



28 August 2020

Director  
Murray-Darling Basin Inquiry  
Australian Competition and Consumer Commission  
GPO Box 3131  
Canberra ACT 2601

Dear Director

Charles Sturt University is Australia's largest regional university, with more than 43,000 students and approximately 2,000 full time equivalent staff. We are a unique multi-campus institution with campuses at Bathurst, Canberra, Dubbo, Goulburn, Manly, Orange, Parramatta, and Port Macquarie, and in Albury-Wodonga and Wagga Wagga, in the heart of the Murray-Darling Basin.

The University has strong ties with Basin communities, and provides significant benefits to regional economies. A 2018 study by the Western Research Institute indicated that the University's economic contribution to the southern region of NSW – which includes much of the Murray-Darling Basin – included an additional \$388 million in Gross Regional Product, 3,300 full-time equivalent jobs, and \$272.4 million in household incomes.

Charles Sturt educates and trains a significant proportion of the Murray-Darling Basin workforce, especially its agricultural and environmental workforce. The University offers undergraduate and postgraduate degrees in Agriculture, Agricultural Science, Farm Production, Horticulture, and Viticulture, and Environmental Science and Management. Charles Sturt offers several programs specifically focused on water systems and their management. For example, our Water Policy and Management course covers trends in water supply, climate change and risks to water resources in Australia; water use and demand in agriculture and urban areas; and a strong policy component focused on water reform, current developments in water policy and catchment-based decision-making.

Our graduates have the best employment outcomes of any Australian university, with Charles Sturt ranked as the number one university for graduate employment in the latest edition of the *Good Universities Guide*.

Charles Sturt also makes a significant contribution to the Murray-Darling Basin through research. Our research in Agricultural and Environmental Sciences is consistently rated at or above world standard and is supported by strong industry partnerships and unique infrastructure.

The Institute for Land, Water and Society (ILWS) is one of the University's major research centres. The ILWS is a multi and trans-disciplinary Research Centre that carries out biophysical, social and economic research to address local, regional, national and global issues. The Institute has an extensive range of local, national and international partnerships with industry, government

departments and agencies, NGOs, intergovernmental organisations and other universities and research centres. It has attracted funding from the ARC, ACIAR, CSIRO, RDCs, industry, peak bodies and international partners including the National Geographic Society and the United States Agency for International Aid (USAID).

As a result of our expertise and our strong connections across the Basin, Charles Sturt University is in a premier position to support the work of the Australian Competition and Consumer Commission (ACCC), the Murray-Darling Basin Authority (MDBA), Murray-Darling Basin communities, growers, processors and distributors.

This submission offers examples of research at Charles Sturt University that could inform the ACCC's current inquiry, and the implementation of any recommendations. The examples encompass water management, environmental monitoring, environmental recovery, community impacts, risk management and water policy.

Recent projects include work supported and used by Australian Government organisations such as the CSIRO and the Department of Agriculture, Water and the Environment (DAWE); by NSW State Government organisations including the Department of Industry, Planning and Environment; and by local and regional organisations across the Basin.

Charles Sturt University would welcome the opportunity to provide the ACCC with more information on the projects outlined in this submission and on other current and prospective research which could support the Commission's work on this vital issue.

Yours sincerely



**Professor John Germov**

Acting Vice-Chancellor



## Recent research projects and contributions to knowledge about the Murray-Darlin Basin

### 1. Water Management

CSU staff are involved in a range of environmental watering research programs and contribute to deliberations on advisory panels which help to plan and design water regimes for the sustainable delivery of water.

For example, Charles Sturt University has been involved with various high-level government panels focused on the Basin, including the MDBA independent panel which investigated [mass fish kills](#) in the lower Darling in 2018-19. Charles Sturt academics are also members of a DAWE panel advising on the “Northern Basin Toolkit” options. The panel is tasked with reviewing, and recommending, business cases from NSW and QLD for potential investment of commonwealth funding into on-ground intervention programs.

Our academics have provided advice to departments and Ministers on approaches to water management, which can lead to better environmental benefits and greater economic outcomes than current practices or entrenched policy solutions. This includes working with the Commonwealth Environmental Water Office (CEWO), MDBA and jurisdictional water agencies to develop a package of complementary measures to improve the sustainability of watering programs. These measures are important as they build upon environmental watering programs and offer governments additional options for investment to improve river health.

### 2. Sustainability and social justice

ILWS has several programs under way which involving work with industry to adopt more sustainable practices and improve their social licence.

For example, Charles Sturt staff are working with irrigators in the Macquarie and Murray Valleys to install [fish protection screens](#) on water diversions. These works prevent aquatic biota from being extracted out of main river channels and prevent them being pumped onto crops. These types of interventions are favourable because they have benefits to industry and the environment.

The University has carried out similar ‘social benchmarking’ projects for [North Central Catchment Management Authority](#), the [Wimmera Catchment Management Authority](#) and the Corangamite Catchment Management Authority

### 3. Risk Management

Charles Sturt University was directly engaged by [Snowy Hydro Limited](#) to perform a preliminary risk assessment of the potential for the new Snowy 2.0 system to contribute to the proliferation of invasive species into Kosciusko National Park.

Working with Snowy Hydro Limited, and the NSW Department of Planning, the University was able to significantly shape the approval conditions surrounding the Snowy 2.0 project.

Since the approval of the project Charles Sturt is continuing to play a role in developing options to mitigate environmental risk surrounding the project.

### 4. Cost/benefits



Charles Sturt ecologists partner with economists to try and better-define the costs and benefits arising from water infrastructure projects. This requires defining benefits in terms of use and non-use items, for both irrigators and the environment.

We have found that we can often gain environmental outcomes if we better define the solutions in economic terms, rather than focusing solely on environmental outcomes (which can often be deemed as ‘green tape’).

## 5. Monitoring

The [Murrumbidgee Monitoring, Evaluation and Research Program](#) is the primary means by which the CEWO is monitoring and evaluating the ecological outcomes of Commonwealth environmental watering actions.

This program is a continuation of the [Long Term Intervention Monitoring Project](#) conducted from 2014 – 2019; the Murrumbidgee is one of seven Selected Areas in the Murray-Darling Basin that will continue to be monitored for a further three year period from 2019 to 2022.

The University is also undertaking a similar project in the [Edward/Kooley-Wakool](#) river system.

Monitoring and evaluating the use of water for the environment is helping to build knowledge about the best way to improve the health of the rivers and wetlands of the Basin, based on what works and what does not.

## **Current proposals**

### *One Basin CRC*

Charles Sturt is a Tier 1 partner in the [One Basin Cooperative Research Centre](#) proposal, a focused collaboration developing policy, technical and financial solutions to support and reduce exposure to climate, water and environmental threats in the MDB.

The proposed Adaptation Solutions research program will co-design services and strategies to support successful adaptation of farm enterprise and rural communities in a changing Basin. Outputs from the program will include farm-level water management models and case studies for optimising water applications and trading.

### *New Water*

Charles Sturt University has developed a proposal for a collaborative research program involving government, industry, communities and research organisations. The ‘[New Water](#)’ research program will identify and develop solutions for the integration of extra water sources into the Murray Darling Basin – for both community and commercial use.

New water sources are required to support the communities and industries that rely on the MDB while improving the overall environmental health of the system.

Key research activities under the proposal include:

- Mapping of ‘New Water’ resources and feasibility assessments



- Socio-economic studies
- Policy support - world class science to support better on the ground decision making
- Water education

The project will examine a range of technological, regulatory and practical options, such as:

- Increased use of desalination plants, for both domestic water and water purification
- Improved storage and pipeline infrastructure, for example in collecting flood water, or minimising evaporation
- Wider use of waste water (including mining and industrial waste water) for domestic use and irrigation
- Regulatory measures including permanent water restrictions
- Improved monitoring

