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Recent and Emerging Water Policy Reforms in Australia

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The issue

In the past, the water industry met new demand by increasing supply. In many instances governments provided excessive and free supply in pursuit of political objectives such as settlement of remote land. These policies generated inefficient and low-value use and in many instances created environmental problems. Sometime during the 1970s, community concern over the environmental impact and rising marginal costs of increasing supply caused the emergence of a shift in policy paradigms towards demand management, under which increased demand can only be satisfied through a reallocation of existing scarce resources between competing users. Australia is one of the countries in the world that has most comprehensively pursued this new policy paradigm, and provides an excellent case study of the policy change process within the context of a developed country. This article analyzes the Australian policy process from a broad policy-making perspective, as well as from a community-based perspective, with emphasis on the period since 1990.

Implications and Conclusions

The development and implementation of the new policy paradigm in Australia has been driven at three different levels: at the federal level by the Council of Australian Governments (CoAG); within the Murray-Darling Basin (MDB, Australia's largest water resource) by the Murray-Darling Basin Ministerial Council; and at the state level by state governments. The main conclusion from these experiences is that in order to maximize community benefits from scarce resources, two interconnected issues need to be addressed: it is imperative that 1) a decision-making framework be designed to define and secure social and environmental interests in water and thereby define the volume of water available for consumptive and economic uses within each resource, and 2) within such a framework, interest in water should be unbundled into its components, and markets and pricing mechanisms should be used to direct each of these interests to its most efficient and highest value use. Such a framework would also allow water users to manage, as effectively as possible, their individual risks associated with uncertainty of supply.

Section 1: Introduction

A new generation of water policies has emerged worldwide since the 1970s, concentrating on satisfying new demand by reallocating existing resources between competing users rather than increasing supply. Since the early 1990s, international organizations such as the United Nations and the World Bank have been very active in promoting a new water policy paradigm encouraging more efficient and productive water use. Key elements of this paradigm are the use of markets and pricing mechanisms, formal recognition of environmental needs and better involvement of the broader population in the decision-making processes in water management.

Australia is one of the countries in the world that has most comprehensively pursued this new policy paradigm, due to significant environmental problems in many waterways and aquifers caused by overallocation and subsequent overexploitation of the resource. This article will analyze the Australian policy process with emphasis on the period since 1990. Section two briefly provides the historical context for recent policy developments in Australia. The third section provides a discussion and analysis of the CoAG processes, the Murray-Darling Basin processes and the most recent state policy changes in response to these federal and basin-wide policies. Within the context of these developments, the fourth section focuses on the future, presenting improvements that could be made to the decision-making process, including a decision-making framework that aims to ensure a balance is struck between social, environmental and economic needs related to water use. Conclusions are presented in section five.

Section 2: The Historical Context

When the British Crown claimed sovereignty over the Australian Colonies, all land and water and the control over who had the right to use it were vested in the Crown (Lloyd, 1988). When the Australian Colonies received Common Law, it included the system of riparian doctrine according to which the water running in rivers was annexed to the ownership of the adjacent land (Clark and Renard, 1972). The riparian doctrine soon proved unsuitable for the Australian environment and policy needs. The Deakin Commission recommended that all streams should be vested in the Crown and a legislative framework set in place for the management and allocation of water resources, enabling governments to allocate water to landowners, in pursuit of policy objectives (Pigram, 1986). This was considered appropriate due to the high variability of river flows in Australia, a circumstance that required large investments in dams and infrastructure to provide reliable supply for water users. Before the end of the 19th century most Australian states had legislation in place reflecting this policy (Watson, 1990) and thereby forming the foundation for further public investments in water infrastructure. Today Australia has the highest per capita storage capacity in the world (Smith, 1998).

Under this and subsequent legislation, irrigators were given water entitlements of equal priority. Therefore, during periods of scarcity all irrigators proportionally share the available water. In Australia there are two types of irrigators: 1) private diverters, that is, those who have individual entitlements to water and who pump their own water from the river and 2) those who have access to water within an irrigation district. In the second case, the district has the water entitlement and the individual irrigators have access to water according to their allotments registered in the books of the district.

Under the Australian constitution, water management sorts under the states except when it comes to navigation and commerce. Water management and allocation policies therefore vary significantly from state to state, reflecting the different interests of the major water users. As a result, water entitlements and supply reliability vary considerably from state to state.

In the absence of constitutional powers, a system of "co-operative federalism" has been used to achieve nationally consistent approaches in the form of national strategies such as the National Strategy for Ecologically Sustainable Development and the National Water Quality Management Strategy or in the form of intergovernmental agreements such as the agreement on the environment, the National Competition Policy and now the National Water Initiative. These agreements often use the concept of mirror-state legislation to ensure cross-jurisdictional consistency.

Section 3: Recent Australian Policy Developments

The Australian water industry has undergone significant reforms since the mid 1990s. These reforms have been driven by two main institutions: 1) the Council of Australian

Governments (CoAG), which in 1994 initiated a major water policy reform process, and 2) the Murray-Darling Basin Ministerial Council (MDBMC), which in 1996 introduced a cap on water use within the basin and since has driven a process of water management planning throughout the basin. These central initiatives have subsequently driven new state legislative initiatives related to water. These processes have significantly increased the level of uncertainty associated with future access to water for consumptive use and therefore raised doubt about the future of the Australian irrigation industry and its communities.

The Council of Australian Governments

The push to reform the Australian water industry started in earnest in 1992 with a major report by the Industry Commission (1992). The new water policy strategic framework was set out in a CoAG communiqué in 1994 (CoAG, 1994) as part of a major microeconomic reform agenda towards a National Competition Policy (NCP) together with similar reforms of the electricity, gas, road, rail and telecommunication services. The CoAG water reform agenda was included in the NCP and associated intergovernmental agreements and signed in 1995. It includes the following main elements:

1. Pricing: Consumers should be charged according to consumption, and prices set on a full cost recovery basis, including environmental costs; this element is intended to provide a real rate of return on the written-down replacement costs of the assets.
2. Water entitlements: Water entitlements should be separated from the property right in land and associated with clear specifications of ownership, transferability, reliability and, where appropriate, quality.
3. Trading in water entitlements: Water trade should be encouraged, to ensure that water is used to maximize its contribution to national income and welfare within social, physical and ecological constraints of catchments.
4. Institutional reforms: Integrated catchment management should be the basis for natural resource management. Water authorities should be devolved into three separate entities that take care of the functions of water resource management, standard setting and regulatory enforcement, and service provision, with clear and non-conflicting objectives including improved and more transparent accountability. Irrigators should be given greater influence over the management of irrigation areas through transfer of the operational responsibilities to local bodies.
5. Consultation and public education: The community should be involved in natural resource management issues, and education programs should be implemented to improve the ability of the community to participate in the decision-making processes.

6. The environment: Specific entitlements should be given to the environment, acknowledging it as a legitimate user of water.

The states are committed to implement the reforms and follow the timeline set down in the agreements. The National Competition Council is monitoring the process and reports on progress and lack of compliance. If the state governments fail to implement the reforms, the federal government can impose financial penalties by withholding financial assistance grants. Even though the NCP has largely to do with financial efficiency rather than sustainability, it has quite significant environmental policy requirements and reinforces the legitimate role of governments in pursuing policy objectives, which could not be delivered by market forces alone (Fisher, 2000). Whether these requirements are adequate to achieve the desired outcomes is still debated (Lyster, 2002).

In August 2004, CoAG signed two new intergovernmental agreements: 1) the Intergovernmental Agreement on a National Water Initiative (NWI) and 2) an Intergovernmental Agreement on Addressing Water Overallocation and Achieving Environmental Objectives in the Murray-Darling Basin (CoAG, 2004a, 2004b). The agreements were signed by the states involved in the Murray-Darling Basin, while Tasmania and Western Australia refused to sign as they argued that it was mainly a mainland and eastern state issue. The full implementation of the NWI is expected to achieve several objectives. Among the most significant is the progressive removal of barriers to trade in water.

This includes open trade between states and irrigation districts where water systems are physically shared or hydrologic connections and water supply considerations will permit. Second is the return of currently overallocated or unused systems to environmentally sustainable levels of extractions. Third is the implementation of a water accounting system that is able to meet the information needs of different water systems with respect to planning, monitoring, trading, environmental management and on-farm management.

The Murray-Darling Basin Commission

The Murray-Darling Basin is Australia's largest and most important river system; it covers most of the inland part of southeastern Australia and constitutes some 14 percent of the country's total area (figure 1). It supports 75 percent of Australia's irrigation and provides just over 41 percent of the country's total gross value of agricultural production (MDBMC, 2001), with a significant flow-on effect, supporting more than 1.5 million jobs, most of them in the major cities outside the basin (MDBMC, 2002). The basin also supports significant tourism, with 15 million visitors a year in its national parks and forests. When cultural, social and environmental considerations are also taken into account, the basin has significant importance, extending to all facets of Australian life (MDBMC, 2001).

The basin came under increased stress during the 1970s, 80s and 90s. By the early 1990s, pictures of large blue-green algae blooms dominated the media, giving the issue of the health of the basin national prominence. An audit of water use in the basin was therefore initiated in 1995 (MDBMC, 1995). It concluded that the level of extraction for consumptive use was far in excess of what was ecologically sustainable and, worse, that extractions would continue to increase if no action were taken.

The reason for the anticipated increase in extractions was that all jurisdictions have issued large volumes of water entitlements that have never been used or have been only partly used. As water markets take hold, these entitlements are likely to be activated. The audit predicted significant environmental and economic impacts if the anticipated development were to continue. The decision was therefore made to cap the volume of water extracted for consumptive use to the amount that would have been used at the 1993/94 level of development under similar climatic conditions (MDBMC, 1996). It was left to the states to implement this policy. All states have opted to recognize unused entitlements. While these unused entitlements have been activated through the market, total use has been capped and seasonal allocations have been declining for all irrigators.

It has been generally accepted that the cap will have to be revised and the volume of water for consumptive use will have to be further reduced (DNRE, 2001) – the question is, by how much? The Murray-Darling Basin Ministerial Council in 2002 started a community process, "The Living Murray" (MDBMC, 2002), to determine how much more water should be set aside for environmental purposes in order to secure continued prosperity within the basin, to address how the necessary reduction in consumptive use should be paid for and implemented, and to determine what the socio-economic

Figure 1 The Murray-Darling Basin.
Source: the Graphics Group, CSIRO Land and Water

implications would be. The discussion document sets out three reference points: 350, 750 and 1,500 GL per year. The 2004 Intergovernmental Agreement discussed in the preceding section provides the framework for implementing the Living Murray First Step decision of securing 500 GL for six significant ecological assets.

Under the cap agreement, all rivers within the basin are going through a process of developing water-sharing plans, defining how much water is needed for in-stream flows and environmental events and how much water is available for consumptive use. Many of these plans result in reductions in irrigators' entitlements. State and federal governments are currently trying to develop a uniform approach to the claims of irrigators for compensation or structural adjustment assistance (Water CEOs Group, 2002; SOGW, 2004). The NWI sets guidelines for how the costs of future cuts to entitlements are to be shared once the initial baseline has been set during this round of water sharing plans, but fails to address the issue of how the initial cuts are to be implemented. As a result, state approaches vary significantly, with NSW placing all the costs on irrigators (with the possibility of some structural adjustment in extreme cases) while the Victorian government has promised to fund the initial cuts through water savings or the purchase of water on the market (DSE, 2004). These cross-jurisdictional differences will work counter to the NWI objectives of jurisdictional consistency.

State Water Legislation and Policies

In compliance with the CoAG water reform agenda and the MDB cap, state water policies have undergone significant changes. New legislation was introduced in South Australia in 1997 and in NSW and Queensland in 2000. Victoria is revising its Water Act of 1989 and in 2004 launched a new White Paper, "Securing Our Water Future Together" (DSE, 2004).

The three new acts all separate the interests in land and water, introduce markets in water entitlements, recognize the environment as a legitimate water user and provide a framework of water management planning with some community involvement. The provisions for community participation, however, vary significantly between jurisdictions and are predominantly consultative in nature. Both the NSW and Queensland acts give increased certainty to water entitlements for the duration of the water management plans by stating that entitlement holders are entitled to compensation if reductions are made to their entitlements for the duration of the new plans. However, no compensation is payable if existing entitlements are reduced as a result of developing the water management plans or revising them upon expiry.

The Victorian White Paper (DSE, 2004) is the most recent policy document by a state government; in a sense it is also the most daring as it addresses a number of issues that have previously been avoided. It aims to provide for more secure and flexible interests in water as well as alleviate the community concerns[1] over these reforms by:

- separating land and water rights;
- replacing existing volumetric entitlements to water with a share-based entitlement;
- introducing a non-tradable site-use licence linked to land;
- acknowledging that some channels within irrigation districts are unviable and will need to be closed down;
- separating the right to channel supply capacity from the water entitlement and defining it as a share of the delivery capacity tradable along each supply channel;
- introducing a channel capacity charge to cover the cost of maintaining the supply system;
- promising to consider to provide adjustment assistance to communities suffering from significant flow-on effects from the closure of part of a system;
- committing the government to provide the initial water necessary to meet environmental requirements.

In addition to these policy changes on federal, state and basin levels, most water authorities have also revised their seasonal allocation policies. Traditionally the authorities announced the seasonal allocation as a percentage of total entitlement at the beginning of the season based on water availability in the reservoirs and historical inflows during the season. The authorities therefore effectively managed the supply uncertainty during each season. This policy provided certainty for irrigators, who could plan their cropping for the season based on these allocations. Today, most authorities announce the allocation at the beginning of the season based only on what is available in the reservoirs and minimum expected inflows during the season; they then revise this allocation on a monthly basis during the season as additional water enters the reservoirs. This change has transferred a larger part of the risk management burden from the authorities to irrigators. While this represents sound environmental policy, it has resulted in irrigators having to plan their cropping for the season without full knowledge of how much water is available. To assist irrigators in managing this risk, authorities provide probabilities each month of the likelihood of the allocation reaching different levels.

Section 4: Future Directions – A New Framework

Focus groups with irrigators conducted during 2003 showed that irrigators agree with these policy objectives but that they are frustrated and confused by the process and the uncertainty the objectives have generated. They feel they have been singled out as the villains who have caused all these problems and will have to carry the financial burden of rectifying them. They believe that there is a shared responsibility for the problems; that farmers have reacted to government policies and in many instances have been encouraged

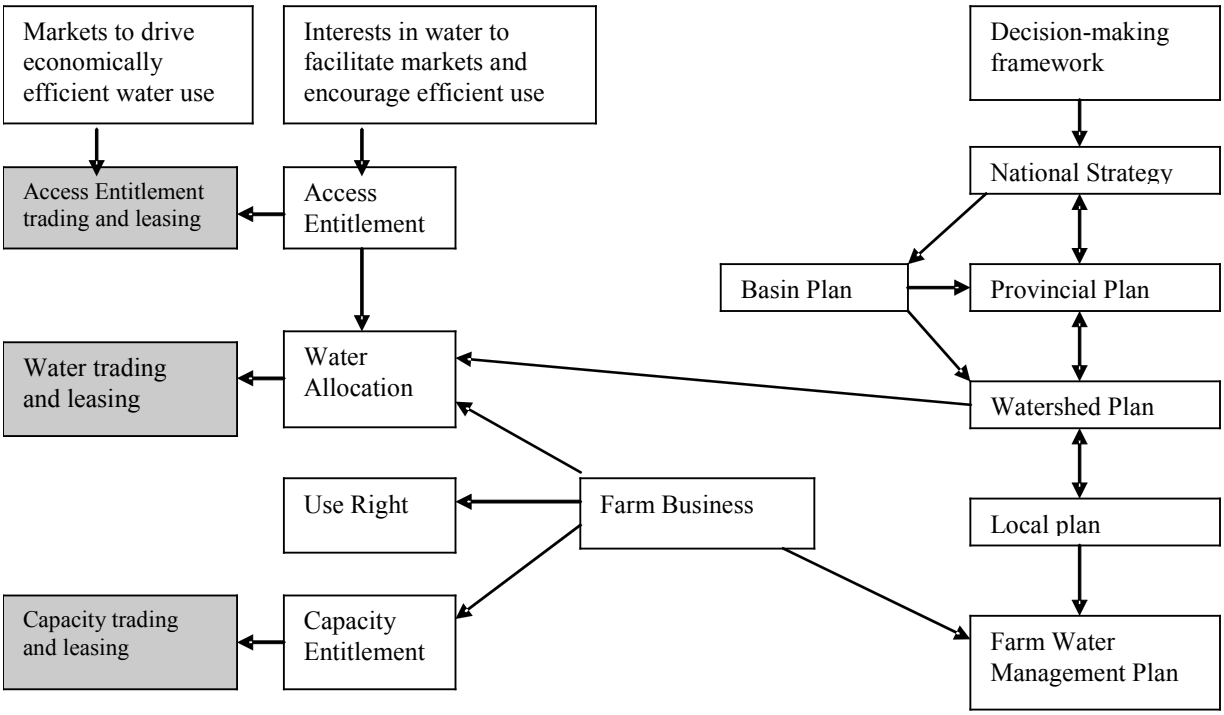

Figure 2 The Water Management Framework

to invest and develop, in some instances under the threat of getting their water entitlement taken away if they did not do so. It is also evident that irrigators need to be far more astute in managing their water resources and need new and better instruments to manage the increased risk.

The Victorian White Paper and the National Water Initiative go a long way toward implementing a water management framework that has in recent years been promoted by academics and scientists (for example see Bjornlund, 2000, 2004b, 2004c; Young and McColl, 2003, 2005). Figure 2 sets out this framework based on Bjornlund 2005. The framework establishes a decision-making model that will ensure that community-based compromises with respect to environmental, social, cultural and economic needs for water are managed within a framework that upholds national values and jurisdictional consistency. With such a framework in place the interest in water can be unbundled into its components and can be securely defined and registered, and economic instruments such as markets and pricing can be used to ensure the most efficient and highest value use of the resource available for consumptive use. The separation of the right to use the water from the right to own the entitlement, the allocations and the capacity entitlements is essential for more efficient water markets. Once the conditions for water use are defined within the community-based decision-making framework, acceptable social and environmental outcomes are ensured, as water users have proved that they fulfill these

conditions in the process of obtaining a water use right. On that basis there is no need to further evaluate trades in water entitlements, allocations and capacity entitlements, as none of these give the owner any right to use water.

Section 5: Conclusions

The above discussion demonstrates that while the last decade has generated significant water policy developments, these have been accompanied by uncertainty about the future of irrigation within the MDB. As a result of a number of policy initiatives, irrigators are under pressure to be more efficient in managing their water resources and carry the risk associated with supply variability. While the most recent policy developments in Australia are going in the right direction, significant improvements are still needed within the decision-making process. If sustainable outcomes are to be achieved it is imperative that all sectors of the community be involved in striking the balance between social, environmental and economic needs for water. If this is not achieved, water users will fight the proposed changes, and the social and economic costs of implementing the necessary changes will increase.

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Endnotes

[1] Thirty-two focus groups conducted with irrigators during 2003 emphasized three main concerns within irrigation communities (Bjornlund, 2004a): 1) the impact of trade out of irrigation districts; 2) the separation of land and water rights potentially resulting in water barons buying up significant volumes of water and controlling who can get it and at what price; and 3) the quantity of water taken from irrigators for the environment and who is going to pay the cost.