

Water Management for the Future – a contentious issue

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Background

Goulburn-Murray Water

Goulburn-Murray Water is Australia's largest rural water authority, covering approximately one third of Victoria and managing 70 per cent of all water stored in the state. Its major activity is the provision of rural water delivery services to a range of customers who hold water entitlements. Serving an area with over 500,000 people, its region covers 68,000 square kilometres, from the Great Dividing Range north to the River Murray, and from Corryong down river to Nyah near Swan Hill.

Goulburn-Murray Water has four separate businesses: Bulk Water Services, involving the delivery of bulk water entitlements and supplies to urban and rural water authorities, and the management of headworks assets and water storages; Diversion Services, including the licensing of surface water and groundwater diversions; District Services, involving the delivery of water entitlements, water supply, drainage and flood protection, and the management of assets in irrigation, water and waterway management districts; and Natural Resource Services, involving the provision of a range of services which support sustainable land and water management.

The Diversion and District Service businesses provide 40 rural water services for customers, including surface and groundwater diversion, gravity irrigation and pumped irrigation, surface and sub-surface drainage, and flood protection. Each of these services is financially separated, with no cross-subsidies. These services provide the bulk of Goulburn-Murray Water's revenue and each must meet the financial objective of long-term sustainability.

Goulburn-Murray Water has a skills-based board, 11 customer committees, 600 staff and \$3 billion worth of assets. Its non-profit businesses generate \$80 million revenue from a region covering three catchment regions.

Denis Flett, Goulburn-Murray Water Chief Executive

Denis Flett is chief executive and director of Goulburn-Murray Water, positions he has held since 1994. He grew up on a wheat farm in Donald where he experienced farm adjustment first-hand when wheat quotas were first introduced. He is a qualified engineer and is a Fellow of the Institution of Engineers. He is also a Fellow of the Australian Institute of Company Directors. Denis has worked for Goulburn-Murray Water and its predecessor organisations for 29 years. He is a deputy commissioner of the Murray Darling Basin Commission and a member of the Australian Conservation Foundation. In his spare time Denis involves himself in Australian Rules football coaching and enjoys spending time with his family.

Water management for the future – a contentious issue

The future of water management is a highly contentious issue. At no time in recent history has the importance of water to our communities had greater emphasis.

Water is one of nature's five gifts - along with air, soil, energy from the sun and biodiversity – and water management is a vital part of managing our natural resources.

All of the natural resource management problems we face have been caused by humans and must be solved by humans. The boundaries of our governance structures do not align with natural resource management units, generally regarded as surface water catchments. Ways must be found to overcome this fundamental disconnection.

Water is essential for life. It supports lifestyles in our highly urbanised society. We use it in our homes. It supports recreation and tourism. In rural settings it is also vital for livelihoods and underpins primary and value-added industries. To put this more simply: water is wealth.

Irrigated agriculture uses only 0.5 per cent of our agricultural land but contributes to 50 per cent of agricultural profitability. Most people don't realise that there is currently more land under housing and industry on the east coast of Australia alone than there is supporting irrigated agriculture across the entire country.

The Victorian rural water industry is entering the third major phase of its history. It began with a development phase that continued until the 1970s, and has since moved through a management phase. Although this management phase will need to continue, the industry is now entering an adjustment phase.

In reflecting on the development and management phases, several trends are evident. There has been a change in community values and an increase in environmental awareness. The focus has shifted from a preoccupation with water quantity to a focus on water quality. There is now an increasing need to involve all stakeholders in sound decision-making processes. And we have seen an increase in the importance of sustainability and the need to balance social, economic and environmental values.

Goulburn-Murray Water's organisational values reflect the current status of these changing trends. These values are:

- Customer service and efficiency – our highest priorities
- Co-operation – based on shared visions and alignment is the key to progress
- Openness – builds trust, knowledge and understanding
- Sustainability – is our commitment to future generations
- Integrity, respect and pride – are valued characteristics of our people
- Continual improvement – is essential and underpins our future

Goulburn-Murray Water's customers are diverse and widespread, their service needs covering recreation, hydropower generation, water supply, drainage, flood protection,

salinity management and water quality planning. The management of these diverse services demands a broad, holistic, catchment and water cycle management focus.

The development phase

History tells us that it took two decades for the governments involved to reach agreement on how to share the waters of the River Murray. Once agreement was reached, the certainty provided resulted in investment by government in the development of the water resources in northern Victoria. The lesson of certainty of access to the resource being important for investment confidence is still very relevant today. The focus during this phase was on the creation of storage and supply assets. Unfortunately, drainage assets were not developed until some time afterwards, contributing to the emergence of waterlogging and salinity problems.

This was a time in which the policy focus was on allocation of the water resource and actively encouraging its use. The development phase was driven by social policy and, by today's standards, was an era of low environmental awareness. This phase really ended after the last big dam in northern Victoria, the Dartmouth dam, was completed at the end of the 1970s.

The management phase

With the development phase complete, a shift to a management phase of water resources was evident in the 1980s, and in many ways will always continue. There was structural change, with devolution of authority closer to customers and further from government. Government commitment to change was of fundamental importance to progress during this phase.

Financial management improved, with revenue and expenditure being connected, and the viability of each Goulburn-Murray Water service increased, resulting in financial self-sufficiency. For the first time, an assets register was developed, with the focus on whole-of-life management and ever-increasing knowledge of the assets. The register now includes a plethora of information on 780 dam components and 65,000 retail assets, and underpins the pricing of services.

A new understanding of customers and the services provided emerged, as did policies and practices promoting customer and stakeholder involvement. Lessons of stakeholder involvement from the successful Victorian salinity program were applied and developed through the rural customer committees.

Awareness of the importance of sound environmental management increased markedly. Environmental impact analysis emerged for projects, the acceptability of impacts became more stringent and environmental management systems are now commonplace in response to changed environmental law. However, Goulburn-Murray Water is not simply like a factory with easily defined interfaces with the environment. It has identified around 5,000 environmental risks, 500 of which are significant, and is continuously improving its policies, practices and performance. One of the many things that have

been learned through Goulburn-Murray Water's Environmental Management System is that 80 per cent of environmental incidents are not initiated by Goulburn-Murray Water, but result from various external factors.

Goulburn-Murray Water's workforce underwent a significant cultural change as it moved out of the public service. The engineering and construction skills needed in the development phase were complemented by skills in financial management, asset management, economics, environmental science and customer service.

And of course water resource policies have shifted 180 degrees from encouraging water use to constraining it. Water quality strategies emerged, including the landmark Murray Darling Basin salinity and drainage strategy and catchment-based salinity management plans and water quality strategies. This phase saw the introduction of the Murray Darling Basin cap on diversion from streams, and the Victorian bulk water entitlement process. The intensity of management increased for all water sources through the development of groundwater and stream flow management plans, as well as enhanced control of irrigation farm dams.

The Murray bulk water entitlement process, Sharing the Murray, was a great process with many stakeholders involved. It combined the provision of technical knowledge with regular stakeholder involvement, had relatively clear boundaries and a conversion principle, and took more than half a decade to complete. The learnings from such processes have implications for more difficult sustainability challenges which lie ahead.

This phase also saw the introduction of water trading, which moved water allocation decisions away from political influence and provided choice for water users to adjust their water supply risk. Trading commenced before perfect systems had been developed and its management has been adaptive. It is vital for future adjustment.

There have been a lot of achievements and positive change throughout the management phase. Water pricing is now less contentious, costs are generally understood and there is a greater focus on research and development.

There is currently a national focus on water access entitlements and the important parameters which characterise such entitlements. These parameters are:

- **tenure** – determines the security of access
- **volume and reliability** – provides knowledge of supply risk
- **tradability** – provides the ability to adjust
- **quality** – dependent on catchment and river health.

All of these parameters are vital for confidence in a sustainable future.

There is now widespread opinion that the water resources in southern Australia have been overdeveloped. Too often volumes of entitlements were increased without any change in system yield, thereby decreasing the reliability of all entitlements. This relationship between volume and reliability is now quite well understood, notwithstanding significant differences between jurisdictions. An illustration of such difference is the fact that the NSW Murray cap is 250,000 megalitres more, but less reliable, than the

Victorian Murray cap, although the Murray Darling Agreement provides for equal sharing of the resource between the two states. The current severe drought is now increasing the focus on what reliability is the most appropriate.

There is no doubt that water is now much more highly valued. This is not just evidenced by recent high market prices paid to purchase annual water allocations (which is often confused with the cost recovery price paid for the water supply service, but is not revenue to rural water authorities), but also by the high value of irrigated agricultural production, associated value-added industry and vital export earnings.

The adjustment phase

While better management of the water resource will continue to be the challenge, the water industry is also entering a new phase. The adjustment phase brings with it significant new challenges. There will be less water diverted so that river health can be improved. Future land use visions, matching land use to land capability, will need to drive future water service needs. And shared catchment region visions and partnerships will be vital.

A major challenge for Goulburn-Murray Water will be to reconfigure its systems of dams and channels. All of the current dams and channels are unlikely to be needed in the future. Water trading will continue to play an important role in shaping the agricultural industry, and changing community values will continue to push for improved water-saving practices. The Living Murray initiative will seek to recover water mainly from the Murrumbidgee, Murray and Goulburn systems.

Water savings and recovery options include capturing system losses (in the bulk, distribution and farm systems), better measurement of supply to end users, increasing reliabilities while lowering average diversion from rivers, and market purchase, donation or acquisition of water access entitlements.

Experience to date with water saving projects indicates that there are significant difficulties to be overcome. These include finding appropriate engineering solutions, working through customer and environmental issues, weighing local community values, and proving the savings are permanent.

The adjustment phase will involve triple bottom line analysis and more complicated stakeholder involvement processes. There will be an increased importance placed on research and development, as illustrated by the pending establishment of the Cooperative Research Centre for Irrigation Futures.

Immediate management challenges – responding to severe drought

At present, however, the adjustment phase has been hindered by immediate management challenges, specifically responding to severe drought. For example, in the sixth year of severe drought in the Goulburn system, water allocations only reached 57 per cent. In fact this figure would really only have reached 48 per cent had it not been for the extraordinary efforts taken to pump out another nine per cent from Waranga Basin.

This 48 per cent equivalent compares to the next lowest allocation in the modeled record of 110 years of 82 per cent, which “would have” occurred 100 years ago in 1903. Other sub-100 per cent allocations in the modeled record are 86 per cent in 1915, 88 per cent in 1939, and 97 per cent in 1983. The 48 per cent is an extreme outlier in this modeled data set.

Add to this a 1 in 10 chance that next season will be worse than this year and you can see where the majority of Goulburn-Murray Water’s current effort has to be spent. Less water availability does not necessarily mean less work. In fact the 2002/03 experience was quite the reverse. And of course other water systems are similarly placed to the Goulburn system.

The variability of hydrology in our country has forced us to learn from the extremes. We are affected by both drought and flood. Knowledge of extreme flood events and earthquakes has substantial implications for dam improvement programs, and much effort in recent years has been directed to meeting appropriate international standards and practices.

Responding to severe drought has involved learning much about trading off shortened irrigation seasons to reduce losses and support allocations, pumping water from storages such as Waranga Basin, carting water for essential needs, and providing clarity of information for water users while avoiding unhelpful speculation.

There is also the ongoing challenge of remaining vigilant in respect of public safety and environment protection. Is dead timber in a drawn-down water storage a boating hazard that warrants removal or a vital fish habitat that must be retained? Balancing triple bottom line values through good involvement processes and sound, integrated policy and practices is now a regular management challenge.

The future

A great deal has been learned from the development and management phases of our water management history, and the way in which the immediate and future management challenges are met must reflect this.

As a final note, it is important to share a vision for good water management in northern Victoria. It is essential that into the future the balanced triple bottom line value from water is optimised. Clear water access entitlements are needed that match the acceptable water yield, as well as triggers and mechanisms that foresee and enable adjustment to occur. Integrated catchment management and respecting the primacy of regional catchment strategies will be vital, along with the alignment of strategies

between all catchment partners. The potential to apply the lessons of history provides confidence that adjustments can be made for a more sustainable future.

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