

LEARNING TO LOVE WATER

By Garry Smith



Since the articulation of the concept of sustainability in *Our Common Future* (the 'Brundtland Report')¹ in the late 1980s, societies worldwide have turned their attention to emerging natural resource limitation problems.

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Communities both overseas and in Australia have addressed industrial and municipal waste management and recycling and, more recently, are paying closer attention to water management and energy management challenges. These natural resource problems result from traditional expectations that endless demands for natural resources can be accommodated, and from the way in which human development is planned. Poor transport planning and urban and regional settlement design, the causes of many natural resource problems, are coming into sharper focus and require urgent consideration.

Water management problems are particularly acute worldwide, due to growing population demands on fresh water for drinking, particularly for increasingly large urban populations, and from the increasing requirements of farming, mining, and other water-intensive undertakings. Climate change pressures, too, are altering meteorological patterns and reducing water supplies through drought and evaporation. There are serious societal

challenges for water infrastructure provision involving regulatory, pricing and equity issues; for household water utilisation and costs; for the market sector, such as banking and insurance in water provision and management. The collision of these complex water acquisition, delivery and demand management issues with equity and economic considerations makes for a potent mix of competing demands, rules and regulations, and is inducing increasingly competitive behaviour. It is not surprising that international jurisdictions, and increasingly individual law firms worldwide, are entering the field of water litigation. The Transboundary Freshwater Dispute Database at the University of Oregon² addresses water conflict prevention and its resolution, and lists numerous international freshwater treaties, spatial databases, and events databases.

THE AUSTRALIAN WATER CONTEXT

Viewing water as a vital human resource, in contrast to being part of nature, changes our perspective on water use. The >>

freshness of drinking water is a high priority. Natural freshwater sources are generally lower cost because purifying salt or polluted waters for drinking is expensive both financially and with respect to energy use (pumping and purification). Non-potable water uses require less purity and include applications such as landscape irrigation (for sporting arenas, parks, etc); industrial uses, such as plant-cooling and washing; agricultural irrigation; and household use such as toilet-flushing, showering, etc. Another important consideration is the environmental impact of water withdrawal from the environment and of returning used water in various forms to the natural environment. For example, the relationship between water withdrawal and river and wetland ecosystem viability is often a fine balance in Australia.

Our need for water as a drinking resource has important implications for water infrastructure. Australian water utilities and suppliers continue to intensify their activities as our population grows and the impact of climate change takes effect. Australian water supply and sewerage treatment infrastructure, while well-established, is expanding further to meet the demands of industrialisation, urbanisation and adjustment to climate change. Australians are somewhat wasteful of water, a habit that is typical of westernised societies. Recent state-based voluntary and mandatory conservation requirements have reduced household water utilisation only marginally. This is more problematic given the variability of run-off and inflows in Australia and the impact of climate variability.³

LEGAL ISSUES

Legal issues in water management in Australia are not so removed from other social issues such as, for example, privacy and freedom of information. Debates around privacy – the interface between citizen and state, the drawing of appropriate boundaries between public and private matters, the public's right to know, security and democratic rights, human rights and commercial exploitation – may all equally apply to the issue of access to and use of water. An earlier *Precedent* article on privacy⁴ pointed to the lack of precision of the concept as a reason for caution in declaring a new tort. Lack of clarity and precision about our water needs, the value of water, and water mismanagement, are equally difficult concepts for emerging law. This lack of clarity highlights the usefulness of the four principles of sustainability as guides for regulation.⁵ These principles have entered Australian and international legislation. The West Australian *Environmental Protection Act 1986* includes the following tabulation of the four sustainability principles (and a fifth point on waste minimisation).⁶

1. *The precautionary principle*

Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In the application of the precautionary principle, decisions should be guided by –

- (a) careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and

- (b) an assessment of the risk-weighted consequences of various options.

2. *The principle of intergenerational equity*

The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

3. *The principle of the conservation of biological diversity and ecological integrity*

Conservation of biological diversity and ecological integrity should be a fundamental consideration.

4. *Principles relating to improved valuation, pricing and incentive mechanisms*

- (1) Environmental factors should be included in the valuation of assets and services.
- (2) The polluter pays principle – those who generate pollution and waste should bear the cost of containment, avoidance or abatement.
- (3) The users of goods and services should pay prices based on the full lifecycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any wastes.
- (4) Environmental goals, having been established, should be pursued in the most cost-effective way, by establishing incentive structures, including market mechanisms, which enable those best placed to maximise benefits and/or minimise costs to develop their own solutions and responses to environmental problems.

5. *The principle of waste minimisation*

All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.

Other state Acts, including the *Victorian Environment Protection Act 1970*, also refer to the principles of sustainability. The four principles were included in the Australian Intergovernmental Agreement on the Environment of 1992, following the Rio Earth Summit. The Precautionary Principle, in particular, has encountered difficulties in its application. Stein has attributed this to their being fundamentally aspirational and containing ambiguities, inconsistencies and uncertainties, and being difficult to interpret and apply.⁷ He has recommended the application of the common law to further develop the principles.

WATER AND RISK ASSESSMENT

Water and wastewater are among the fastest-growing utility sectors in Australia. Integrated water cycle management is becoming increasingly important to urban and rural development. Internationally, total urban water cycle approaches are widely used, involving consideration of water supply, stormwater and wastewater reuse concurrently, and the need to balance the extent of treatment and quality requirements of reused water.⁸ These issues of competing demands for fresh water, and the regulatory and management frameworks required to address sustainable uses, indicate that water management is a potential area for conflict and litigation between government, industry and individual householders. For example, in the case of industrial development projects, significant uncertainties

exist in estimating future needs of water, adaptation of plant operations by upgrading or streamlining, and ensuring ongoing cost-effectiveness and feasibility. New recycled water projects must consider:

- environmental issues such as water contaminants, surface water quality impacts on groundwater, and reductions in environmental flows to rivers, and the water-use implications for international treaty obligations such as the Ramsar Convention on Wetlands;
- human health impacts, such as direct contact with contaminated water or aerosols;
- engineering issues such as delivery reliability and support options; and
- legal issues such as potential liabilities, particularly to minimise health risks from reused water.

One methodology that can be applied both to water use and environmental impact in the context of sustainability is risk assessment. 'Risk' may loosely be defined as the chance of a harmful event occurring. Formal risk methodologies are used to assess human health and ecosystem impact of pollutants, damage to bushland and other ecosystems. The methodologies have been developed and refined internationally and in Australia, originally for contaminated land remediation.⁹ Utilising the concept of risk can be very useful in activities such as local area planning and when assessing potential or actual impacts of water-borne pollutants on humans and the environment. It is also useful when measuring or predicting damage, and has some legal value. Risk is now included as a basis for protecting the environment in at least one Australian jurisdiction.¹⁰

LEGAL PROCESSES AROUND WATER

Given the importance of fresh water for drinking, of non-potable water to industry and agriculture, and of the potential impacts of water extraction and return to the environment, it is not surprising that many jurisdictions and different levels of government are legislating, regulating and managing water intensively.

The Water and Mineral Resources Section of the United Nations Environment and Natural Resources Development Division conducts research and publishes reports on a range of issues relating to water, land and mineral resources, and their sustainable development. One of its main activities is developing water resource management strategies. It provides advice on developing national policies and strategic plans for integrating land and water resource development and management, land use and urban planning, and institutional support processes.

The international legal and regulatory approaches to protecting water and its quality, to protecting groundwater, to defining and protecting 'watersheds', and to protecting wetlands are many. In 1995, the US Army Corps of Engineers introduced legislation in the US to reduce the regulatory burden on landowners of some water management requirements. In current times of water competition and potential climate change, one expects regulation to re-emerge as a tool in water management.

Dimitriadis, however, reports that recent reviews by

the Australian Academy of Technological Science and Engineering, and others, have identified differences between national, state and territory guidelines including reclaimed water sources, recycling options, nominated quality criteria, monitoring frequencies, sampling and testing, and accreditation.¹¹ The author further describes limitations on the ability of Australian states and territories to charge for all externalities (costs not routinely recorded in financial balance sheets) in water use due to constitutional constraints on taxing powers. The extent to which stormwater run-off and sewerage discharge contribute to polluting water resources is largely uncosted, as are the social impacts of harvesting water, using waterways for waste transport, development within wetlands, and increased run-off from stormwater. Court cases are common across most international jurisdictions on topics including sewers and their impacts, preservation of drinking water quality, and the impacts of water use on wetlands.

In Australian Commonwealth law, the *Environment Protection and Biodiversity Conservation Act 1999* promotes conservation of Australia's biodiversity by protecting critical habitats, including wetlands and water-based ecological communities, but not water *per se*. The 2004 National Water Initiative aims to improve water management across Australia, and has been endorsed by the Council of Australian Governments. The initiative aims to expand permanent water trading to achieve better environmental >>

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outcomes, provide greater security in water entitlements, and address over-allocated water systems. Specific national level agreements, such as the Murray-Darling Basin Agreement 1995, have introduced interim caps on the diversion of water from the basin river systems.

Australian state legislation variously addresses the issue of water, depending upon jurisdictional history and current government approaches. In 2000, NSW introduced the *Water Management Act*. Its objectives include protecting, enhancing and restoring water sources, their associated ecosystems, ecological processes, biological diversity and water quality. The Act encourages the sharing of responsibility for the sustainable and efficient use of water between government and water-users, and also makes reference to social and economic benefits to the state and its urban, agricultural, industrial and indigenous communities.

AUSTRALIAN JURISDICTIONS

In NSW the *Water Management Act 2000* replaced the *Water Act 1912* for administering water licences, and provides for the protection, conservation and ecologically sustainable development of water in NSW. Under the Act, water management plans must be prepared for all relevant water sources in the state, covering both surface water and groundwater systems. Water licences are being updated – and to some extent replaced – by water access licences, water use approvals and water supply works approvals. The Act aims to implement water demand management strategies where, for example, groundwater aquifers are managed within their sustainable yields. Other relevant legislation in NSW includes the *Catchment Management Authorities Act 2003*, with established authorities responsible for managing natural resources at the catchment scale, including providing advice to local and state government agencies on the impacts of planning. Recent proposals also toughen liability laws and reinforce the *Protection of the Environment Operations Act 1997*, with penalties for environmental negligence. The *Environmental Planning and Assessment Act 1979* makes specific reference to water, requiring additional procedural requirements at Commissions of Inquiry when water approval is involved. Notice must be given to the Minister for Land and Water Conservation if a development might involve the need for approval under the *Water Management Act 2000*, whether or not it is a designated development. The Commission must also give notice to the applicant for a development, or the proponent, advising that an application should be made.¹²

In 1989, Victoria's *Water Act* was enacted to integrate the management of all the elements of the terrestrial phase of the water cycle. It was also designed to maximise community involvement in making and implementing arrangements relating to the use, conservation or management of water resources, including surface and groundwater resource and waterways.

Victoria and a number of other states have adopted a *Water Efficiency Labelling and Standards Act* approach in 2005, made possible by the *Commonwealth Water Efficiency Labelling and Standards Act 2005*. State and territory laws may operate

concurrently. The Act aims to define water labelling and standards for products, and conserves water supplies by reducing water consumption and promoting the adoption of efficient water use through water-saving technologies.

Litigation regarding water use and protection in Australia is nothing new. Cases regarding the impact of polluted water on agriculture, and of sewage-derived contamination on oyster and aquaculture industries, were common throughout the 1990s. The Australian Competition Tribunal considered an application in 2005 by a new water industry player against a decision by the NSW government preventing access to water 'essential facilities' or natural monopolies, to which access is allowed in order to compete in a market – in this case, provision of fresh water.¹³ Changes to allocations by state governments in areas such as the lower Murrumbidgee have led to conflict between government and landowners, and between landowners, regarding rights to water, with very significant financial impacts on property value and agricultural viability.

Overall, in Australia considerable efforts have been made to encourage reliance on fewer pieces of legislation, thereby improving decision-making in water-management matters. Regulations may lack transparency and not adequately recognise the cost of externalities. A range of regulation is evolving to govern effluent discharge licences, in addition to the development of various guidelines for using recycled water. While most Australian states have guidelines for recycling sewage effluent for irrigation, unfortunately gaps and discrepancies in criteria for urban uses and water types remain.¹⁴ ■

Notes: 1 G H Brundtland, *Our Common Future*, World Commission on Environment and Development, Oxford University Press, 1987. 2 See www.transboundarywaters.orst.edu (25 March 2007). 3 S Dimitriadis, 'Issues encountered in advancing Australia's water recycling scheme', Parliament of Australia, Parliamentary Library, Science, Technology, Environment and Resources Section, Research Brief No. 2, August 2005. 4 P Watson, 'A Man without Privacy is A Man without Dignity', *Precedent* 78, 2007, pp4-10. 5 These principles have been established in publications such as D H Meadows, L D Meadows, J Randers, and W W Behrens, *Limits to Growth, A Report for the Club Of Rome's Project on the Predicament of Mankind*, Potomac Associates, Washington DC and Universe Books, New York, NY 1972; D Meadows, J Randers and D Meadows, *Limits to Growth: The Thirty Year Update*, Earthscan, London, 2004; and Brundtland, *Op. Cit.*, see note 1 above. 6 *Environmental Protection Act 1986* (WA), s4A. 7 P Stein, 'Are Decision-makers Too Cautious with the Precautionary Principle?', *Environmental and Planning Law Journal*, 17 (1), 2000, pp3-21; and G Smith and J Scott, *Living Cities: An Urban Myth?*, Rosenberg Publishing, Dural, 2006. 8 S Dimitriadis, *Op. Cit.* 9 G Smith and J Scott, *Op. Cit.* (see note 7 above); US Environmental Protection Agency, 'The Risk Assessment Guidelines', Office of Health and Environmental Assessment, Washington DC, 1986, Standards Australia HB203:2004. 10 *Environmental Protection Act 1986* (WA), s4A1(b). 11 S Dimitriadis, *Op. Cit.* 12 *Environmental Planning and Assessment Act 1979* (NSW), s120A. 13 Australian Competition Tribunal 7, 21 December 2005. 14 S Dimitriadis, *Op. Cit.*

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