Learning from Water Law Reform in Australia*

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1. Introduction

Parts of Australia have recently experienced the lowest rainfall on record since 1900.¹ For a period of six years from 2001 to 2007 drought affected southern and eastern Australia in a broad arc extending across southern South Australia, most of Victoria and New South Wales (NSW), and a large part of southeast Queensland.² Storages across the country, particularly in the Murray and in South East Queensland were at record lows. In the former, storages were at 13 per cent capacity in mid 2007.³ An established La Niña event in December 2007 and January 2008 brought heavy rainfall across the eastern states, especially in

* This paper was written in April 2007 and updated in March 2008.

¹ These record low falls occurred in a strip from Melbourne, Victoria to central New South Wales, Southern Queensland and much of Western Australia's west coast. See Australian National Climate Centre, Statement on Drought for the 12-month period ending 28th February 2007, 6 March 2007. Source: <http://www.bom.gov.au/climate/drought/drought.shtml>.

² See Australian Government, Bureau of Meteorology, National Climate Centre, Special Climate Statement 14, 1 November 2007. Source: <http://www.bom.gov.au/climate/current/statements/scs14.pdf>.

³ Asa Wahlquist, 'A Big Drought Should Bring Big Ideas with it' *The Australian*, 24 February, 2007. Source: <http://www.theaustralian.news.com.au/story/0,20867,21276403-28737,00.html>.

Queensland. However long-term deficiencies remain, especially in Tasmania, southeast Queensland, the southwest coast of Western Australia (WA) and central Victoria into southern NSW.

Most of the cities in Australia are subject to water restrictions. The most severe is in southeast Queensland. In September 2007 householders in the fastest growing region in Australia were imposed with Level Six water restrictions. Households which use more than 800 litres a day of water were asked to file a water usage audit report to provide information on their household, water use and water efficiency. Certain types of water use will be banned. The target is for individuals to use no more than 140 litres a day. Tough penalties apply for households using excessive amounts of water. This includes an outdoor watering ban, fines up to \$1050 and restricted flows.⁴

For the rural sector, the drought has brought social and family disruption far beyond that felt by city dwellers, with rural suicide rates receiving widespread attention in the media. Some farmers in New South Wales will not get one drop of water from their water entitlements.⁵

Water reform has been high on the political agenda for over ten years in this country. A broad summary of the factors that gave rise to that policy and law reform, and a description of the features of the new legal framework for water have been given in this paper. The paper outlines where early reform has succeeded and gives a concise analysis of the problems that have been encountered in the implementation of the reform. As the reform framework relies on water resource planning, the paper discusses issues relating to participatory planning in water and considers suggestions as to how this may be addressed particularly in remote communities.

2. A Snapshot of Australia's Water

Australia is a large and old continent, with a wide range of environments. It has tropical savannahs in the North, deserts in

⁴ See Queensland Water Commission Webpage, Household Restrictions Section. Source: <http://www.qwc.qld.gov.au/Household+restrictions>.

⁵ Asa Wahlquist, 'A Big Drought Should Bring Big Ideas with it' *The Australian*, 24 February, 2007. Source: <http://www.theaustralian.news.com.au/story/0,20867,21276403-28737,00.html>.

the Centre and many areas that are prone to salinity problems. Rainfall patterns are highly variable. It has some of the wettest areas on earth, but there are regions that experience prolonged droughts, broken by sweeping floods. Ground water is an important part of the resource. Due to the relative dryness of the continent, Australia has the highest per capita storage capacity of all countries in the world, over 4 million litres per person.⁶

Much of the water is supplied by organised service providers or public dams. But in many catchments in Northern New South Wales, Queensland and Western Australia water users directly access their water either through pumping ground water or dams. 85 per cent of water used within the Australian economy was extracted directly by water users.⁷ Approximately 80 per cent of water used was supplied from surface water (rivers and overland flows) with ground water resources accounting for the remaining 20 per cent.⁸

Prior to colonisation, indigenous people exercised communal property rights over water. Under British colonial rule, the English common law became the basis of management of water resources. It soon became apparent that common law rules were inadequate. There were concerns that efforts at water supply and irrigation would be undermined by common law claims. In 1886, after world-wide study of approaches to water supply and allocation, Victorian legislation vested the right to use water in rivers, lakes, swamps, etc., in the Crown. A royal commission in New South Wales made similar recommendations.

Reform occurred in the late nineteenth century imposing an administrative (licensing) regime in all states. Water is vested in

⁶ Dennis Trewin ed., 2007 Year Book Australia (Canberra, Australian Bureau of Statistics, Yearbook No. 89, ABS Catalogue No. 1301.0, 2007). *Source:* [http://www.ausstats.abs.gov.au/Ausstats/subscriber.nsf/0/D6C6B02D31617DA4CA25726D000467A6/\\$File/13010_2007.pdf](http://www.ausstats.abs.gov.au/Ausstats/subscriber.nsf/0/D6C6B02D31617DA4CA25726D000467A6/$File/13010_2007.pdf).

⁷ Australian Bureau of Statistics, Water Account, Australia, 2004–05, 28 November 2006. *Source:* <http://www.abs.gov.au/AUSSTATS/abs@nsf/ProductsbyReleaseDate/9F319397D7A98DB9CA256F4D007095D7?OpenDocument> [hereafter Water Account 2005].

⁸ Australian Government, Department of Agriculture, Fisheries & Forestry, Bureau of Rural Sciences, Australia – Our Natural Resources At A Glance 2007. *Source:* <http://affashop.gov.au/product.asp?prodid=13637>.

the State. Water for urban supply and mining was generally granted directly by specific acts of legislation. But the majority of grants of water for irrigation took place by the licensing system established under water statutes. In that time public policies promoted increased water use, and farmers were charged for water they were entitled to take under their grants regardless of whether all of it was used. The price of water was also heavily subsidised. Storages and supply systems were mainly publicly funded.

A great variety of administrative grants with different tenure, rights and obligations (collectively referred to in this chapter as 'administrative grants') developed over the years. In each of the States, and regions within those states, water managers had a great deal of autonomy over how they expended the supply of water. Many of the differences in these administrative grants relate to the subtleties associated with local land use and development.⁹

The type of crops grown in a region/state also determined how dams were managed. Where horticultural crops were grown, dams were managed conservatively. This meant that water was held for several years in large storages to ensure there was enough for supply during dry years. In regions where rice or cotton, both annual crops, were grown, then the policy was to let as much water be used in a wet year. In a dry year these crops were simply not grown at all. As we will observe later in this chapter, these patterns of management became institutionalised as part of a post-reform water entitlement.

The main period of expansion took place within a 50-year period of the twentieth century that was a relatively wet period. During these years rivers were treated as supply channels for irrigation. This disrupted their natural flow patterns. Wetlands were drained for agricultural use, and so much water was pumped that rivers are running dry. Floodplains and ecosystems have been affected. Over-allocation of water is now a significant issue.

⁹ See T. Shi, *Simplifying Complexity: A Framework for the Rationalisation of Water Entitlements in the Southern Connected River Murray System* (Adelaide: CSIRO, 2005).

Consumptive use of water is shown by the following table.

Table 1: Water consumption in Australia 2004–2005.¹⁰

Sector	Use
Agriculture	65%
Household	11%
Water Supply Industry	11%
Manufacturing, Mining, Electricity & Gas	3%
Total	100%

Water consumption patterns in Australia have changed significantly since 2001–2002. Overall water consumption has decreased by 14 per cent with the greatest reduction (19 per cent) being within the agricultural sector. Household water use has decreased by an average of 8 per cent.¹¹

3. Co-operation in Water Law Reform

When Australia became a federation in 1901, inland rivers had already been used for decades as highways for getting produce to markets. They were also very important to the states for irrigation. To reflect the states' concerns, the Constitution was silent on the issue of water resources therefore according to common law principles about sovereign legislative power, this power remained with the states.¹² The only explicit reference to water resources is found in Section 100 of the Constitution which reads:

The Commonwealth shall not, by any law or regulation of trade or commerce, abridge the right of a State or of the residents therein to the reasonable use of waters of rivers for conservation or irrigation.

¹⁰ See Water Account 2005, note 7.

¹¹ Ibid.

¹² See S.D. Clark and I.A. Renard, 'Constitutional, Legal and Administrative Problems', in HJ Firth and G. Sawyer, *The Murray Waters: Man, Nature and a River System* (Sydney: Angus Robertson, 1974), 265–266.

Thus the Commonwealth's powers over water came from its power to legislate for defence, trade and commerce, and external matters. In practice the Commonwealth has had an important role in the management of the internal waters of Australia through policy formulation and the provision of financial assistance for schemes related to water resources.

By the late 1970s it became apparent in the heavily irrigated states of Victoria and NSW that water was over-allocated. The main problems were:

- The lack of security for entitlement holders. They were like members of a club that kept taking in new members, resulting in the erosion of the enjoyment of the club facilities. In addition membership rights were not clearly specified. Managers determined the rules of water access. In parts of NSW there were a few examples where managers had seriously underestimated losses in the 'system' and later that year had to cancel water that had been promised to farmers.
- Governments were authorised to revoke the entitlements for 'bad behaviour' but this did not happen.
- Entitlements were often limited to a definite period (this period varied from state to state) but again the rights were simply rolled over to a new period.
- The legal regime did not recognise that the environment was a legitimate user of water.¹³

Early measures were put in place in the form of volumetric allocation schemes, embargoes on new water licences, temporary and permanent trade of licences particularly in Victoria and NSW.¹⁴ These did not adequately address the two main problems of water use – the opposing demands of security for consumptive users and the growing awareness that water needed to be allocated to ecosystem needs.

¹³ Poh-Ling Tan, Legal Issues Relating to Water Use (Murray-Darling Commission Project MP2002 Issues Paper No 1, Report to the Murray-Darling Basin Commission, 2002) reprinted in *Property: Rights and Responsibilities, Current Australian Thinking* 13 (Canberra: Land and Water Australia, Report of the Social and Institutional Research Program, 2002). Source: <http://products.lwa.gov.au/files/PR020440.pdf>.

¹⁴ For details see note 13 above

Wide scale reform was sparked by Industry Commission findings 1992 that the water 'industry' was inefficient and unsustainable. The enquiry recommended:

- Payment of full cost of use by users
- Integrated approach to water management
- Institutional change – separating water provision from resource management, standard setting and regulatory enforcement
- Tradeable water rights to allow reallocation of water from unproductive uses to efficient uses.

This report was handed down in a political climate that augured well for its adoption. International treaties and conventions placed obligations on the Commonwealth government to manage natural resources in a sustainable manner and to protect biodiversity. Domestically, Commonwealth, State and local governments adopted a new cooperative approach to environmental matters. This approach is exemplified by the Intergovernmental Agreement on the Environment concluded in May 1992.¹⁵

3.1 National Water Reform Framework, 1994

The Council of Australian Governments (COAG) comprising federal, state and local governments in Australia embarked on an ambitious agenda for reform in 1994. They recognised that better management of Australia's water resources was a national issue and agreed on a Water Reform Framework. The reforms were based on two main objectives – to introduce a water market while at the same time protecting environmental uses of water. A raft of actions were required including:

- separating water access entitlements from land titles
- allowing for trade in water entitlements, both intra and interstate.

¹⁵ Australian Government, Department of Environment and Water Resources, Intergovernmental Agreement on the Environment, 1 May 1992. Source: <http://www.environment.gov.au/esd/national/igae/index.html>. See Jacqueline Peel and Lee Godden, 'Australian Environmental Management: A 'Dams' Story', 28 *UNSW Law Journal* 668, 676 (2005).

- consulting the public where new initiatives are proposed especially in relation to pricing, specification of water entitlements and trading in those entitlements
- making explicit provision for environmental water and where river systems were over-allocated to provide for a better balance in water use, and
- separating the functions of water delivery from that of regulation.

As a result, over the last decade states and territories have a significant program of reforms to their water management regime. All jurisdictions have introduced new legislation and statutory water plans.

3.2 *The National Water Initiative (2004)*

Australian governments revisited policy-making in 2003/4 and agreed on the National Water Initiative (NWI).¹⁶ This policy document, agreed on after months of negotiations between states confirms the direction of earlier reform, recognises that more work needs to be done and sets new and specific targets.

It seeks to achieve nationally-compatible trading system and to that end states that entitlements are to be exclusive, tradeable, enforceable, defined separately from land and as a perpetual share of a specified water resource.¹⁷ Registers of entitlements are to be set up. Among an extensive list of measures required, the NWI seeks to remove institutional barriers to permanent trades by 2014.

The NWI sets a detailed implementation schedule. Water planning is critical to the NWI outcomes and is the instrument which delivers both a highly specified 'product' for trade while at the same time providing for sustainable management. Achievement of the central objectives of the reform depends on comprehensive planning systems based on hydrological assessment of the resource. A cardinal principle that underpins planning is that water users, interest groups and the general community are to be involved as

¹⁶ Council of Australian Governments, Intergovernmental Agreement on a National Water Initiative, 25 June 2004. Source: <http://www.ielrc.org/content/e0403.pdf> [hereafter NWI].

¹⁷ Ibid., Section 31.

partners in catchment planning processes. The baseline for planning is sustainable management.

... all water bodies, no matter what level of modification is accepted as the appropriate balance between production and the environment, must be maintained in or restored to an environmentally sustainable condition as the first priority of management.¹⁸

4. An Assessment of Water Reform

Reform has been successful in three areas.

First, an independent 'watch-dog' has been set up to assess compliance with policy. The National Water Commission (NWC), a statutory body was set up in 2004 to drive the national water reform agenda.¹⁹ It provides advice to COAG and the Commonwealth Government on national water issues. Commissioners are appointed in recognition of their skills for example expertise in water resource policies and relevant scientific disciplines. One of its main functions is to assess governments' progress in implementing the NWI which sets national standards for water reform. This is done through biennial assessments of progress commencing in 2006-07.

Secondly, a water market has been established. Trade in surface administrative grants were introduced in 1983 in NSW and when introduced were restricted to temporary trade between irrigators within the same irrigation district. Over time permanent trades were allowed, but markets worked in a limited fashion. The term 'permanent' refers to sale (or transfer) of access entitlements. The transfer of the seasonal allocation for a year or period of years is often referred to as temporary trade or renting or leasing of the entitlement. Since the 1994 reforms, the legislative barriers for trade have been minimised. For example in Queensland within a

¹⁸ Daniel Connell and Stephan Dovers, 'Tail Wags Dog – Water Markets and the National Water Initiative', July–September *Public Administration Today* 18 (2006).

¹⁹ Commonwealth of Australia, National Water Commission Act 2004, Act No. 156 of 2004, 17 December 2004.

catchment, there is what can be considered a trading zone. If the proposed trade, whether temporary or permanent complies with the Resource Operations Plan (ROP) for that catchment, then there are very limited procedures to comply with. Only if the trade falls outside of the ROP then procedures such as public notice, objections, scientific reports supporting that externalities are not significant, etc., are required.

In 1998 the Murray-Darling Basin Commission (MDBC) put in place a pilot interstate water trading project between NSW, Victoria and South Australia (SA). Trade within the southern Murray-Darling Basin (MDB) has been most active. However water trade outside the MDB is limited mainly because of the lack of hydrological connectivity of and a lack of demand for water relative to supply and availability.²⁰

Open and robust markets are intended to provide more efficient use of water by allowing water to be 'retired' from less productive use.²¹ Some of the economic, environmental and social benefits that may accrue from water trading include:

- reducing environmental effects of irrigation by transferring water away from highly saline areas or areas of high leakage to areas of more sustainable use
- allowing landholders to retire, restructure or leave agriculture
- allowing flexible use of water for annual crops such as vegetables and cotton in times where permanent plantings may have surplus water
- providing regional development with water made available to new industries and investments.²²

²⁰ Productivity Commission, *Rural Water Use and the Environment: The Role of Market Mechanisms* (Melbourne: Productivity Commission, Final Research Report, 25 August 2006) [hereafter Productivity Commission].

²¹ Henning Bjornlund and J. McKay, 'Do Permanent Water Markets Facilitate Farm Adjustment and Structural Change within Irrigation Communities?', 9 *Rural Society* 3 (1999).

²² Frontier Economics *et al.*, *The Economic and Social Impacts of Water Trading: Case Studies in the Victorian Murray Valley* (Canberra: Rural Industries Research and Development Corporation, Publication No 07/121, 2007).

At the same time number of concerns have been expressed about the economic and social impacts of water trading. These include (i) that sale of water out of a region may leave the costs of maintaining existing water infrastructure on fewer remaining users, referred to as 'stranded assets'; (ii) that contraction of irrigated agriculture because of water being sold to metropolitan areas will have a flow-on effect to various support industries in the region.

A recent report on this subject examines the evidence over a ten year period from irrigation areas in Victoria where water trading has been the most prevalent²³. The report notes the difficulties of untangling the effects of water trading from other events which have occurred in rural communities such as drought, and changing commodity markets, and finds that it is necessary to consider permanent and temporary trading together. There was net increase of water for irrigation use in four out of five areas studied. The report has found that the impacts of trade are generally consistent with rural sociology theories. Trading was found to have affected third parties, with trade into the regions leading to increased competition in production, higher water tables; and trade out of regions leading to 'stranded assets', and depopulation. Rapid structural and social change placed a strain on regional infrastructure, and affected the social cohesion of communities.

Advantages of trading were also evident, and again were consistent with economic theories of trade and investment. It allowed horticulturalists to secure access to water for new plantings of land not previously irrigated, and led to increased regional development. Trading also improved the capacity of parties to manage risk and farm decision-making. It allowed farmers in sectors such as the dairy industry to clear debt. Permanent trading tended to occur only when a farm was sold as a 'going concern'.

Thirdly, public and political attitudes are changing with options of recycling and desalination taken seriously. In 2006 Toowoomba – a country town in Queensland which is fast running out of water – planned to spend \$68 million on recycling water to add to drinking supplies. When the council's plan was put to a referendum, two-thirds of residents voted against it. However this is not indicative of wider community views. An overwhelming 70

²³ Ibid.

per cent of Australians are now prepared for recycled water to be added to potable supplies.²⁴

Political commitment to water reform means that money is available for the reform agenda. Over thirteen billion dollars will be allocated in the period 2006–2011 for national water projects. Infrastructure solutions still dominate the water reform agenda, for example a desalination plant in Western Australia costing \$387 million, a water pipeline in Queensland costing \$500 million, and a water recycling plant in NSW of \$500 million. The allocation of money is still very much subject to political pressures.²⁵

The following parts of this paper refer to problems encountered in the implementation of water reform.

4.1 Constitutional Barriers and the 2007 'Water Security Plan'

Rivers and aquifers are transboundary resources, and the most prominent example is the MDB. The major river system running through the basin, the Murray-Darling, is Australia's largest and one of the world's major river systems. The Basin comprises 14 per cent of Australia's total land mass across four states. It is an important bio-region – within it is found over 30,000 wetlands some of which are listed under the Ramsar Convention of Wetlands of International importance. Irrigated agriculture in the Basin has had a history of over 140 years and accounts for an estimated 70–72 per cent of all irrigation water use in the country.²⁶

The MDB is governed by an inter-jurisdictional pact which has its historical roots in the early 1900s. Presently an agreement exists between the governments of NSW, Victoria, SA, Queensland, the Australian Capital Territory (ACT) and the Commonwealth.

²⁴ Selina Mitchell, '70pc Would Drink Recycled Sewage', *The Australian*, 26 December 2006, 1. 1200 people participated in a poll conducted for the newspaper. 69 percent of respondents were prepared to accept treated effluent for household use including drinking if treated to the same quality as current supplies. 29 percent were prepared to accept it for non-drinking purposes. Only two percent opposed any use of recycled effluent.

²⁵ Fiona Carruthers, 'Politics Muddies \$13bn Water Reform Plan', *The Australian Financial Review*, 19 May 2006, 1, 80–81.

²⁶ See Productivity Commission, note 20 above.

Figure 1: Murray-Darling Basin (Murray Darling Association, 2007).

In 1996 the Murray-Darling Basin Ministerial Council imposed a 'Cap' on extraction of water for consumptive use. It was set at a level of extraction under management rules and infrastructure development as of 1993/94.²⁷ Connell observes that this reference point has almost no connection with environmental perspectives and provides first for the need for production.²⁸ States were responsible for implementing the Cap. Annual Independent audits showed that NSW regularly breached the Cap and Queensland had not set a state target as was required.

²⁷ The Cap Formula 'is the volume of water that would have been used with the infrastructure (pumps, dams, channels, areas developed for irrigation, management rules, etc.) that existed in 1993/94, assuming similar climatic and hydrological conditions to those experienced in the year in question'. See Murray-Darling Basin Commission, Annual Report 2000–2001 66 (Canberra: Murray-Darling Basin Commission, 2000). Source: http://www.mdbc.gov.au/_data/page/46/annual_report_00-01.pdf.

²⁸ D. Connell, *Water Politics in the Murray-Darling* (Annadale: Federation Press, 2007).

A review of the Cap in 2000 concluded that although the Cap provided some measure of control, the activation of 'sleeper' and 'dozer' licences by trade meant that overall security of access had been reduced. Critically, because the agreed level was meant to be an interim measure from the start, the Cap level needed to be lowered in some places within the Basin. Further, as surface water allocation was reduced, groundwater was being 'mined' and the Cap needed to extend to this sector of the resource. It was becoming apparent that the Cap was not delivering on environmental benefits for the MDB.

After lobbying by the environmental sector and South Australians, in 2002 the Murray-Darling Basin Commission (MDBC) started exploring options of further reducing water extraction. The options considered included reductions of (i) 750 GL, (ii) 1,630 GL and (iii) 3,350 GL. A scientific panel was set up to assess the options. It gave the first option a 'low to moderate' probability of returning the River Murray to healthy working state. Only the third option was given a high probability of doing so.²⁹ Despite these findings the 'Living Murray Initiative', announced in 2004 with much fanfare, adopted a reduction level of 500 GL for use on six iconic sites.

Decision-making under the Murray-Darling Agreement is slow and laborious. All signatories need to agree on measures taken and members on the governing Ministerial council reflect parochial interests. Often difficult decisions are side-stepped. The decision to Cap use in the MDB was bold, but standards adopted were low, and although this was meant to be adjusted upwards, it did not happen. Implementation of the Cap was also uneven. With the Living Murray Initiative, environmentalists say that very little water has actually been returned to the river.³⁰

These criticisms have recently been validated. Attempting to break the stalemate, the Commonwealth government announced

²⁹ Gary Jones *et al*, *Ecological Assessment of Environmental Flow Reference Points for the River Murray System: Interim Report Prepared by the Scientific Reference Panel for the Murray-Darling Basin Commission, Living Murray Initiative* 18 (Canberra: Cooperative Research Centre for Freshwater Ecology, 2003), as cited by Connell in note 28 above.

³⁰ R. Keating, 'Living Murray Plan 'Drains Faith in Govts'', *Australian Broadcasting Commission* 22 February 2006. Source: <http://www.abc.net.au/water/stories/s1576062.htm>.

in January 2007 that 10 million dollars will be invested over ten years to improve water management across the nation.³¹ Citing the severity of the drought in south eastern Australia, various factors such as climate change and changes in land use reducing inflows in the catchments, the Commonwealth proposed new governance arrangements 'to ensure decisions affecting it are made promptly and with a Basin-wide perspective'. The Plan focused primarily on issues in the south of Australia, specifically the Murray-Darling Basin.

The investment plan for water security was aimed at improving water efficiency and addressing over-allocation of water in rural Australia through targeted works in key areas namely:

- modernising irrigation by reducing the loss of water mainly in the Murray-Darling Basin through leakage, evaporation and obtaining efficiencies through updating outmoded irrigation methods. The funds will also improve metering, monitoring and accounting of water and improve the efficiency of river flow and water storage operations. The target is to achieve 25 per cent savings in total irrigation water use (\$6 billion over 10 years)
- addressing over-allocation in the Murray-Darling Basin including reconfiguring irrigation systems, retiring non viable areas, providing structural adjustment assistance, and using water saved to restore the health of rivers and wetlands (\$3 billion)
- reforming governance in the Murray-Darling Basin (\$600 million)
- developing capacity to enable management, interpretation and free public access to water information (\$480 million)
- examining future land and water development in Northern Australia
- ensuring a sustainable future in the Great Artesian Basin through further investment in works (\$85 million).

Cautiously welcomed by conservation and farming groups, the Plan was subject to intense negotiations between the Common-

³¹ Australian Commonwealth Government, A National Plan for Water Security, 25 January 2007. *Source*: <http://www.environment.gov.au/water/publications/action/npws-plan.html>.

wealth, State and related parties. The overwhelming focus of spending under the Water Security Plan is on irrigation works in the Murray-Darling Basin. Over 60 per cent of total funds will be spent on improving irrigation efficiency, and 30 per cent of total funds addresses over-allocation in the Murray-Darling Basin.

On 26 March, 2008 a new political agreement renamed the National Water Plan was made between the Commonwealth and Victorian governments.³² This means that all of the Murray-Darling jurisdictions have now agreed to refer their power over the rivers in the Murray-Darling Basin to the Commonwealth. The key additional terms include the continuation of the State's role in setting annual water allocations; and an in-principle commitment from the Commonwealth to invest up to \$1 billion in Stage 2 of the Food bowl Project in Victoria to return 100 billion litres of water to the Murray River and an equivalent volume of water to farmers in the Goulburn region.³³

The scope of new arrangements is as yet unclear. However it is likely that the Commonwealth will exercise these referred powers to, amongst other things, prepare a Basin wide strategic plan setting a sustainable Cap on surface and groundwater use at the Basin and individual catchment level; set Basin-wise water quality objectives direct operation on supply systems and manage water for the environment. A new MDB authority will be set up, with independent experts and not representatives of jurisdictions. That Authority will report to a single Minister and will be charged with setting a new 'Cap'. It appears that the new Murray-Darling Basin authority will not produce its first plan for the Basin until 2011.

The federal Minister for Water intends to use up to \$ 3 million to buy-back access entitlements from non-viable or inefficient irrigators. This aspect of the Plan has met with criticism from within the Commonwealth government itself.³⁴ It is feared that irrigators who have been allocated entitlements without paying

³² Senator Penny Wong, Minister for Climate Change and Water, Murray Darling Deal Delivered, (Media Release PW 41/08, 26 March 2008). Source: <http://www.environment.gov.au/minister/wong/2008/pubs/mr20080326.pdf>

³³ Asa Wahlquist, 'Filling the Begging Bowl', *Weekend Australian* (29–30 March 2008), 23.

³⁴ Angus Griff and David Crowe, 'NATS Threaten PM's \$10bn Water Plan', *The Australian Financial Review*, 9 March 2007, 1.

for them will now be unjustly enriched by selling to government. The use of public funds to buy back entitlements for stemming overuse of water can be justified only if there is sufficient public confidence in the market. There are concerns that a number of factors erode the long-term availability of water in rivers. The most significant of these are climate change, the proliferation of small farm dams, de-forestation, ground water extractions, bushfires, management of surplus flows, and changes to irrigation water management and return flows.³⁵ Buying back of access entitlements need to be accompanied by a resolution of these issues. This issue of buying back water to address over allocation is also very much related to continuing reform of the specification of entitlements.

The Water Act 2007 gives effect to a number of key elements of the Commonwealth Government's National Plan for Water Security. As yet in early 2008, the Water Act 2007 has yet to commence; with the renegotiation water pact resulting from the change of Commonwealth government in November 2007 significant amendments to the Act are expected. Accompanying changes will need to be made by each of the participating states.

It is significant that the two versions of the national water plans under the former Howard and the present Rudd government focus primarily on issues in south eastern Australia, specifically the Murray-Darling Basin.

4.2 The Specification of Private Entitlements is Incomplete

The COAG water reform framework required that access to water be specified as a tradeable entitlement. Specification has occurred in varying ways in states and is still subject to a high degree of difference.³⁶ The NWI requires that these entitlements must be subject to adaptive management. It also requires that entitlements are a right to a share of the consumptive pool of water available in a resource from year to year and not a fixed maximum volume.

³⁵ See Productivity Commission, note 20 above at 16.

³⁶ In perhaps overstating the problem Shi finds over 400 types of entitlements that are still being used in the River Murray to define opportunities to access and use water.

Even within the water sector there is confusion over terms.³⁷ For the purposes of clarity it is suggested that the term 'access entitlement' refers to the specified right with the following characteristics:

- usually perpetual but capable of being adjusted in a planning cycle of 10 years
- relates to a share of a pool of water.

The periodic opportunity provided by the entitlement is commonly referred to as 'seasonal allocation'. This is the volume of water that can be extracted, used, or sold within an irrigation season in a year. A sale (or transfer) of access entitlements is often referred to as permanent trade. The transfer of the seasonal allocation for a year or period of years is often referred to as temporary trade or renting or leasing of the entitlement.

Two examples of present entitlements illustrate the degree of variability between states. At present NSW's form of an entitlement is called an 'access licence'. It has two components. The first, the *share component*, is defined as a specified share in the available water within a specified water management area or water source. The second, the *extraction component*, is the right to take water at specified times, or rates or circumstances or a combination of these; and in specified areas or from specified locations.³⁸ In addition, the share component may be expressed as a specified maximum volume over a period, or a specified proportion of the available water, or a specified proportion of the storage capacity of a particular storage.³⁹ There are over twelve categories of access licences with differing priorities. The priorities became relevant in times of drought when allocations have to be diminished. Those of higher priority e.g., local water utility licences, regulated (high security) access licences will be least subject to any cutting back of their access to water.⁴⁰

In Queensland, an entitlement is called a 'water allocation'. It is specified by a reference to a number of matters – a nominal

³⁷ See Productivity Commission, note 20 above at 45.

³⁸ New South Wales, Water Management Act 2000, Act 92 of 2000, 12 August 2000, Section 56(1).

³⁹ Ibid., Section 56(2).

⁴⁰ Ibid., Sections 57 and 58.

volume, the location from which the water may be taken, the purpose for which it is taken, any conditions attached to its use, the resource operations plan under which the entitlement is managed, and other matters prescribed under a regulation.⁴¹ If the water is delivered in an irrigation scheme from a storage, then further particulars are required to be registered – the resource operations licence under which the entitlement is managed, and the priority group to which the entitlement belongs.⁴² Alternatively if the water is pumped by the entitlement holder, then the entitlement should also state the maximum rate of taking the water, the flow conditions under which the water may be taken, the volumetric limit and the group to which the entitlement belongs.⁴³

Under the NSW and Queensland models, entitlements are perpetual and capable of trade. They are reviewed under a ten year planning framework. Queensland and Victorian entitlements come with a 'security' of supply levels. This security level is embedded in Queensland within a Resource Operations Plan, and in Victoria within a Bulk Entitlement. 'Security' is also referred to as a reliability factor. It relates to the frequency and severity of shortfalls between the quantity of water desired and the quantity of water that can be supplied. It is often indicated as a statistical probability, for example urban users in the Goulburn catchment, Victoria will have 99 per cent security, meaning in 99 years out of a hundred, those users will get a full supply of water.⁴⁴ NSW entitlements do not refer to the notion of a statistical probability.

4.3 Interstate Markets not Active

It is an objective of the NWI that states put in place legal arrangements to allow interstate trade of entitlements. Legislative impediments that disallow interstate trade have been mainly dismantled. As a broad generalisation, interstate markets are still not active.

⁴¹ Queensland Water Act 2000, Act No 34 of 2000, 13 September 2000, Section 127(1).

⁴² *Ibid.*, Section 127(2).

⁴³ *Ibid.*, Section 127(3).

⁴⁴ Bulk Entitlement Order (Kyabram) Conversion Order 1995 (Vic) Clause 7.

Figure 2: Seasonal allocation trade in the southern Murray-Darling Basin.

Source: See note 20 (Productivity Commission, 2006)

Figure 3: Water entitlement trade in the southern Murray-Darling Basin.

Source: See note 20 (Productivity Commission, 2006)

It is accepted that markets work best when the product is well-specified. Because entitlements are defined in a variable manner, buyers are uncertain of the product on offer when that product comes from a different state. This uncertainty results in a reluctance to enter the interstate market and affects price.

For example in Victoria holders of high security entitlements know that even in very dry years they can expect to receive almost all of the volume of water they are promised. A security factor is attached to the entitlement, as much as 97 per cent for rural users meaning that holders can expect to receive all of the water in 97

out of 100 years.⁴⁵ In the context of climate change, whether there is a level of security for entitlements is an important issue. These security factors are based on historical records of rainfall which may no longer be relied on for predicting how and where rain will fall in the future. Even without climate change, security is still an issue. Dams in Victoria have been conservatively managed. The storages are large, and as far as possible, water is held to ensure two years worth of supply of high security water in a dam.

In contrast, historically NSW entitlements are managed in a relatively less secure manner. The entitlements are framed as a share of the resource available for consumptive use in a particular catchment. These shares are not defined with a level of security that entitlement holders expect in Victoria. Therefore Victorian farmers are wary of buying water from NSW.⁴⁶

A high level of co-operation between SA and Victoria has resulted in an interstate trading arrangement for the River Murray based on an 'exchange-rate' system. The term refers to a rate of conversion calculated and agreed to be applied to water traded from one state (or trading zone) to another.⁴⁷ The federal government wants a collective agreement on trade between Victoria, NSW and SA, not bilateral agreements. All three states were penalised in 2006 by the National Water Commission for failing to reach agreement on interstate water trading.⁴⁸

A seven year study into the market of permanent water trades in an irrigation district in Victoria shows that prices and volumes of water traded have steadily increased but prices for permanent water have half the rate of increase of temporary water.⁴⁹ What is most telling is that demand for permanent water stagnates when

⁴⁵ Poh-Ling Tan, 'Irrigators Come First: A Study of the Conversion of Existing Allocations to Bulk Entitlements in the Goulburn and Murray Catchments, Victoria', 18 *Environmental and Planning Law Journal*, 154, 171 (2001).

⁴⁶ Duncan Hughes, 'States Fined for Failing to Agree on Water Deal' *The Australian Financial Review* 21 (21 April 2006).

⁴⁷ See Productivity Commission, note 20 above at 18.

⁴⁸ Ibid. Victoria was fined \$10 million, NSW \$13 million and SA \$3 million.

⁴⁹ Henning Bjornlund and Peter Rossini, An Empirical Analysis of Factors Driving Outcomes in Markets for Permanent Water – An Australian Case-Study (Paper submitted to the Twelfth Pacific Rim Real Estate Society Conference, Auckland, January 2006).

supply is very low and irrigators struggle to cover their short term needs. In a drought it appears that there is little water to sell and few have money to buy.

4.4 Ecological Considerations Still Come Last

National principles developed under the Water Reform Framework and NWI accept that:

- environmental flows should be given statutory recognition and have at least the same degree of security as consumptive entitlements
- environmental flows should be determined under statutory water plans based on the best available scientific information available to sustain the ecological values of water dependent ecosystems
- water plans should incorporate ecological outcomes and define management arrangements to achieve those outcomes
- a better balance for over-allocated river systems and water to be reallocated from consumptive to ecological use
- environmental water managers be established to audit, review and publicly report on the achievement of environmental and other public benefit outcomes.⁵⁰

In 2005 the first national audit of water resources found that ecosystems are still being short charged.⁵¹ Only a handful of high-conservation value rivers are protected, there is inadequate knowledge of connections between surface and groundwater systems and poor understanding of over allocation of water licences.

NSW arguably had the firmest statutory commitment to providing for environmental flows. A statutory duty was imposed on the Minister to set environmental water allocations that maintain

⁵⁰ Alex Gardner, 'Environmental Water Allocations in Australia', 23 *Environmental and Planning Law Journal* 208, 214 (2006).

⁵¹ Dennis Shanahan and Matthew Warren, 'States 'Fail' on Water Crisis, *The Australian* 1 (13 October 2006) and Australian National Water Commission/ WRON Alliance, *Australian Water Resources 2005 – Discovery Phase Integrated Theme Discussion Paper* (2006). Source: http://www.nwc.gov.au/nwi/docs/Discovery_phase_paper.pdf.

fundamental ecosystem health in priority to allocating water for consumptive uses.⁵² Further provisions required that a water sharing plan must establish environmental water rules.⁵³ In a recent challenge to a statutory water management plan, the NSW Court of Appeal found that the plan for the Gwydir River was inconsistent with the original provisions of the Act.⁵⁴ The court went on to consider whether the plan was thus invalidated. Applying a test developed by the High Court,⁵⁵ the NSW Court of Appeal held that the statutory provisions did not have the effect of invalidating a water management plan that was inconsistent with them. The High Court granted special leave to the Nature Conservation Council to appeal the decision. Quickly, the state government moved to amend the water legislation redefining environmental water, inserting a validating provision for management plans thus retroactively resolving the matter. Its actions made the appeal redundant.⁵⁶

5. Water Planning in Australia

The NWI requires more transparent and comprehensive water planning that deals with key emerging issues. A cardinal principle that underpins planning is that water users, interest groups and the general community are to be involved as partners in catchment planning processes. Despite the attempt to consult and involve the public in water reform, the scale and pace of change has meant that implementation of COAG reform and the NWI has been contentious.

The latest water resource information figures are provided in Australian Water Resources 2005. In October 2006, a number of key issues were identified.⁵⁷ They are:

⁵² NSW Water Management Act 2000, Section 5(3) (a) and (c)

⁵³ Ibid., Section 50

⁵⁴ *Nature Conservation Council of NSW Inc v The Minister Administering the Water Management Act 2000*, [2005] NSWCA 9.

⁵⁵ *Project Blue Sky Inc v Australian Broadcasting Authority*, (1998) 194 CLR 355.

⁵⁶ For an analysis of the NSW legislative provision see Alex Gardner, 'Environmental Water Allocations in Australia', 23 *Environmental and Planning Law Journal* 208, 214 (2006), 215–219.

⁵⁷ See http://www.water.gov.au/publications/AWR2005_Level_1_Findings_061006.pdf.

- Water planning and management approaches are highly varied across Australia's 340 surface water management and 367 ground water management units
- At present, only 18 percent of surface water management units and 33 per cent of ground water management units have a draft or final management plan in place
- Despite physical connections between surface and ground water, most areas are not managed from an integrated water resources perspective
- Of the surface water management units with draft or final management plans only 22 percent considered ground water, while of the ground water management units with final or draft management plans only 65 percent considered surface water.

More recently, in its first Assessment of the National Water Initiative (NWI) the National Water Commission emphasised that effective water planning is fundamental to the NWI. How and when plans are developed and implemented is the critical driver for implementing the NWI entitlement and planning framework.⁵⁸ Besides the provision of public and private benefits through security, certainty and tradeability of entitlements and statutory recognition of water for the environment with at least equal security to private entitlements, the Assessment reiterated that procedural and substantive issues for water plans are:

- The need for a transparent process.
- The use of best available science including social-economic analysis.
- The need for community support of plans.
- The need to account for indigenous interests in water.
- The need to address over-allocation of water in plans by 2007, and for substantial progress towards adjusting these systems by 2010.

Over-allocation is an issue of foremost importance and the NWC takes the view that the process of planning itself needs to be robust

⁵⁸ Australian National Water Commission, *National Water Initiative: First Biennial Assessment of Progress in Implementation, 2007* [hereafter NWC]. *Source:* <http://www.nwc.gov.au/PUBLICATIONS/index.cfm>.

otherwise the issue will not be adequately addressed. The Assessment of Progress repeatedly comments that:

There appears to be a wide gap between putting in place NWI-compliant water plans that address over allocation and perceptions that, despite these plans, systems remain significantly stressed or over allocated. ... The NWI also recognises that determining the needs of consumptive and environmental uses in the water plans (clause 36) involves settling trade-offs in competing outcomes for water systems that will involve judgements informed by best available science, socio-economic analysis and community input. It is clear that in developing their plans all states are striving to achieve this balance.⁵⁹

The NWC notes that while all states have mechanisms that involve indigenous representation in water planning, the explicit inclusion of indigenous interests in water plans is rare. States have taken a range of approaches. For example, NSW has provision for aboriginal cultural and community development access licences but whether any licences have been issued is not known. Queensland on the other hand provides for indigenous interests through environmental flows. In western Australia, it was reported that indigenous interests are identified through cultural value surveys.⁶⁰

5.1 The Process of Water Planning

There is a large variation in water planning approaches adopted in the various States. For example NSW has a State wide strategic plan which set broad targets and policies, which are underpinned by more specific water sharing plans for specific reaches of rivers, as well as broader 'macro' plans for major catchments. This may be contrasted against Queensland which has a strategic Water Resource Plan for each catchment, implemented by Resource Operational Plans.⁶¹

⁵⁹ Ibid., 30, 35.

⁶⁰ Ibid., 40.

⁶¹ Even within states, variations apply. For example, in Queensland, the Gulf Water Resource Plan 2007 covered eight catchments that drained to the Gulf of Carpentaria.

However Hamstead *et al.* in their recent assessment of current water planning processes practices in Australia consider that the water plan preparation process can be broken into the following steps:

- (i) *Planning initiation.* This involves making the decision to undertake planning, establishing the planning processes, and organising the human resources required to drive the process.
- (ii) *Situational analysis.* This step looks at the current status of resources, environmental and other public benefits, uses, and socio-economic factors as well as future threats, risks and opportunities.
- (iii) *Setting directions.* Given the situational analysis, this step is where broad decisions are made on which way to go, including the objectives and outcomes that are being sought. It encompasses such things as vision statements, which are typically very broad, and outcomes or objectives which can be more specific.
- (iv) *Identifying and assessing strategies.* This is usually achieved through a process of identifying and assessing options (benefits, impacts, mitigation measures).
- (v) *Strategy selection.* This involves weighing up trade-offs (including socio-economic and equity factors) and deciding on a preferred approach. Arising from this are strategies/activities and measureable targets and actions.
- (vi) *Building in adaptability.* This step identifies how implementation and outcomes will be monitored and what should happen if things do not work as expected (e.g., implementation failure, assumptions prove to be wrong, strategies ineffective, improved data, situational change). Arising from this is a monitoring strategy and triggers for adaptation or change.
- (vii) *Plan approval.* For water planning, this is the final Ministerial endorsement that incorporates the outcomes of the process into a statutory framework.

The authors emphasise that the process is reiterative in nature, with later steps frequently requiring the revisiting of earlier steps. For example, plans can be sent back by the Minister at the final

approval stage for further assessment and development of further options.⁶²

5.2 The Challenges of Water Planning

It is recognised that water planning involves making decisions based on tradeoffs between competing outcomes. Planning systems need to be transparent in the sense that there is adequate opportunity for productive, environmental and other public benefit considerations be identified and considered in an open way.⁶³ The NWI recognises that settling these trade-offs require judgements informed by best available science, socio-economic analysis and community input.⁶⁴ As the acceptance of water plans in the community requires their confidence, a number of mechanisms were adopted for example independent community reference panels, use of independent scientific reports, public notification of draft plans, and ability to make public submissions. In its 2005 Audit, the National Water Commission has found that transparency is an issue in trade-offs between environmental and consumptive use, with concerns in NSW, SA, Tasmania and NT.⁶⁵ The recent study by Hamstead confirms this saying 'further exploration of alternative options for increasing the transparency and objectivity of trade-offs and final decision making' is required.⁶⁶

The importance of having a clear policy framework in place prior to the commencement of water planning was yet another critical issue.⁶⁷ Communities become highly dissatisfied in the absence of clear frameworks for collaboration and agreement on the role of community sectors, and other partners in planning.⁶⁸ In

⁶² M. Hamstead, C. Baldwin and V. O'Keefe, *Water Allocation Planning in Australia – Current Practices and Lessons Learned* (Report Commissioned by the Australian National Water Commission, April 2008) [hereafter Hamstead].
Source: <http://www.nwc.gov.au/PUBLICATIONS/index.cfm>.

⁶³ See NWI, note 16 above at para 5.

⁶⁴ See NWI, note 16 above at para 36.

⁶⁵ See NWC, note 58 above.

⁶⁶ Hamstead *et al.*, note 62 above, xii.

⁶⁷ *Ibid.*, 151.

⁶⁸ Poh-Ling Tan, 'Legislating for Adequate Public Participation in Allocating Water in Australia' 31 *Water International* 12, 22 (2006).

some instances committee expectations of their role and influence have not matched those of water planners, or executive levels of government. Conflicting incidents of this nature have been experienced in Queensland and NSW.⁶⁹

Science-based conflicts are characterised by a number of challenges. This includes obtaining all the necessary scientific information, providing scientific information in formats which are accessible to the public, disagreements as to whether the information is the best scientific information available. There is considerable difficulty in dealing with little, conflicting or inconclusive technical information. The latter is particularly the case with environmental allocations where the extent of outcomes from a proposed environmental flow is uncertain.

General concerns over the adequacy of public participation processes are high. There is a recognised need for all participants to be informed and effective at representing their interests, expressing their values and responding to complex problems. Often a lack of knowledge and expertise by participants, who have little understanding of the technical jargon used by water managers, may diminish their capacity to understand fully the various options presented for debate and decision.⁷⁰

Indigenous people tend to be involved to varying degrees in water planning as part of a general public participation process. However, questions have been raised about the extent and adequacy of the mechanisms enabling their involvement. The NWI provides for direct representation of indigenous people in water planning process that should, where possible, allocate and account for water for native title purposes. Distinct problems relating to indigenous forms of representation, decision-making and communication need to be well understood within water policy and planning sectors and forums. It has been said that there is a

⁶⁹ D. Cleary, *Community Involvement in the Water Planning Process* (Paper presented at the Conference on Public Participation in the Australian Water Industry, Sydney, 19 August 2003) and G. Kuehne and B. Bjornlund, 'Frustration, Confusion and Uncertainty – Qualitative Responses from Namoi Valley Irrigators', 33 *Water* 78 (2006).

⁷⁰ Poh-Ling Tan, 'A Historical Introduction to Water Law Reform in NSW – 1975 to 1994', 19 *Environmental and Planning Law Journal* 445 (2002)

'chasm between the perceptions of the available opportunities for involvement and the reality experienced by indigenous people'.⁷¹ Additionally, the lack of understanding of NWI processes by remote indigenous communities adversely affects their ability to participate effectively in water planning processes.⁷²

Public participation in water planning is typified by imbalances in access to the debate – when access is allowed, the extent of access, financial support to enable access and the sorts of knowledge that are valued. Too often, specialist knowledge is the only knowledge accepted – with local knowledge particularly excluded from the debate. These power imbalances are not easily addressed by clever strategies late in the planning process. International experience strongly suggests that a clear acknowledgment and re-negotiation of these power imbalances by all parties early in collaborative planning processes lessens the chance of less empowered participant groups boycotting the process. This improves the credibility of planning outcomes and the chances of their acceptance and implementation by all parties.⁷³

A project addresses these issues through the formulation and trial of participatory tools in two large case-studies in Northern Australia. Northern Australia has the world's most significant concentration of river catchments that still retain their ecological integrity.⁷⁴ Northern rivers provide valuable ecological services, internationally recognised biodiversity values and productive coastal fisheries. The Water Security Plan 2007 acknowledges the immense pressure to develop the water resources of this region. Water planning processes need to be legitimate, robust and reliable if rivers in Northern Australia are to avoid the worst of the mistakes affecting over-allocated rivers in southern catchments.

⁷¹ Brian McFarlane, *The National Water Initiative and Acknowledging Indigenous Interests in Planning* (Paper presented at the National Water Conference, Sydney, 29 November 2004).

⁷² Sue Jackson, 'Compartmentalising Culture: The Articulation and Consideration of Indigenous Values in Water Resources Management', 37/1 *Australian Geographer* 19 (2006).

⁷³ Archon Fung and Erik O. Wright, *Deepening Democracy: Institutional Innovations in Empowered Participatory Governance* (London: Verso, 2003).

⁷⁴ Collaborative Water Planning Project. Source: www.griffith.edu.au/centre/slrc/water.

Conclusion

In the two centuries since colonial occupation, river systems have suffered degradation to a point that it cannot be ignored. In this time wetlands were drained, natural habitats destroyed and native species have dwindled. Ecosystems lose resilience and become accidents waiting to happen. The current drought exacerbated by growing levels of water use continues the crisis.

Cooperative federalism brought about Australia's ambitious agenda for reform. The key decision was to accept that water needed to be sustainably managed. However as we have seen in the NSW's example, even when that principle was introduced in legislation, its implementation can be in jeopardy. States tend to resile from high statutory standards when difficulties are encountered. We see that the law is a weak tool in the face of legislative and political intervention.

High level policy making brought about the NWI in 2004, providing specific actions, standards and target dates. The role of the National Water Commission to oversee reform is important. Its reports have brought about refreshing openness into water management by states who are made to account for delay or lack of success in reaching goals. The political commitment in funding reform measures is a reflection of the importance of the issue.

A number of challenges lie ahead, for example, the ongoing improvement in the specification of entitlements. With drought and climate change, the most critical issue is the unpredictable nature of long term availability of water. In recognition of this, the NWI has made water planning the cornerstone of reform. Formulating transparent, comprehensive planning processes which addresses power imbalances, builds capacity of all participants including disadvantaged groups and allows for resolution of conflicts over scientific information and its interpretation, is arguably the biggest challenge for water reform.