

---

# Editorial

Sally Woollett

---

The period of Federation was remarkable not only as a time of significant political and social change. On 26 February 1902 the NSW government declared a day of “humiliation and prayer”, a sentiment soon to spread to other states about the lack of rain. The so-called “Federation drought” (1895–1902) was one of several over the past century.

In today’s more secular society, prayers for rain are not so common. So how do our experiences of water shortage compare with those of a century ago? This edition of *Issues* brings together historical and contemporary aspects of water resources in the context of drought.

Many Australians between Federation and now have experienced the effects of drought. Farmers in the Murray–Darling Basin have watched their crops fail or sold their stock; many urban residents have been subject to water restrictions and high food prices.

Australians at the time of Federation were not experiencing a net increase in rainfall across the continent, as we are now. Blair Trewin (p.10) from the Bureau of Meteorology says: “Whilst rainfall has been declining in the south-west of the continent, it has been increasing in the north-west”.

A water surplus in the north of Australia, together with increasing media interest, spawned ideas about pipelines to carry the water south. Alarmed that such impractical ideas may be pursued, the Wentworth Group of Concerned Scientists (p.20) met in 2002 to “secure the health of Australia’s land, water and biodiversity in the long term, not just during the next drought”. The resulting document was the first of several blueprints that led to the National Water Initiative in 2004.

In January this year, the Prime Minister announced the Federal government’s 10-point water plan, which will operate alongside the National Water Initiative. As Fiona McKenzie of the Wentworth Group explains (p.20): “The 10-point plan includes a nationwide investment

in irrigation efficiency and infrastructure and a 50–50 split of the resulting efficiency gains between irrigators and the environment”.

Neil Byron (p.4) of the Productivity Commission explains the idea of allocation and water trading: “... the farmers’ seasonal allocations [set by the government] are determined by how much water is available. It’s not as simple as turning a tap on and using more water. If they have used all their seasonal allocation and still need more, they must purchase it from other irrigators who have not used all of their allocation.”

Water allocation, and water trading between states and territories, is a complicated business. Governments need to manage the use of surface and groundwater, and in doing so try to achieve equitable distribution between rural, urban and environmental requirements. Wendy Craik (p.43) of the Murray–Darling Basin Commission says of the Murray–Darling Basin: “Five state and territory governments, the Australian government and more than 200 local governments manage the natural resources of this vast area – the largest integrated catchment management program in the world”.

After considerable debate, in response to the PM’s plan, three of four states have now agreed to refer their powers for controlling water to the Commonwealth. Balance of power between Commonwealth and states was a key issue at the time of Federation.

Stephanie Szakiel and Stephen Beare (p.15) of CRA International ask: “Why would we invest in centralised systems and planning when water demand and supply are so often characteristic of their regional landscape?” They believe the key to good public water policy is “not to prescribe how and where these efficiency gains are to be made but to ensure that the institutions we have in place create the correct incentives to invest in improving the way we allocate and deliver water”.

An example of such regional diversity is the exceptionally low rainfall in the NSW and Victorian Highlands in 2006, resulting in the

lowest-ever inflows to the Murray–Darling ever recorded. Compounding the problem on the east coast has been the lack of extreme rainfall events, which help to top up catchments.

Should we be blaming these extreme situations on climate change? Trewin (p.10) says that some of the changes are consistent with the expected effects of climate change while others are signatures of Australia’s natural rainfall variability.

So we share with our Federation counterparts the experience of Australia’s shifts and cycles in rainfall and temperature patterns. However, Szakiel and Beare (p.15) point out that our “demand for water resources in recent times has greatly intensified, with expanding urban populations, extensive irrigation and recognition of environmental needs”.

How are we coping with these demands? “Because of the high variability of rainfall and runoff, we have a large number of large dams to maintain water supplies during periods of extended drier times,” says Martin Thoms (p.27) of the Riverine Landscapes Research Lab. Australia’s oldest large dam, constructed in 1856 before Federation, is the Parramatta Dam in NSW.

Opposition to dams is well-known. “Without doubt the construction of dams and other structures used to control the flow of water in our river systems is one of the most prolific impacts humans have had upon the environment,” says Thoms. From a planning perspective, Naomi Carrard and Stuart White (p.31) of the Institute for Sustainable Futures explain that “building water supply systems designed to cope with the possibility of the most extreme potential drought ... is a very expensive proposition”. They say that the way of the future is demand management, including recycling and increased water-use efficiency.

Desalination to provide drinking water was just beginning to happen around the time of Federation. It has its own environmental problems, such as the effects of disposing of saline by-product. “Factors determining the cost of desalination technology include the energy requirements, the salinity of the water available and economies of scale”, says Cris Kennedy (p.34) of CSIRO Land and Water.

Australia’s first desalination plant, at Kwinana in Western Australia, uses reverse osmosis technology, in which semi-permeable membranes filter dissolved material or fine solids. In the USA, Eric Hoek (p.38) and researchers at the University of California are also interested in desalination of ocean water.



First, though, they must work on the “Achilles heel” of reverse osmosis: biofouling. This build-up of bacteria and organic matter on reverse osmosis membranes increases costs and decreases productivity.

Reverse osmosis technology is also used to recycle water. Peta Maddy (p.47) of Western Water says that “drought has focused the community on sustainable water management, particularly recycling”. The drought has also prompted a surge of “informal recycling” of domestic greywater.

On the issue of domestic water saving, Neil Byron (p.4) comments: “The ‘bucket brigade’ are well intentioned and might make a difference to prized plants in the garden but, in a system-wide sense, it really doesn’t make much sense”. Agriculture dominates water use in Australia, constituting approximately 67% of total consumption.

Also surging is the purchase of domestic rainwater tanks. Caleb Mitchell and Aatur Rahman (p.41) of the University of Western Sydney conclude in their cost–benefit analysis that rainwater tanks show great potential for multistorey residences and that “Apparent negative financial outcome must not discourage their wider adoption.” Byron (p.4), however, is not an advocate, saying that “rainwater tanks are generally a relatively costly and ineffective way of trying to solve urban water scarcity”.

Our connection to water is more than biological. Generations of Australians before and after Federation have appreciated water for leisure and livelihood. As John Buckeridge (p.23) of RMIT University notes, “moral dilemmas arise when resources become scarce and demand increases”.

Management of water resources is complex, opinions are many and the stakes are high. The choices we make about water resources should be based on sound research and in light of the lessons learned by others, including those of our Federation forebears.