Fact Sheet

Water Banking for Drought Resilience

Fluctuations in water availability due to climate change and competing demands necessitate innovative water management strategies. Water banking offers a potential solution by storing excess surface water underground during wet periods in the MDB. This stored water can then be retrieved during dry spells, ensuring a stable water supply for towns, high-value horticulture, and environmental conservation efforts.

Key points

- In Australia, short-term, seasonal storage of water underground for later recovery (MAR) has been established as an urban water management strategy.
- Water banking for longer-term water security at the larger scale, however, is virtually unexploited in the Basin.
- Water banking may offer strategic underground storage, reducing reliance on unpredictable surface water flows.
- Water banking may enhance economic resilience for agriculture and communities in the MDB through securing town water supplies and irrigation water for high valued horticulture.
- Water banking may provide critical freshwater resources to ecosystems by reducing groundwater salinity levels.

The challenge

The Murray–Darling Basin frequently experiences severe drought, affecting water availability, agricultural productivity, community water supply, and ecosystem health. Surface water allocations become highly variable and often insufficient to meet competing demands.

The MDB could be a prime candidate for utilising water banking to reduce supply variability and to enhance long-term water security for irrigated agriculture, communities, and the environment.

Implementation, however, is currently hampered by uncertainty about physical and economic viability of water banking in specific locations, institutional constraints and lack of successful pilot studies, which can demonstrate the technical and economic feasibility of this water management technique in the Basin and build trust and confidence by producers, investors and regulators that the investment is worthwhile.

Infiltration basins during recharge of the underlying aquifer managed by the Arizona Water Banking Authority. They remain dry at other times. Image: Central Arizona Project

The opportunity

Strategic water banking may be able to leverage an estimated 4000 GL of available underground storage near the MDB's river systems, if excess river flows during wet periods can be banked underground to provide a buffer against drought.

Opportunities may exist for communal water supply (towns and industries) and environmental benefits, such as maintaining groundwater levels to sustain riparian ecosystems and freshwater lenses in saline aquifers.

Implementing strategic water banking can diversify and secure water resources and help support Basin-wide economic stability and environmental sustainability.

One Basin CRC
T: 0499 071 819 **E:** admin@onebasin.com.au
onebasin.com.au

Australian Government
Department of Industry, Science and Resources
AusIndustry
Cooperative Research Centres Program

Our research

This project will explore opportunities and outcomes that can be achieved by Basin-scale water banking through closing knowledge gaps on the technical and economical merits of water banking in the Basin and through identification of potential water banking demonstration sites as test cases to verify successful governance and economic and technical viability in different settings. This project will

- Review and assess the Murray Darling basin scale opportunities for water banking for irrigators, town supply and environmental benefit
- Identify a portfolio of high-prospective demonstration sites across the basin
- Scope a “water banking for communal benefit: industry/town supply” trial site (Site I), while already existing data on a aquifer recharge scheme for environmental benefit (Site II) will be evaluated.

Outcomes

- The project will broaden awareness of opportunities for water banking in the basin for potential next users. The CRC is thereby in a unique position to evaluate water banking as a whole-of-basin water management tool, to track any benefits as well as negative impacts of water banking collaboratively, transparently and across jurisdictions.
- Economic, practical and regulatory feasibility of water banking opportunities in the basin will be explored to inform government, utility, irrigated agricultural stakeholders and basin communities as to the merits of water banking in different regions in the MDB.
- A list of high-prospective sites will provide explicit information on the physical and economic case of water banking at specific locations.
- The project will build capacity and knowledge of interdisciplinary CRC partners as to the potential for water banking within their respective domains of influence.

Next steps

During 2025 we will review and assess the Murray Darling basin scale opportunities for water banking for irrigators, town supply and environmental benefit on currently available data.

On this basis, a portfolio of prospective demonstration sites will be developed to showcase the magnitude of the opportunity for water banking for different uses across the basin in 2026. This wil lead to the selection of a water banking pilot sites in partnership between research, government, and end users.

In 2027 we will design “shovelready” on-ground works of a water banking scheme at the selected site for implementation in the future.

Overland Corner in the Riverland. Image: DEW, SA

One Basin CRC

Since our inception in mid-2022, the **One Basin Cooperative Research Centre** has brought together 85 partners across the Murray–Darling Basin. Our purpose is to work together to grow value from water in a changing world.

From Queensland to South Australia, we are finding practical solutions to complex challenges, training the next generation of scientists, and nurturing regional communities. Our collective goal is a productive, resilient and sustainable Murray–Darling Basin.

Key personnel

I. Wallis/H. Fallowfield	Flinders University
A. McCallum	DCCEEW, NSW
J. Guillaume/A. Ross	ANU
W. Vervoort	University of Sydney
K. Thompson	Coleambally Irrigation
J. Woods	DEW, SA
Y. Colton	Aither PTY