IRRIGATION UPDATE

VOLUME 10

MODERNISING IRRIGATION WATER DELIVERY INFRASTRUCTURE

Modernisation aims to secure water for the future

The current drought is causing water shortages that pose a serious threat to the Australian economy and way of life. Climate change is predicted to add to the burden with greater variability in rainfall predicted.

The Australian Government is investing $12.9 billion in its Water for the Future plan — a 10-year effort to secure the long-term water supply of all Australians.

Part of the Water for the Future plan is a $5.8 billion investment in key rural water projects to modernise outdated irrigation systems – the Sustainable Rural Water Use and Infrastructure Program.

The Australian Government has agreed in principle to provide close to $3.7 billion for significant state-based water infrastructure and reform projects in South Australia, New South Wales, Victoria, Queensland and the ACT, subject to a due diligence assessment of the social, economic, environmental, financial and technical aspects of the projects.

One of the first stages of the Sustainable Rural Water Use and Infrastructure Program is the Irrigation Modernisation Planning Assistance program. This helps irrigation water providers develop modernisation plans for their districts.

Grants totalling $604,000 were announced in February to five irrigation water providers operating in the Murray-Darling Basin to help them develop plans to modernise their water-delivery infrastructure. Grants were awarded to: Bringan Irrigation Trust ($44,000); Western Murray Irrigation Limited ($80,000); West Corurgan Private Irrigation District ($80,000); Marthaguy Irrigation Scheme ($80,000); and Coliban Regional Water Corporation ($320,000).

These grants are in addition to more than $4 million in funding the Australian Government is currently providing to 13 irrigation water providers in Queensland, Western Australia, South Australia, Victoria and NSW.

The National Program for Sustainable Irrigation assisted water managers to explore options for modernisation by hosting a Modernising Irrigation Forum for 60 irrigation industry professionals in Shepparton, Victoria, in March. Attendees shared information with counterparts from across Australia about how they were dealing with the critical issues confronting all water companies and those who invest in them. They were presented with the findings of the latest research and saw first-hand some of the practical steps being undertaken by Goulburn-Murray Water's Shepparton Modernisation Project.

This issue of Irrigation Update will outline some of the key issues discussed at the Modernisation forum along with some of the practical steps being undertaken by the Northern Victoria Irrigation Renewal Project.

IN THIS ISSUE

NATIONAL PROGRAM FOR Sustainable Irrigation

Research needs identified

During the Modernising Irrigation Forum, 60 irrigation industry professionals identified the research needed to underpin reforms to Australia's irrigation systems.

Integrating research with reform implementation was a priority. As one participant said: "You tend to have researchers working in isolation. We need to get from research to farm quicker – and part of the problem is because of the funding model. Researchers are funded for a project, not the implementation. We've got to get researchers and government and commodity groups together. We've got to line up what's happening in the system with [what's happening on] the farm."

Several key issues were identified requiring priority attention:

- Need to develop reliable models and accounting of water use, losses and returns to systems. This would lead to better understanding of catchment systems, more useful data on the components of water budgets and better ways of defining and valuing water savings.
- Need greater focus on developing low-cost technologies that could be packaged together to form integrated modernisation and supply management systems.
- Develop methods to assist individual irrigators. They needed help in assessing their individual situations and planing for the future, in choosing and adapting changed irrigation practices to fit new supply arrangements, and in managing new irrigation systems for optimal performance.
- Engage both irrigators and the wider community at all levels in the planning process, from the regional scale down to on-farm. Participants felt that the pace of planning and change threatened to leave people behind unless there was an emphasis on engaging people and sharing information and ideas. The danger was that insufficient involvement in the process could result in sub-optimal planning and decision making regarding rationalisation. As one participant said: "Planning is tough. Engineering solutions are simple – social elements are complex."

The group expressed two major concerns which were contributing significantly to the challenges of modernising:

- Uncertainty and the impact on investment decisions. Water supply companies, irrigators and communities faced many uncertainties. These included the level of likely water savings and their "value", the likely size and location of water trades or government buy-backs, and the inherent uncertainties of commodity markets and production costs. Short-term, low-cost solutions were required, but infrastructure planning usually sought long-term and long-lived solutions.
- The need for on-farm change. If irrigation practices remained the same it could reduce the efficiency of enhanced supply systems – and mean that potential improvements in water use efficiency or operational enhancements from reform of the broader system were not capitalised upon.

CASE STUDY - Efficiency unlocks lost water

With the National Program for Sustainable Irrigation's Modernising Irrigation Forum being held in Shepparton, Victoria, attendees had a chance to visit a series of sites illustrating aspects of a large-scale project being undertaken by Goulburn-Murray Water.

The Shepparton Modernisation Project aims to generate water savings for the environment by updating the open channel delivery infrastructure. The project also aims to bolster regional development opportunities and improve service levels for water users.

Funding is being provided by both the Federal and Victorian governments with "early works" being funded by the Victorian Government's Northern Victoria Irrigation Renewal Project (NVIRP). The NVRIP is a $2 billion works program to modernise Victoria's "food bowl". The program has an objective of returning one-third of the generated water savings back to customers as additional entitlements in the form of water shares.

The Shepparton Irrigation Area was first established in the early 1900s and the ageing infrastructure needs upgrading. The project's approach to modernisation involves channel automation and remediation, pipeline installation, asset rationalisation and upgrading meters.

CASE STUDY cont.

It is estimated that 52,000 ML (a mix of high and low reliability water) will be saved by the project with savings earmarked for the Living Murray Initiative (30,000 ML), Water for Rivers (5,000 ML) and the balance of (17,000) ML to be retained by Victoria.

As with many irrigation systems in Australia, the Shepparton system is currently only about 70 per cent efficient – 30 per cent of water is lost. The Shepparton project aims to boost efficiency to 85 per cent.

At a capital cost of $148 million, the project aims to deliver: channel remediation works including plastic and clay lining and remodelling; automation of regulators; replacement of Dethridge meter outlets with modern, accurate meters; gravity pipelines where appropriate; and rationalisation of about 30 km of channel and 600 meter outlets. Discussions are under way with customers about a pressurised pipeline system for the Shepparton East Horticulture Area.

Irrespective of modernisation projects, all states are required to meet new National Metering Standards taking effect this year. The current Dethridge wheels used to meter water supply to farms will not meet these new standards. The Shepparton Irrigation Area has about 2,500 outlets, of which approximately 2,100 are Dethridge meters.

Dethridge wheels will be replaced with new technology that is more reliable and can be operated remotely and automatically to improve service to irrigators. Without the project's funding, customers would have had to pay for the new meters to ensure compliance with the standards.

Rationalisation is a key part of the project and involves the removal of under-utilised infrastructure. As properties have become larger, a smaller number of customers are left to pay for the current infrastructure. Operating costs such as replacement, upgrading and maintenance can be decreased if the amount of infrastructure can be reduced. For the Shepparton project is has been estimated that up to 25% of all infrastructure could be removed with supply maintained to all currently serviced properties. If achieved, this would have positive implications on future prices. In addition, modernisation funds can go further if there is less infrastructure to upgrade.

An independent audit process will be established to verify the savings at the end of the project. It is likely that a process similar to the one already undertaken by the Murray-Darling Basin Commission (MDBC) will be used.

Improving irrigation delivery efficiency and services has been a major focus of investigation and investment across Australia in the past decade. Works undertaken to date in Victoria's Goulburn-Murray and Macalister irrigation districts and NSW's Coleambally Irrigation District have confirmed that the efficiency target of 85% is achievable.

Flow meter at farm entry point

Flume Gates



NPSI NEWS

Feel free to contact Program Coordinator Guy Roth or Program and Communications Officer Sarah Leonardi with any irrigation or program enquiries, contact details are at the bottom of the page.

Irrigation project from the Innovation Program

The Land & Water Australia Innovation Program is currently funding the project Irrigation Futures for the Murray being undertaken by Ejaz Qureshi at CSIRO.

The Murray Darling Basin (MDB) irrigation sector is facing several issues including over-allocation, droughts, decreased water supply and changed reliability of water.

This project aims to engage with key stakeholders/policy makers to get them to identify a few of the key policy questions regarding water trading, carry-over rules and spatial optimisation under different flow regimes (historic, dry, medium and wet) and identify relevant policy mechanisms critical for a sustainable irrigation sector in the MDB.

The project will apply modelling tools to examine economic and environmental implications of relevant policy mechanisms/options.

The project will provide information to water policy makers through an assessment of the constraints and opportunities for the irrigation sector in the MDB.

It will provide trade-off comparisons between the irrigation sector and other water uses that may result from the likely variability of future water supplies and alternative water policy options.

New NPSI Publications

NPSI has released several new publications:

- **Sustainable Irrigation Management Update Salinity Management Practice Guidelines,** Biswas, T.; Bourne, J.; Schrale, G.; and McCarthy, M. This covers the issue of managing root-zone salinity for irrigated horticultural crops in winter rainfall zones of Australia.
- **Research Bulletin – Defining precision irrigation: A new approach to irrigation management**, Smith, R. The project is reviewing irrigation research, existing technologies and the use of precision irrigation. This bulletin explores the concept of precision irrigation and seeks feedback from irrigators, researchers and extension officers with experience in precision irrigation or its associated technologies.
- **Vital Role for Australian Irrigation, NPSI Knowledge Harvest**, Peter Day & team. This discusses the role of Australian irrigation in meeting the global food challenge, and the importance of research in providing new knowledge.
- **Irrigation in Australia: Facts & Figures**, NPSI Knowledge Harvest, Peter Day & team.

© Copyright Land & Water Australia. The information contained in this publication is intended for general use to assist public knowledge and discussion. Before taking any action or decision based on this information, readers should seek expert professional, scientific and technical advice.

ISSN 1449-0250

Product Code: PN30125

The National Program for Sustainable Irrigation is managed by Land and Water and Water Australia on behalf of the partners. The partners include irrigators, water authorities, research agencies, state and Commonwealth departments. For information about becoming involved in the Program, please contact:

Sarah Leonardi, Program and Communication Officer
(02) 6263 6031
sarah.leonardi@lwa.gov.au

Guy Roth, Program Coordinator
0417 223 179
guyroth@roth.net.au