices identified by the inquiry, and ensure that intermediaries are subject to the standard safeguards that apply in similar industries.

The existing price reporting obligations and insider trading prohibitions in the Basin Plan Water Trading Rules should be removed from these rules, incorporated in the new water market conduct and integrity legislation, and should be broadened and strengthened. The new legislation should also include new prohibitions on market manipulation.

The new legislation should require exchange platforms and Basin State approval authorities to provide trade data to the proposed Water Markets Agency, following proposed improvements to data sharing arrangements. The proposed Water Markets Agency should be given access to this data for surveillance, reporting and enforcement purposes. The proposed Water Markets Agency should also be given compulsory information gathering powers and appropriate enforcement powers.

The legislation should require the proposed Water Markets Agency to issue a unique common identifier to each market participant, to enable trades to be traced and traders to be identified. Traders should be required to include a unique common identifier on trade forms. This could be their ABN, ACN and/or the unique identifier issued to them by the proposed Water Markets Agency. Without the ability to trace trades, enforcement of measures to improve market integrity would be challenging.

Again, the ACCC considers that implementing these reforms will be a further important step in the Australian and Basin State governments' pursuit of the objectives of water markets and trading, specified in the Water Act.

Water trade services impact transaction costs and information transparency

Trade services in the Basin include advising, matching, clearing, settlement, registration and information, and are provided by a range of private and public entities with diverse technological capabilities. It is not always clear who provides which service and, at times, some service providers may perform conflicting roles.

Intermediaries such as exchange platforms 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 with irrigation infrastructure operators and Basin State trade approval authorities, which are local monopoly service providers in their respective regions. Transfers of titles (part of settlement services) and other registry functions are provided by irrigation infrastructure operators 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.

The ACCC found that trade approval processes and costs can be complex and vary considerably depending on the context of individual trades. However, with some exceptions, trade approval fees are generally low and trade approval processes appear not to cause significant issues for market participants. However, the ACCC found that the current trade services framework gives rise to three major issues for market participants.

First, there is inconsistent and inadequate access to information to make trading and investment decisions:

- 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 that differs significantly from the prevailing market price, and the reasons for this are not recorded. Core market information such as price and 'strike date' are siloed, and there is insufficient integrity within datasets and ability to link datasets to enable effective monitoring of market activity

and to allow market participants to seamlessly access comprehensive water market data and related information.

- Existing rules and frameworks fail to provide accurate market data. 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 irrigation infrastructure operators, do not 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) are held by brokers, exchange platforms and traders, and have only recently begun to be collected in New South Wales and Victoria. It is therefore not reported in historical registry trade data, and it is not clear when other Basin States will begin to collect this important information.
- Information on trade within irrigation networks in New South Wales and South Australia is not reported to Basin State registers, and some data held by trade approval authorities is generally not publicly reported, except to some extent in Victoria. These issues make it difficult to evaluate trade approval service provision and to understand how water markets and markets for trade services are developing. For example, trade approval authorities do capture data on the date trades are submitted, the number of refused trades, and the lodging party type, but such data is generally not accessible.
- There is minimal data available publicly on trade that occurs within irrigation infrastructure operators' irrigation networks. Trade involving irrigation infrastructure operators accounts for a large proportion of trade within the Basin, meaning that large segments of the markets are opaque. Greater transparency is needed on trading opportunities and prices within each irrigation network, and also about the trading activities irrigation infrastructure operators themselves undertake.
- With the exception of Victoria, State legislation does not explicitly authorise or require approval authorities or water registers to provide information services. This means that some States have been slower to respond to calls to provide more or better market information, because such services could be perceived as beyond their roles defined in legislation.
- Terminology used across the Basin continues to be inconsistent, leading to confusion about whether different water rights are comparable and what water products or trade types are available. Basin States and irrigation infrastructure operators have made insufficient progress in moving towards harmonised terminology, despite committing to the National Water Initiative (NWI) framework and Water Act, which provide definitions that could be used across the Basin.
- There is no clear compliance and monitoring role assigned to state agencies to ensure price reporting by sellers is accurate. However, some states have been working together to improve price reporting by making changes to temporary trading forms such as requiring sellers to disclose a reason for trade.

Second, market participants experience inconsistent transaction costs:

- There are inconsistencies and inefficiencies in trade approval processes in different regions. For example, trade approval times differ across states, and 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. This results in different fees for market participants, as automated approvals generally incur lower fees.
- Existing rules and frameworks fail to require a high standard of trade processing service delivery. While trade approval service standards do exist, they are voluntary, out-of-date, and only apply to government trade approval authorities, not to irrigation infrastructure operators (in their role as approval authorities for trade within, into and out of their irrigation networks). The result is that traders experience different service qualities and trade approval times.
- 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 types of trade, and trade approval processes can all differ across Basin States, resulting in complexity for market participants and differences in trade approval fees.

- Certain trade approval processes increase the complexity and cost of trading across Basin States. For example, an irrigator in an irrigation infrastructure operator irrigation network in New South Wales who wants to trade with another inside a South Australian irrigation infrastructure operator irrigation network must obtain the approval of four different authorities and pay four different fees.

Third, access to intervalley trading opportunities is inequitable:

- The processing of intervalley trades operates on a first-come, first-served basis, and the technological and procedural differences between Basin State trade approval authorities provide advantages to some traders over others. 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 front of the queue and able to capture the majority of benefits from intervalley trading opportunities.

Overall, these harms contribute to market participants' lack of trust in water markets and discourages participation.

If market participants cannot access all the information they need, in a timely manner, their ability to make optimal trading decisions is hampered. Further, if trade services are provided in a way which advantages some users over others, this can form barriers to entry for some participants and, in turn, allow certain participants to capture proportionally more of the gains from trade. 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 main causes of these three broad issues are outdated and disconnected information technology infrastructure for trade services, differences in underlying legislative frameworks, legislative gaps, and different approaches of private trade service providers. This leads to varying quality, timeliness and transparency of information. Each of these issues needs to be addressed; but they need to be addressed collectively, not independently.

The ACCC also considers that the existing regulatory and governance frameworks have at times inhibited the timely and effective resolution of these issues. In the past, and particularly while interzone trade was limited, there was little need for coordination, and so service provision by governments developed in a mostly localised way. Past attempts to develop a common registry system failed due to budget and technical challenges, but also to the fundamental difficulty of applying a centralised technical solution over a distributed governance framework.

Trade processes and market transparency need to improve, to help farmers and other water users make trading decisions

The ACCC considers that reform to four key elements is needed to improve trade services and market transparency:

- improve the ease of trading, reducing and harmonising transactions costs where possible
- improve the quality of water market data and related information
- improve the flow of information between current and future entities involved in Basin water markets, and water management more generally
- reduce or remove inequities in access to intervalley trade opportunities.

There is a need to establish a clear and comprehensive framework governing all entities who process trades, including brokers who provide matching services, exchange platforms, irrigation infrastructure operators and Basin State approval authorities.

Greater transparency in water markets, combined with improved and streamlined trade services, will help farmers and other water users make better trading decisions and improve participation and engagement in water markets by boosting traders' confidence and lowering costs of trading. In particular, 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 time and knowledge to navigate the markets, such as water investors and large agribusinesses.

The ACCC recommends several practical improvements that, in its view, should be made as soon as possible. Further, the ACCC considers digital technologies offer the opportunity to make more substantial improvements to streamline trade services, and at the same time enable increased market oversight to improve the integrity of Basin water markets, particularly in the Southern Connected Basin. Key recommended actions are:

- The Australian and Basin State governments and trade service providers to collaboratively invest in developing and implementing digital infrastructure and data standards. This will provide market participants with higher quality, more timely information, and to provide the proposed Water Markets Agency with adequate data and information to perform its proposed regulatory functions. Further, Basin States and the MDBA should work collaboratively to upgrade trade approval processes and digital systems to ensure a 'level playing-field' for traders in the southern connected Basin.
- Basin Governments and trade service providers to collaborate to deliver a public-facing central information portal to make disparate information and data accessible in one place, building on and extending current initiatives.
- Basin Governments to implement legislative change to give effect to the above recommendations. These changes will ensure that entities, particularly public trade service providers, are equipped with the mandate to fulfil their obligations. They will also help harmonisation or standardisation to be pursued where possible, and necessary obligations to be mandated to provide the necessary incentives or requirements to ensure real change actually occurs in practice.

These recommended improvements to data quality and data flows will help reduce the complexity of trade for market participants. Greater automation of trade services and system upgrades should help reduce operational costs, and therefore trade approval fees and times, over the longer term. Introducing a holistic framework under which all trade service providers have clear and consistent obligations will help build market participants' confidence in these service providers. It will also help ensure future innovations in trade services do not fragment or increase barriers to entry into trade services provision.

The ACCC considers that implementing these reforms will be a further important step in the Australian and Basin State governments pursuing the Basin water market and trading objectives set out in the Water Act.

Significant changes have occurred in the Basin since water markets were established and trade arrangements have not kept pace

The Basin States created water markets by establishing the rights, rules and arrangements to allow trade to occur, including accounting for, storing and delivering traded water. The ACCC uses the term ‘market architecture’¹⁸ to refer to this framework of laws, rules, policies and arrangements that govern where, when and what water can be traded.

Key elements of market architecture considered in this report include:

- 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, requiring its owner to use or trade the water 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 other users’ access to carryover by trading water between locations and classes of entitlement under ‘carryover parking’ arrangements
- geographical trade rules, including intervalley trade 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. This includes how conveyance losses (water that is lost to seepage and evaporation as it moves through the system) are managed and accounted for
- metering and measuring use requirements – these rules and policies determine the arrangements for recording how much water users extract and how frequently meter readings and account reconciliations occur. They provide a framework for managing trade, ensuring compliance with individual entitlement limits and system limits, and limiting the opportunities for water theft.

Significant policy, investment, water use and climatic changes have occurred in the Basin since water markets were established. Water markets have continued to evolve, increasing in size, value and complexity.

The market architecture needs to be designed to ensure that limited water resources, storage and delivery capacity and trade opportunity are allocated in ways that achieve the best, most efficient, outcomes for water users and the environment. However, there are signs that this does not always occur.

As trade volumes have increased and locations of trade have changed, problems with the current arrangements have begun to emerge. In particular, interzone trade has facilitated the movement of water use further down the Murray. A greater proportion of this use is supplied by the ‘call-out’ of water from intervalley trade accounts, with resulting consequences for water delivery, river operations and associated environmental impacts. For a range of reasons, delivering water is becoming more challenging for river operators and is associated with increasing impacts on other water users and the environment.

¹⁸ Key Basin market architecture elements include the:

- legal frameworks that create property rights (tradeable water rights include water access entitlements, water allocations, water delivery rights and irrigation rights) and provide for access to water resources
- intergovernmental agreements and Basin state and Commonwealth laws and policies that establish the arrangements for the sharing of water between the States, and among water users
- Basin State, Commonwealth and Irrigation Infrastructure Operator (IIO) trading rules, that determine when and how trade can occur, in what water products, and if any special constraints or requirements apply to certain products or transactions
- a range of ancillary rules and arrangements that provide for the storage, delivery, measurement and use of, and accounting for, traded water and the operation of the river systems and their associated infrastructure.

Stakeholders raised a wide range of concerns with the functioning of the Basin market architecture. These ranged from concerns about the transparency of key rules and policies – especially concerning allocations decisions – to concerns with increasing delivery risk, and access to opportunities for trade.

The ACCC found that under current market settings:

- proxy storage markets have emerged in the form of trade for carryover 'parking', reflecting that carryover is tied to entitlements rather than specified as a separate storage right. Due to low levels of trade currently, these markets are operating reasonably well, but higher levels of carryover parking may impact trade limits, and could increase the magnitude of any third party impacts not effectively addressed by existing policies
- intervalley trade limits do not adequately protect third parties from impacts related to timing of use and delivery, such as delivery shortfall risk and environmental damage. A limited number of market participants are able to circumvent those limits using 'grandfathered tags'¹⁹
- intervalley trade limits are becoming more binding – that is, the limit operates to restrict trade – at the same time, and are expected to continue this trend. When intervalley trade limits are binding, larger and better resourced participants such as agribusinesses and brokers dramatically increase their successful access at the expense of irrigators
- changing patterns of water use are making the management of water deliveries more difficult and potentially contributing to increased conveyance losses
- risks of delivery shortfall are increasing, reflecting unpriced and bundled or uncapped on-river delivery capacity
- there is a need to better protect the environment and other water users from the unintended impacts of moving water throughout the system
- current metering data is not sufficiently timely nor spatially granular to inform river operators' decisions.

The ACCC found that the way the market architecture manages the hydrological characteristics of the storages and river systems produces a series of 'disconnects' between the time of trade and the actual movement of water, resulting in indirect, less efficient approaches to managing the impacts of trade. This can be seen in:

- trade rules, such as intervalley trade limits, being used as imperfect mechanisms for managing all of the impacts of intervalley water deliveries
- third party impacts of water trade, use and delivery that change the location or timing of use (such as environmental damage, delivery risks and conveyance losses) not being appropriately priced and therefore, not factored into water users' business decisions
- river operations being increasingly challenged by changing patterns of water use occurring in part, as a result of trade (in conjunction with other non-market factors).

The ACCC concluded that, in particular, the Southern Basin's market architecture may not allocate available storage, trade or delivery capacity efficiently. Because market architecture does not always accurately reflect the hydrological realities of the system, it does not effectively send price signals to users that reflect the limited storage and delivery capacity, or the potential third party impacts of trade, storage and delivery decisions.

Further, current settings increase risks to other water users, river operators and the environment by failing to cost externalities into the market. Market architecture that does not adequately account for the impacts on delivery of changes in the location of use is likely contributing to observed changes in water use, such as increased irrigation development in the lower Murray.

Policy settings can interact with market activity and other changes, resulting in distributional impacts, where some market participants are implicitly favoured at the expense of other water users. For example, this can occur when holders of grandfathered tags bypass intervalley trade limits, when well-

¹⁹ The term grandfathered tags refers to a small number of water access entitlements that are exempt from restrictions on the trade of water allocation within or between two regulated systems, because a 'tag' between the systems was established before 22 October 2010. Basin Plan Water Trading Rule 12.23(2) creates this exemption. See section 14.1.7..

resourced participants are able to monitor trade openings and capture these opportunities, in river operators' decisions to prioritise mitigating delivery risk at the risk of increasing conveyance losses, and in the combined effects of trade and declining inflows on allocations to low reliability entitlements.

Other issues with the design of current settings can lead to trade occurring beyond ecologically acceptable limits while, at other times, settings may inappropriately limit or prevent trade. For example, intervalley trade limits may allow trades that would contribute to environmentally damaging water deliveries, as has been seen in the Goulburn system in recent years. However, when limits are binding they may also prevent trades, even though trade might not actually contribute to the risks being managed by these limits.

Ultimately, these characteristics reduce the net benefits of water trade. The effective operation of the Basin's water markets is also hindered by lack of:

- transparent information on market architecture
- adequate and reliable data
- coordinated and comprehensive modelling capabilities.

Key elements of market architecture can be improved to better manage trade activity and address pressures from trade and delivery arrangements

Many market architecture problems arise from simplifying assumptions made in the design of arrangements to enable water trading, and from the characteristics of the underlying property rights. The influences of changing climatic, hydrological, market and other conditions mean that market architecture is unlikely to remain fit-for-purpose without ongoing assessment and consideration of design improvements.

The design of key elements of the market architecture can 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 involves reassessing some foundational assumptions and making changes to a number of specific rules or policies. For example, the integrity of the operation of intervalley trade limits should be improved by removing the current exemption for 'grandfathered tags' – tagged entitlement trades created before October 2010 – that enables a limited number of licence holders to circumvent the operation of intervalley trade limits. These exemptions detrimentally affect other entitlement holders and the environment.

A second potential option is to develop more 'dynamic' intervalley trade 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 that requires long-term reconsideration is the accounting for, and attribution of, conveyance (or transmission) losses – that is, the water that is lost while flowing through the river system. While aggregate changes in water use facilitated by water trade may be putting upward pressure on conveyance losses, the ACCC has not been able to effectively determine the magnitude of trade's role in these increases. Applying conveyance loss factors to deliveries or trades downstream is technically and administratively difficult to implement, and so governments should first work on better understanding the relationship between trade and losses, and on improving the transparency of how these impacts interact.

Further, the existing market architecture should also be improved by a range of measures, including:

- increasing the transparency of water allocations decisions and improving information to help water users understand influences on supply
- formalising and communicating plans for managing delivery shortfall risks, improving the understanding users have of those risks and actions to mitigate them
- updating guidance to more explicitly address how river operators should make trade-offs between different operational objectives

- improving how intervalley trade mechanisms manage access to trade opportunity
- continuing to improve metering and monitoring of water take, including to support capturing improved time of use data and better modelling
- enhancing hydrological modelling capabilities to better reflect irrigator behaviour, help manage water deliveries and understand the impacts of trade, including on conveyance losses.

These targeted changes will improve the functioning of markets. However, they will not guarantee enduring, effective market architecture that integrates market activity with water management and ensures the efficient operation of water storage and delivery systems. A comprehensive, forward-looking and coordinated approach is needed to avoid piecemeal, reactive changes and to achieve effective reforms.

The ACCC considers that implementing reforms to the markets' design and construction – its 'architecture' – will be a further important step in delivering on the Basin water market and trading objectives, set out in the Water Act.

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

The Basin's water rights markets have serious problems that need to be fixed to generate more of the benefits of water trade for farmers and other water users. The markets' rules are deficient, enforcement of them is inconsistent and limited, and the overall governance of the Basin's water trade is problematic.

The terms of reference required the ACCC to recommend options to enhance markets for tradeable water rights.

A path available to governments is to continue to maintain existing arrangements while attempting important but incremental fixes to targeted problems at the same time. The ACCC does not recommend the continuation of this approach. It would not decisively fix the markets' existing and urgent flaws, or set up the markets, their participants and their institutions to overcome new challenges.

The ACCC recommends comprehensive change to address the markets' problems, and establish the necessary arrangements to solve problems as they will inevitably arise in these complex and dynamic markets. Implementing the reforms recommended in this report will allow the full benefits and opportunities of water trading to be harnessed, and address the negative impacts of unfettered and poorly designed markets.

The ACCC does not consider it a viable option to entirely or substantially dismantle existing water markets, or to make them more restricted. While this may curb 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.

This report contains 29 recommendations to reform Basin water markets. Many of the recommendations work together to maximise the benefits of water trading.

Implementation of the proposed recommendations will require commitment by a wide range of government and other stakeholders. The ACCC considers that a cooperative legislative scheme between Basin State and Australian Governments should be adopted to establish a framework for many of the recommended reforms. The input of stakeholders will also be important to maximise the benefits from initiatives pursued in response to this report.

The ACCC envisages these recommendations being implemented in three stages as shown in figure 5. Stage 1 focuses on recommendations to improve current trade arrangements and deliver on existing commitments as a matter of priority. Stage 2 involves creating new market focused governance, oversight and information arrangements, and would include the introduction of the proposed cooperative legislative scheme. Stage 3 contains a suite of recommendations to be delivered on by the proposed Water Markets Authority and Australian and Basin State governments to strength governance, decision making and market design.

Figure 5: Implementation pathway for the ACCC's recommendations

<p>Stage 1</p> <p>Improving current trade arrangements and existing commitments</p>	<ul style="list-style-type: none"> ▪ Require identifiers on trade forms (recommendation 4). ▪ Implement technical and procedural solutions to provide consistency for interzone trade (recommendation 5). ▪ Reshape current information portal initiatives (recommendation 6). ▪ Increase the transparency of allocations decisions and the drivers of water availability (recommendation 15). ▪ Improve efficiency in accounting for the costs of carryover (recommendation 16). ▪ Strengthen metering and monitoring (recommendation 17). ▪ Improve modelling of delivery and trade (recommendation 18). ▪ Formalise and communicate plans for managing delivery shortfalls (recommendation 19). ▪ Refine river-operations guidance to more effectively and transparently balance trade-offs (recommendation 20). ▪ Improve transparency of conveyance losses and other delivery impacts (recommendation 21). ▪ Improve intervalley trade mechanisms (recommendation 22). ▪ Assess whether the current configuration of geographical units remains fit-for-purpose (recommendation 24). ▪ Increase transparency of roles and functions of intergovernmental committees (recommendation 29).
<p>Stage 2</p> <p>Creating new market focused governance, oversight and information arrangements</p>	<ul style="list-style-type: none"> ▪ Create a Water Markets Agency (recommendation 26). ▪ Implement centralised, Basin-wide water market conduct and integrity legislation including an enforceable code of conduct for water market intermediaries; provisions that prohibit price manipulation, broaden price reporting requirements and broaden and strengthen insider trading provisions (recommendations 1-3). ▪ Implement Water Market Data Standards to provide a clear and fit-for-purpose framework for water market data and water trade services (recommendation 7). ▪ Implement mandatory trade approval service standards (recommendation 8). ▪ Implement rules and processes for water announcements (recommendation 9). ▪ Implement better rule-making process (recommendation 27).
<p>Stage 3</p> <p>Strengthening governance, decision making and market design</p>	<ul style="list-style-type: none"> ▪ Water Markets Agency to lead: <ul style="list-style-type: none"> – Adopt a comprehensive Digital Messaging Protocol for the capture, storage and transfer of water market data and trade applications (recommendation 10). – Implement a digital platform ('Backbone Platform') to act as a single repository for water market data and a single hub for trade approvals (recommendation 11). – Implement a public-facing Water Market Information Platform which harnesses improved data collection and quality (recommendation 12). – Implement a Basin-wide Water Market Education Program (recommendation 13). – Develop a reform roadmap for designing and operating efficient markets now and into the future (recommendation 25). ▪ Australian/Basin State governments to lead: <ul style="list-style-type: none"> – Implement lifetime traceability for water allocations (recommendation 14). – Implement clear and integrated mechanisms for delivery of environmental water (recommendation 23). – Obtain and have regard to advice from the Water Markets Agency (recommendation 28).

ACCC recommendations for water market reform

This section lists the ACCC's recommendations for enhancing the markets for tradeable water rights in the Murray–Darling Basin. The ACCC's recommendations work together as an integrated set, with an aim to restore confidence in water markets across the Murray–Darling Basin, and improve their operation and efficiency so that they work better for participants and the Australian economy. At the heart of the recommendations is proposed reform to the governance arrangements, to ensure markets receive the necessary focus that they deserve.

Market integrity and conduct

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

The ACCC considers that market integrity regulation for water rights trading needs to be improved to improve confidence in the integrity and fairness of water markets.

► Recommendation 1

Implement centralised, Basin-wide water market conduct and integrity legislation

New centralised Basin-wide legislation should be introduced to protect the integrity of Basin water markets by regulating conduct of market participants, to be enforced by the proposed Water Markets Agency (see recommendation 26).

The proposed new legislation should include:

- an enforceable mandatory code for intermediaries, to address the detrimental conduct and practices identified by the inquiry and ensure that intermediaries are subject to the standard safeguards that apply in similar markets
- integrity protections such as broader price reporting requirements, and conduct prohibitions on market manipulation and insider trading
- a requirement for exchange platforms and trade approval authorities to keep records of trades and to provide trade data to the Water Markets Agency through arrangements for the flow of trading data outlined in recommendations 10 and 11
- a role for the proposed Water Markets Agency to conduct surveillance, enforcement and reporting
- compulsory information gathering powers and appropriate enforcement powers for the Agency
- a requirement to issue a unique common identifier to each market participant, to enable trades to be traced and traders to be identified across regions and multiple accounts (see recommendation 4).

► Recommendation 2

Incorporate key obligations as part of an enforceable mandatory code for water market intermediaries

The mandatory code should apply to all parties that provide intermediary services, including irrigation infrastructure operators, and include obligations to:

- act in the best interests of a client, when providing certain services typically provided only by brokers
- provide the following information in writing to a client at the outset of each engagement:
 - the services being provided by the intermediary
 - the obligations owed to the client by the intermediary
 - the fees/commissions to be charged by the intermediary
- inform the client in a timely manner of any reasons for a trade approval authority rejecting or delaying the processing of an application
- implement a complaints-handling process, including obligations to keep records relating to complaints or resolution of complaints
- hold written authorities to submit trades for approval on behalf of clients
- hold written authorities to act as an agent on behalf of clients, when providing certain services typically provided only by brokers
- act in accordance with client instructions, when providing certain services typically provided only by brokers
- communicate all buy and sell offers to clients in relation to the proposed trade, when providing certain services typically provided only by brokers
- disclose to the client when receiving multiple fees/commissions in relation to a single trade, when providing certain services typically provided only by brokers, excluding trades matched through an exchange platform
- disclose to the client when an intermediary or a related entity has a personal interest in the trade, and that the water rights they have a personal interest in are to be transferred to/from the intermediary's or related entity's trading water account (that is, not the intermediary's broking water account which is used to hold client water rights). The intermediary must provide an opportunity for the client to get independent advice and the client must return written consent before proceeding with the trade
- disclose to the client when water rights are to be transferred to/from the intermediary's broking water account which holds client water rights
- comply with client water rights management and accounting obligations (under statutory trust accounting framework for broking water accounts which hold client water rights)
- comply with client funds management and accounting obligations (under statutory trust accounting framework for client funds)
- hold professional indemnity insurance
- keep records of client instructions, trade details (including strike date) and client details for the period of time (five years) required under Australian Tax Law
- disclose which method the intermediary is using to allocate successfully transferred volumes following an intervalley trade opening (for example, in chronological order or pro rata).

► **Recommendation 3**

Prohibit price manipulation, broaden price reporting and broaden and strengthen insider trading obligations

Existing price reporting obligations and insider trading prohibitions should be removed from the Basin Plan Water Trading Rules, and incorporated into the new water market conduct and integrity legislation.

The price reporting obligations should be broadened to require prices to be reported for all transactions of tradeable water rights, including irrigation rights and water delivery rights – not only water access rights. Trade approval authorities (including irrigation infrastructure operators) should be required to collect, record and transmit this information.

The insider trading prohibition should be broadened and strengthened to apply to the use of any material information prior to it being made public in order to gain an unfair advantage in the market – not only to ‘water announcements’ (for example, government announcements about allocations, carryover and trading restrictions).

The proposed new conduct and integrity legislation should include a prohibition on price manipulation.

The price reporting obligations, insider trading prohibition and market manipulation prohibition should be enforced by a single Basin-wide regulator – recommended to be the Water Markets Agency (see recommendation 26).

Implementing this recommendation will address challenges in enforcing prohibitions against misconduct that arise under current laws, and address regulatory gaps.

► **Recommendation 4**

Require identifiers on trade forms

Traders should be required to include a unique common identifier on trade forms. This could be their ABN, ACN, and/or the unique identifier issued to them by the centralised regulator.

The ability to identify market participants, and trace and follow transactions, is a foundational issue for protecting market integrity and maintaining market confidence. This will improve the regulator’s ability to detect misbehaviour and enforce against it.

Trade processing and water market information

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

► Recommendation 5

Implement technical and procedural solutions to provide consistency for interzone trade

New South Wales, Victoria, South Australia and the MDBA should work collaboratively to upgrade trade processing systems and interoperability protocols to ensure these systems provide consistency for market participants wanting to access interzone trade opportunities. In principle, this should happen as part of enhancements that move all states towards the longer-term goals outlined in recommendations 10 and 11.

This will help ensure that market participants in some states are not disadvantaged relative to participants in other states when accessing interzone trade opportunities, particularly when opportunities are limited due to trade restrictions such as the Barmah Choke trade restriction and the Goulburn and Murrumbidgee intervalley trade limits. It will also help ensure traders face more consistent and neutral incentives when deciding whether or not to use aggregator services/brokers when trading interzone.

► Recommendation 6

Reshape current information portal initiatives

Australian and Basin State governments should work collaboratively to substantially improve existing information portal initiatives to improve information availability and prepare to transition towards the proposed digital infrastructure for water markets, particularly the proposed Water Market Information Platform (see recommendation 12).

This will ensure that benefits of existing initiatives are leveraged and that water market transparency continues to improve during the transition to the proposed new legal framework and digital infrastructure for water markets.

Priority actions are:

- New South Wales to publish water access licence (WAL) and water trade data for the NSW Murray Regulated River water source in a manner that clearly identifies which zone(s) are associated with the WAL or trade (as applicable).
- South Australia to implement collection and publication of 'reason for trade' and 'strike date' data from trade application forms, in line with actions already undertaken or committed to by New South Wales and Victoria.
- The Bureau of Meteorology to incorporate into its water market information dashboard data from New South Wales, Victoria and South Australia on 'reasons for trade' and 'strike date' as soon as practicable.
- Australian government agencies to map existing and 'in development' data sharing agreements relevant to water market data or related information such as rainfall, inflows and storage levels, river flow data, water allocations, intervalley trade limits, environmental watering.
- All information portals which display price data to document and make available easily accessible metadata on how price series are calculated, including explaining any data cleaning processes undertaken prior to derivation of aggregate or average price series.

► **Recommendation 7**

Implement Water Market Data Standards to provide a clear and fit-for-purpose framework for water market data and water trade services

Australian and Basin State governments should establish mandatory Water Market Data Standards governing the collection, storage, transmission and publication of water market data and related information by trade service providers.

This will deliver a robust and consistent legal framework to bring about improved data quality and water market data flows, leading to improved transparency for water market participants and enhanced interoperability between trade service providers.

Key recommended actions are:

- Develop Water Market Data Standards to provide a consistent framework underpinning the collection, storage, transmission and publication of water market data and related information (noting that technical specifications such as for data transmission will be implemented via the proposed Digital Messaging Protocol and proposed Backbone Platform – see recommendations 10 and 11).
- Trade service providers such as brokers, exchange platforms, irrigation infrastructure operators and Basin State trade approval authorities and register operators should have clear obligations to provide data as specified in legislation and to comply with the proposed Water Market Data Standards (see recommendation 1).
- Establish a centralised Water Market Data Standards compliance and enforcement role to ensure compliance with the standards once they are established. It is recommended the Water Markets Agency (see recommendation 26) should have this role.
- The Water Market Data Standards should specify the form, and process for issuing and use, of Basin-wide common party identifiers for tradeable water rights holders, and Basin-wide single transaction identifiers to be used to uniquely identify all trades of tradeable water rights.
- Harmonise or standardise terminology in water management law, where possible, as part of changes to legal frameworks to implement the proposed Water Market Data Standards.

Development of Water Market Data Standards should be undertaken collaboratively by government, trade service providers and water user representatives (such as irrigator groups, environmental water holders and traditional owner groups), and should be based on meaningful 'user needs' consultation with water market participants.

► **Recommendation 8**

Implement mandatory trade approval service standards

Australian and Basin State governments should implement consistent mandatory service standards that apply to all trade approval authorities, including irrigation infrastructure operators.

This will help ensure that trade approvals are undertaken in a consistent and timely manner.

► **Recommendation 9**

Implement rules and processes for water announcements

Australian and Basin State governments should implement rules and processes for water announcements, which apply, at a minimum, to all governments or government agencies, and all trade service providers. This should build on existing relevant provisions in the Basin Plan Water Trading Rules (note that recommendation 3 proposes relocating these rules into the proposed new conduct and integrity legislation).

Agencies or organisations making water announcements should be required to provide them to the proposed Water Market Information Platform in a timely manner (see recommendation 12). The current materiality criterion applying to water announcements – that the announcement ‘can reasonably be expected, if made generally available, to have a material effect on the price or value of water access rights’²⁰ – should be retained, but broadened to apply to all tradeable water rights.

The recommended processes for making water market announcements could be integrated into the proposed centralised legislation (see recommendation 1).

This will ensure that information which could materially affect the price or value of water access rights will be accessible by all market participants from a single source, at a specified time.

► **Recommendation 10**

Adopt a comprehensive Digital Messaging Protocol for the capture, storage and transfer of water market data and trade applications

Australian and Basin State governments should work collaboratively with trade service providers to establish and implement a mandatory Digital Messaging Protocol for water trade and water market data, which will enable:

- enhanced interoperability between Basin State registers, by providing automated digital connections (that is, machine-to-machine connections) and the ability to establish a direct digital interface between the proposed digital platform (Backbone Platform) and irrigation infrastructure operators, private exchange platforms and Basin State trade approval authority systems and water registers
- the ability to securely transmit data and trade applications between trade service providers
- the ability to automatically execute instructions, and automate collection, cleaning and publishing of water market data.

It is recommended that the proposed Water Markets Agency (see recommendation 26) play a lead role in developing the Digital Messaging Protocol, and should be assigned the role of enforcing adoption of the protocol (once established), as required by legislation. The proposed Water Markets Agency should also be assigned the responsibility of developing appropriate governance arrangements for the Digital Messaging Protocol.

When fully implemented, the Digital Messaging Protocol should give effect to the relevant requirements of the proposed Water Market Data Standards (see recommendation 7).

The Digital Messaging Protocol should be implemented in conjunction with the proposed Backbone Platform and public-facing Water Market Information Platform (see recommendations 11 and 12).

The ACCC recommends Australian and Basin State governments consider subsidising some of the cost of private service providers’ system upgrades to assist with the transformational change needed to deliver digitised trading processes and digital infrastructure for water markets.

20 Basin Plan (2012) (Cth), s12.49(2)(c)(ii).

► Recommendation 11

Implement a digital platform ('Backbone Platform') to act as a single repository for water market data and a single hub for trade approvals

Australian and Basin State governments should work collaboratively with trade service providers to establish and implement a digital platform ('Backbone Platform') to underpin trade services and water market data.

It is recommended that the proposed Water Markets Agency (see recommendation 26) play a lead role in developing the Backbone Platform and operating it, or have oversight of its operation, once established. The proposed Water Markets Agency should also be assigned the responsibility of developing appropriate governance arrangements for the Backbone Platform.

Establishing the Backbone Platform will help streamline trade approvals and the collection and dissemination of water market data by providing a single hub through which water trade applications are made, and within which water market data is stored.

When fully implemented, the Backbone Platform should comprise:

- a secure digital repository for water market data and related information
- digital connections between the Backbone Platform and trade service providers, regulators, approval authorities, river operators, and the public-facing Water Market Information Platform, with purpose- or entity-specific access controls
- single portal for lodging trade applications (Southern Connected Basin)
- harmonised 'trading rules engine' for assessing trade application against trading rules (Southern Connected Basin).

The Backbone Platform should be implemented in conjunction with the proposed Digital Messaging Protocol, public-facing Water Market Information Platform and in compliance with the proposed Water Market Data Standards (see recommendations 7, 10 and 12).

When implemented together, these technologies will form an underlying digital framework and common digital 'language' and processes, upon which different trade service providers can build their own digital infrastructure.

The Backbone Platform is not intended to operate as an exchange platform or to replace the role of existing trade approval authorities, although the proposed single lodgement portal and 'trading rules engine' could assist trade approval authorities to undertake their roles in a more timely and consistent manner.

► **Recommendation 12**

Implement a public-facing Water Market Information Platform which harnesses improved data collection and quality

Australian and Basin State governments should build on centralised information platform initiatives already in place to improve the transparency of water market information. Industry and government should work collaboratively to implement a public-facing Water Market Information Platform.

This will ensure all the key information market participants need to make well-informed trading decisions is available from one location, is accurate and is up-to-date.

It is recommended that the proposed Water Markets Agency (see recommendation 26) play a lead role in developing the public-facing platform and operate it, or have oversight of its operation, once established. The proposed Water Markets Agency should also be assigned the responsibility of developing appropriate governance arrangements for the Water Market Information Platform.

At a minimum, the platform should make publicly available:

- water market data (in general, sourced via automated data feeds from the digital repository contained in the Backbone Platform)
- information on relevant government policies and decision-making (see recommendation 15 concerning improving transparency of policies and procedures)
- water announcements (see recommendation 9).

The Water Market Information Platform should be implemented in conjunction with the proposed Digital Messaging Protocol and the Backbone Platform (see recommendations 10 and 11).

► **Recommendation 13**

Implement a Basin-wide Water Market Education Program

The Australian Government should develop a Basin-wide Water Market Education Program, in collaboration with irrigation infrastructure operators, brokers, water exchange platforms, water information service providers and Basin State governments.

This will assist current and potential market participants – especially irrigators – to better understand water products and trading rules, and to engage confidently in water trading.

► **Recommendation 14**

Implement lifetime traceability for water allocations

Australian and Basin State governments should implement lifetime traceability for water allocations when implementing the proposed Digital Messaging Protocol.

This will make it possible to trace water from its original point of allocation to its eventual use. This will facilitate implementation of policies, trading rules or water management options that rely on the ability to track how water moves in detail.

The governments should implement this in consultation with water market participants, river operators and infrastructure operators.

Market architecture

These recommendations identify actions to strengthen current arrangements, and build on governments' existing commitments to improve their systems. They propose tackling urgent problems with current settings, and lay the groundwork for future improvements. A reform roadmap describes pathways and timeframes for advancing more robust, efficient and coordinated arrangements for managing trade and its impacts, and integrating market design with other water policies.

► Recommendation 15

Increase the transparency of allocations decisions and the drivers of water availability

Basin States should increase the transparency of inputs, assumptions and administrative decision making involved in determining allocation announcements by:

- publishing in detail the steps taken and factors considered by relevant authorities
- explaining calculations and how assumptions or inputs, such as conveyance losses and forfeiture rates, have varied over time
- communicating how authorities apply discretion based on their risk appetite.

Basin States should publish accessible and easy to understand guidance explaining how states will manage periods of extreme dry conditions and low water availability. The guidance could include fact sheets on the triggers for when special provisions occur and how water access will be affected – that is, how, when and on whom temporary water restrictions will be imposed.

Australian and Basin State governments should help entitlement holders better understand the changes in, and drivers of, entitlement reliability and allocations (including the role of carryover arrangements). A key part of building this knowledge of changing drivers will involve improving the transparency and understanding of how water allocated to different water access right categories is influenced by accounting for conveyance losses, carryover policies and use, and climate variability. Another element of this should include communicating how trading for carryover parking can interact with user account limits. Building knowledge in this regard should also be an element of the proposed Water Market Education Program (see recommendation 13).

This information and improved transparency will help stakeholders to interpret market information and understand the drivers of changes, likely supporting improvements to market confidence.

► Recommendation 16

Improve efficiency in accounting for the costs of carryover

New South Wales and South Australia should update carryover rules and policies to appropriately account for evaporation losses associated with storing water in a dam beyond the year in which that water was allocated, and attribute those losses to the individual.

South Australia should update its registers and trade forms to be able to identify carryover parking trades.

Once robust data on trade for carryover parking is available, Basin States or the proposed Water Markets Agency (if established in time) should assess whether demand for storage space (as measured by carryover parking trade) is such that carryover is generating externalities (such as opening or closing trade barriers) which cannot be adequately managed through carryover policy or rule design.

This is to ensure that individual users face the full costs of their decisions, including evaporation losses, and the water accounting more accurately reflects the hydrological realities of the system, to drive more efficient decisions by individuals about use of available storage capacity and water.

► Recommendation 17

Strengthen metering and monitoring

Australian and Basin State governments, and the MDBA should strengthen existing commitments to better metering and measurement of water take across the Basin through:

- continuous improvement and harmonisation of the metering standards and technology in use in the Southern Connected Basin. In particular, South Australia should commit to upgrading its metering standards to require telemetry where cost effective
- implementation of telemetry across the Southern Connected Basin, where technologically possible and cost effective
- monitoring progress on the measurement and outcomes of overland flows/flood plain harvesting. In particular, Queensland and NSW should continue efforts to more accurately measure overland flows/floodplain harvesting using new technologies; and to bring these forms of water take into the licensing framework
- Basin States, in consultation with the MDBA and the proposed Water Markets Agency should implement a consistent approach across jurisdictions and reporting agencies for the collection, storage, transmission and reporting of usage data. This should be consistent with existing Basin Compliance Compact commitments on the automation of reporting of water take, and with any relevant proposed Water Market Data Standards (see recommendation 7)
- Basin States should improve compliance and enforcement programs and invest in systems to identify and prevent water users being able to go into negative balances by extracting more water than is available in their account.

This could be achieved by extending and expanding the scope of the Basin Compliance Compact.

These measures will provide a foundation for good management of markets and water resources, increase the confidence and trust of market participants and water users generally, and support other improvements to market architecture, modelling and water information.

► Recommendation 18

Improve modelling of delivery and trade

Australian and Basin State governments should improve modelling of water use, delivery and trade across the Basin, including through improving linkages between models. Specifically, this can be achieved by working with and supporting:

- the MDBA, and relevant industry and academic bodies, to continually improve hydrological and river modelling capability and research
- the MDBA, the Australian Bureau of Agricultural and Resource Economics and Science, the Bureau of Meteorology, and relevant industry and academic bodies, to improve hydro-economic modelling²¹ capability and research.

This will help policy makers better understand and predict the impacts of water trade and associated changing patterns of usage on conveyance losses and delivery risks; improve and update water user behavioural assumptions; and strengthen the capability to forecast and incorporate trends in crop mixes and climate-change scenarios.

21 Hydro-economic modelling combines economic management concepts with an engineering level of understanding of a hydrologic system. Hydro-economic models integrate spatially distributed water resources, economic values, infra-structure, and management policies. Models predict the allocation of water between different uses across time and space taking into account various physical, economical, environmental and institutional constraints. See, for example, United Nations Food and Agriculture Organisation, 2018, *Hydro-economic modelling for basin management of the Senegal River*, <http://www.fao.org/3/CA1968EN/ca1968en.pdf>, viewed 14 February 2021.

► **Recommendation 19**

Formalise and communicate plans for managing delivery shortfalls

Basin States and the MDBA should move promptly to:

- formalise their arrangements for managing shortfall events, including how they will enforce those arrangements
- publicly release plans, or a joint plan, that clearly and with consistent messaging, describe:
 - the delivery risks faced by water users, and how these will be communicated to users in a timely fashion
 - how a shortfall would be managed by authorities, including the mechanisms and approaches that will be used to ration water availability
 - how water users can take steps to mitigate their own risks or potential impacts of shortfall events based on their location in the river system.

This will give irrigators more certainty about how water deliveries will be managed in times of high demand and potential shortfall. This will help irrigators make decisions about, for example, whether they invest in water storages on their farms.

► **Recommendation 20**

Refine river-operations guidance to more effectively and transparently balance trade-offs

River operations guidance should be refined, to more effectively and transparently balance trade-offs. Specifically, that the MDBA and Basin States, through Basin Officials Committee, should work together to:

- update key governance documents and operational guidance to clarify how important ‘trade-offs’ between operations, market activity, trade opportunity and the impacts on third parties and environmental risks will be managed
- better integrate consideration of impacts on and of trade and market design into operational decision-making
- establish ecological tolerances within which to operate in the Southern Connected Basin, and enshrine these in whole-of-system operational guidance for river operators
- ensure that reviews of river operations also include a section which analyses the market effects of river operations decisions and the way decisions are announced.

This is to improve guidance to river operators and policy makers on how to manage operational, environmental and market trade-offs, more effectively integrating and improving understanding of the interaction between water management and water markets and the management of connected systems in an integrated way.

► **Recommendation 21**

Improve transparency of conveyance losses and other delivery impacts

The MDBA and Basin States should improve the transparency of conveyance losses and other delivery impacts. Specifically, that the MDBA should commit to the active and ongoing monitoring, and communication about trends and drivers, of conveyance losses through the annual publication of the 'River Losses in the River Murray System' report, in a timely manner following the finalisation of each water year. Basin States should also consider releasing similar reports to explain the nature and drivers of conveyance losses in other rivers where concerns are present, such as the Murrumbidgee.

This will help water users and their communities better understand the relevant issues and operational considerations, and provide further evidence to water managers in considering potential avenues for revising how these losses are accounted for within the market architecture.

► **Recommendation 22**

Improve intervalley trade mechanisms

Basin States and the MDBA collectively and, where required, Victoria and New South Wales separately, should improve and harmonise the operation of the rules governing intervalley trade and trade through the Barmah Choke, by:

- improving the efficiency of, and equity of access to the opportunity to trade, which are currently largely 'first in, first served'
- removing the exemption in Basin Plan water trading rule 12.23 for 'grandfathered' tagged water access entitlements, because it affords a small number of market participants an inequitable exemption from restrictions on intervalley trade.
- considering if current 'rolling' intervalley trade limits can be replaced with 'dynamic limits' – to develop trade rules that better match opportunities to trade with the constraints of the physical system.

Revising intervalley trade arrangements so that trade opportunities more accurately reflect the benefits, costs and risks of water use and delivery will encourage market participants to make efficient usage, trading and investment decisions. Dynamic limits that change to increase trade opportunity at times when there are fewer impacts on the river system, such as during late winter in alignment with natural flow patterns, and to reduce trade when there are negative impacts on the river system, such as at times of peak demand in summer, will help with this. Removing exemptions that undermine effective operation of limits will also improve market operation and outcomes.

► Recommendation 23

Implement clear and integrated mechanisms for delivery of environmental water

Basin States, in collaboration with the MDBA and the Commonwealth and State environmental water holders, should better integrate environmental watering arrangements into trading arrangements and market design, including by:

- ensuring that trading and delivery arrangements are not contingent on the intended use of the water, including by making available arrangements currently only open to environmental water holders to consumptive water users, where possible, and ensuring neither consumptive or environmental users are given preference over the other
- committing to explicitly assess and address likely impacts on water markets, landholders or the environment of any new trading or delivery arrangements developed in future
- clearly and consistently accounting for environmental trade and delivery across Basin States
- developing a transparent policy position on how and when environmental water holders, and consumptive users, should use trade mechanisms to move water, and clearly articulating how movements of water within and outside of the trading framework affect trade opportunities, particularly for interzone trade opportunities governed by restrictions.

This will contribute to developing arrangements and tools to deliver environmental water in ways that help improve transparency and confidence, and alleviate system congestion.

► Recommendation 24

Assess whether the current configuration of geographical units remains fit-for-purpose

Basin States, together with the MDBA, should assess the appropriateness of the current set of, and spatial definitions of, geographical units used in water management and river operations and as the basis for trading zones.

This is to ensure that the spatial boundaries of geographical areas relied upon to manage water remain fit for purpose; assess whether new geographical units may be required; and to assess whether and how the current spatial definitions may need to be formalised and aligned across agencies.

► Recommendation 25

Develop a reform roadmap for designing and operating efficient markets now and into the future

The proposed Water Markets Agency should work with the Australian and Basin State governments and the MDBA to undertake a work program to progress a long-term reform roadmap that better integrates water market design with water management and aligns market architecture with the hydrological realities of the natural system.

This work program should consider how more fundamental reforms of the market architecture may drive improved market efficiency, such as through creating appropriate market based incentives and reducing generation of externalities. Informed by improved information gathering stemming from other recommendations in this report, this should include assessing the feasibility and merits of adopting new market mechanisms, pricing measures or complimentary policies within the Southern Connected Basin or across the whole Basin, as appropriate. Potential mechanisms to explore include, but are not limited to:

- applying water accounting that better aligns with the physical transfer of water, such as through ‘tagged allocation trade’
- applying congestion or time-of-use charges
- developing formal markets for rights to delivery capacity and/or water extraction (for example, ‘constraint rights’, ‘on-river delivery rights’, ‘extraction shares’)
- applying ‘loss factors’ to water trades in the Southern Connected Basin
- adopting ‘capacity sharing’ – where each water user is allocated with a share in storage capacity and a share in water inflows – in the Southern Connected Basin, including its potential to offer long-term alternatives to intervalley trade account-balance limits
- considering the potential use of ‘water banks’ to fulfil roles like coordinating particular trading opportunities, such as allocating out intervalley trade capacity, and holding and redistributing water rights as a ‘safety net’ in the markets
- developing a water market operator/smart market to operate the Southern Basin water markets and co-ordinate water delivery to users as one integrated system, matching bids for water with offers of supply, within the physical constraints of the system.

Developing the roadmap and considering longer term reform options will provide pathways and timeframes for continued improvement of markets through improved design and integration of the rules and arrangements for trade across the Basin.

Governance of the Basin water markets

There is a need to reset governance frameworks, to enable independent and clear decisions on the development of market settings. Improved governance will help to resolve many of the issues identified throughout the inquiry; as well as strengthen the system so fewer problems emerge in the future.

► Recommendation 26

Create a Water Markets Agency

The Australian and Basin State governments create an independent Basin-wide Water Markets Agency to consolidate and carry out new and existing trade-related roles and functions.

The ACCC considers the Water Markets Agency would be best established through a cooperative legislative scheme between the Australian and Basin State governments.

The key functions of the proposed Water Markets Agency would be:

- *Market regulation and surveillance functions* – ongoing monitoring of market activities and investigating allegations of potential market misconduct. This will address key regulatory gaps, such as in relation to water market intermediaries (see recommendations 1 to 3).
- *Market information functions* – provide a ‘one-stop-shop’ for water users to access market information, such as pricing and availability, water storage information, announced allocations and access to policy documents (see recommendation 12).
- *Market evaluation function* – undertaking proactive whole-of-basin market evaluation and reporting activities of trading market issues and cross-jurisdictional trade impacts. This would enable research and analysis in relation to market issues, including those set out in recommendation 25.
- *Advisory and advocacy functions* – providing expert and technical advice to the Australian and Basin State governments and advocate for the interests of water markets in broader policy discussions.

It is not proposed that any existing rule making functions be transferred to the proposed Water Markets Agency.

This will establish an organisation distinct from broader water management governance, so that there is a greater institutional focus on delivering important specific functions that support efficient markets. It would have a Basin-wide reach and a whole-of-Basin perspective.

► Recommendation 27

Implement better rule-making process

The Australian and Basin State governments should implement a consistent and transparent process for reviewing and amending water trading rules and other decisions with significant impacts on water markets.

Details about each review, including commencement of consultation, preliminary and final decisions, and any other stages in the process relevant to market participants should be published through the proposed water market announcements platform to be operated by the proposed Water Markets Agency (see recommendation 9).

This will improve transparency of decision making processes across the Basin and improve accountability and confidence in processes and outcomes.

It is not proposed that any existing rule making powers be transferred from their existing bodies.

► **Recommendation 28**

Have regard to advice from the Water Markets Agency

The Australian Government and Basin State governments should incorporate a requirement into applicable legislative frameworks to obtain and have regard to advice from the proposed Water Markets Agency before making changes to trading rules and other decisions with significant impacts on water markets.

The proposed Water Markets Agency should also be given a mandate to provide advice in relation to broader reforms not subject to the proposed requirement, where it considers it necessary to highlight potential water market impacts for decision makers.

This will ensure that policy makers understand the impact on markets of their decisions, and enable more adequate consideration of markets impacts in water policy.

► **Recommendation 29**

Increase transparency of roles and functions of intergovernmental committees

The Murray–Darling Basin Ministerial Council and the Basin Officials Committee should publish procedural documents to improve the transparency of the roles, functions and strategic priorities of its intergovernmental committees, with particular regard to how water trade matters are escalated and decisions are made.

This will deliver important information to stakeholders about how these governance arrangements work.

Glossary

ACCC	the Australian Competition and Consumer Commission
ACT	the Australian Capital Territory
allocation, water allocation	the specific volume of water allocated to a water access entitlement in a given water accounting period. 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 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
Basin State governments	the state and territory governments of New South Wales, Victoria, Queensland, South Australia and the Australian Capital Territory
carryover arrangement	an arrangement which allows a water access right holder to retain water allocations not taken in a water accounting period for possible take in the next water accounting period
CCA	the <i>Competition and Consumer Act 2010</i> (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	a 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)
exchange platform	a water market intermediary who operates an online portal facilitating direct trading between sellers and buyers, using algorithms for automated matching, auction style listings, or ‘buy-it-now’ listings for a commission or fee or other form of remuneration or payment
gigalitre (GL)	one billion litres

grandfathered tag	a tagged entitlement which was established prior to 22 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 the purpose of 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
intervalley 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	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
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 Australian, state and territory governments, 2004
Northern Basin	the Northern Murray-Darling Basin is defined as incorporating the following systems: Barwon-Darling, Lachlan, Macquarie-Castlereagh, Gwydir, Namoi, New South Wales Border Rivers, Queensland Border Rivers, Moonie, Condamine-Balonne and Warrego-Paroo-Bulloo-Nebine. The Lachlan River, an intermittent tributary of the Murrumbidgee, is included in the Northern Basin
NSW	New South Wales
off-platform trade	trades negotiated via a broker or individuals without the involvement or use of an exchange platform, but lodged for approval via an exchange platform
private diverter	a person that extracts water directly from a natural watercourse (either a regulated or unregulated river)
SA	South Australia

Southern Basin	the Southern Murray–Darling Basin (Southern Basin) comprises surface-water systems incorporating the Murray River and its various tributaries across the ACT, NSW, Victoria and South Australia, as well as the groundwater systems (not including the Great Artesian Basin) underlying these surface-water systems
Southern Connected Basin	for the purpose of this report, the Southern Connected Murray-Darling Basin is defined as comprising the following trading zones: 1A Greater Goulburn, 1B Boort, 2 Broken, 3 Lower Goulburn, 4A Campaspe—Eppalock to WWC, 4C Lower Campaspe, 5A Loddon—CC/Tull to LWP, 6 VIC Murray—Dart to Barmah, 6B Lower Broken Creek, 7 VIC Murray—Barmah to SA, 10 New South Wales Murray Above Choke, 11 New South Wales Murray Below Choke, 12 SA Murray, 13 Murrumbidgee and 14 Lower Darling
tagged allocation trade	form of trade via which 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 subject to rules of the origin catchment or trading zone (for example, for the purposes of further trade or carryover)
tagged entitlement trade	a form of trade via which the water that is allocated to an entitlement issued in one location can be physically taken in another, via the process of placing a ‘tag’ authorising the different extraction location on the entitlement in the relevant Basin State water register. When an allocation is made to 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 (subject to any restrictions on ordering or delivery)
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 water service infrastructure, typically by terminating a water delivery right
termination fee	a fee that an infrastructure operator may impose when a person terminates their right of access, such as a water delivery right
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	means: <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 directly by the irrigator (or anybody other than the irrigation infrastructure operator), thereby reducing the volume (for example, the share component) of the infrastructure 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 ▪ water access entitlements ▪ water allocations
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, NSW) or water account (South Australia, Queensland). May also be referred to as a 'water holding account'
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"> ▪ 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
water market intermediary	a person who is a water broker and/or an exchange platform
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, exchange platforms, 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	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 the purpose of providing a service to another person

watercourse

a river, creek or other natural watercourse (whether modified or not) in which water is contained or flows (whether permanently or intermittently). It includes:

- dams or reservoirs that collect water flowing in a watercourse
 - lakes or wetlands through which water flows
 - channels into which the water of a watercourse has been diverted
 - parts of a watercourse
 - estuaries through which water flows
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