

Trajectories in Australian Water Policy

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This paper discusses past and current Australian water policy and management, with comparison to trends in the European Union and United States. Particular attention is paid to the policy directions made explicit in Australia's National Water Initiative for the period 2004-2014. To move beyond description toward a stronger analytical purchase, we begin with a historical perspective, and use the concepts of policy discourses and political drivers to identify underlying motivations of policy change. The National Water Initiative is an unprecedented, multicomponent national-level policy framework, with tensions between major components and associated implementation challenges. The National Water Initiative incorporates regulatory, market-based, informational and educational policy instruments, with demands placed at new and relatively weak administrative scales. These tensions and challenges reflect insufficiently identified differences in values, rationalities, and political imperatives, the resolution, or at least negotiation, of which will need to be attended to in implementation, as they were unresolved in the policy formulation stage. Recent experiences in the European Union and United States confirm that this situation is not confined to Australia, although specifics vary between jurisdictions. The paper concludes that apparent tensions in contemporary water policy should be regarded as predictable manifestations of concurrent experimentation with different policy styles, consistent with multiple values, contrasting political imperatives, and fundamentally different underlying discourses. Accepting this encourages an adaptive and discursive approach to water policy

and management rather than a conflictual one.

In an arena such as integrated water resources management, the practical manifestations of policy are inevitably political, informed by the range of values held by the many groups and individuals comprising the policy community within and outside of government. All policy directions are informed by multiple players who seek to have weight given to their own values. The reality is well stated by Davis et al. (1993):

Politics is the essential ingredient for producing workable policies, which are more publicly accountable and politically justifiable ... While some are uncomfortable with the notion that politics can enhance rational decision-making, preferring to see politics as expediency, it is integral to the process of securing defensible outcomes. We are unable to combine values, interests, and resources in ways which are not political.

A linear, rational-comprehensive view of the policy process infers a low degree of uncertainty, and a clear link between government policy and what occurs in practical management. This inference is often apparent in the expectations of some players, in recent times in the disciplines of public policy and political science. However, it has been strongly unsettled by theoretical and empirical perspectives describing the far more common, messy and contingent nature of policy (Fischer 2003, Hajer and Wagenaar 2003, Howlett and Ramesh 2003, Dovers 2005).

A critical realization in the environment and sustainability domain—within which integrated water resources management sits—is that the challenge is particularly acute due to the features of the policy domain. Although viewed too often

as a policy domain where scientific description of biophysical problems can drive policy making in an instrumental manner, recent years have seen significant shifts in understanding. Broadly, policy and management interventions are seeking to influence highly complex, interdependent social and ecological systems and must do so in a manner that appreciates this complexity (Folke 2006). The following underlying attributes of sustainability problems, integrated water management included, expose the challenge (Dovers 1997):

- systemic problem-causes rooted in long-standing patterns of production and consumption, settlement, and governance;
- broadened and deepened spatial and temporal scales;
- cumulative and practically irreversible impacts;
- high degrees of complexity and strong cross-problem connectivity;
- pervasive uncertainty associated with environmental processes, social values, and policy efficacy;
- emergent moral imperatives and multiple and conflicting values;
- poorly defined property rights and policy responsibilities; and
- justified arguments for public participation in policy and management.

These attributes shape a difficult, contested policy and management domain. In a classic study in natural resource management, Lee (1993) saw the politics of river basin management as “bounded conflict”—recognizing the political nature of addressing multiple values as well as the need to render conflict constructive. Central to establishing constructive and durable trajectories in water policy and management—bounding the conflict—is clear identification and ongoing attention to multiple values. Institutional systems and policy processes within which such problems and conflicts are addressed are widely viewed as inadequate. Although rapidly evolving in positive ways, they should be conceived as a generational task of comprehension and institutional change (Connor and Dovers 2004). Accordingly, although water policy and management has been a leading field of experimentation, it still faces considerable

difficulties in coping with multiple values, uncertainty, and complexity.

In this paper, we use the idea of “environmental discourses” (shared ways of understanding the world and thus of responding to challenges faced) as proposed by Dryzek (1997). In this way, deep differences in perceived ecological, social, and economic imperatives can be better understood. If these differences are inadequately understood and the conflicts between them are papered over in policy process (where ideally they should be addressed), they will not disappear. Instead, they will be continual barriers in later implementation. That, we submit, is a feature of contemporary water policy—expected given the complexity, uncertainty, and time scale of the task—but nonetheless regrettable.

This paper examines trajectories in Australian water policy and management, integrating description and analysis of tangible features with analysis of underlying discourses. In the next section, we establish the historical roots and drivers of Australian water policy, showing that current activities have strong connections to the past. We then describe the current, overarching policy framework, the 2004-2014 National Water Initiative—its mix of imperatives, and the implementation challenges it presents, before analyzing these challenges in terms of underlying discourses and motives. Then, some brief comparisons are made with trajectories in water policy in the United States and the European Union. These are useful referents in the form of federal/confederal, liberal democratic political systems described in sufficient secondary sources. The final section discusses the need to recognize more clearly discourses and motives left unresolved into implementation stages of the policy process, so that management activities can be more clearly focused and informed, and ongoing policy implementation and management regimes may be conceived as evolving and adapting around explicit, mutually comprehended principles.

Historical Context

To understand the present nature of environmental and resource management regimes, cognizance of the past is necessary. Environmental policy can be informed by environmental history (Dovers 2000). What is discussed and achieved

in water policy now is influenced by knowledge and constraints constructed in the past. Overall, Frawley's (1994) overlapping stages in the environmental history of Australia can be seen unfolding—pioneering exploitation, wise use for national development, modern environmentalism, and sustainable development—with as yet unresolved final results¹.

The original and most enduring water management regime in Australia comprised fine scale cultural and resource management practices of hundreds of indigenous nations and language groups, adapted to flexible livelihoods in a variable climate. Although disrupted massively, the regime still survives in practice, knowledge and law in parts of the continent. The recognition of native titles, return of indigenous people to the country and survival and resurrection of traditional knowledge and lifestyle have added indigenous values in current resource management debates (Baker et al. 2001, Jackson 2005), providing a backdrop of more than 50,000 years.

European occupation of Australia from 1788 saw the imposition of British water management ideas and rules. Growing understanding of a highly variable climate saw much experimentation and struggle, demonstrating the unsuitability of the British tradition of riparian rights. Led by Victorian politician and later Prime Minister Alfred Deakin and drawing lessons from domestic experience and international examples, Australia leading up to and at Federation in 1901 established a system of state control of water. The following shifts notwithstanding, the system proved durable as an institutional framework for the following century. Water was a public good, managed through public policy rather than the private sector. The states and territories, aided by Commonwealth money, worked to drive national development and agricultural settlement through public provision of irrigation infrastructure and settlement schemes, culminating in a massive dam-building exercise from the 1950-70s. The bulk of Australian water withdrawal was, and still is used in irrigated agriculture. Water allocation was volumetric, the costs of supply were not recouped and technical improvements in efficiency were rarely evident. In the cities, public works and water utility monopolies created a “big pipe in - big pipe out” system that achieved

tremendous public health gains, but overlooked environmental and efficiency issues. In remote locations, abstemiousness was the norm but by and large, water management was a matter of expanding supply, with demand management and environmental considerations lagging far behind.

The wise use movement in resource management had impacts on water management, but it was the questioning of a few economists, notably Davidson (1969), of the costs and benefits of large works that called this trajectory to account, along with emerging environmental awareness. The global trend toward integration of water with land and vegetation management showed notably in Australia as integrated or total catchment management, with particular reference to what was to become the headline issue of the 1980s to the present; salinity (Dore et al. 2003, Ewing 2003). That catchment scale focus has since evolved to where major resource management programs are delivered largely through regional (mostly catchment-defined) processes and organizations. Haphazard, drought-driven spasms of information gathering and policy development came and went from the 1960s on, with an international standard set with the institutional settings and information coordination of the Murray Darling Basin initiative. Community-based initiatives became widespread in water and land management, headlined by the now famous Australian Landcare movement (Curtis 2003). The era of sustainability from 1992 is known in Australia as the ecologically sustainable development era. It emphasized in water as elsewhere, the emerging challenge of integrating environmental, social and economic dimensions in natural resource management. The mid-late 1990s saw a National Land and Water Resources Audit consolidate previous fits-and-starts in information gathering episodes.

However, it was not resource management experience or environmental concern that was the impetus for the biggest shift of all, but economic policy. Via the Council of Australian Governments, comprising the heads of Australian state, territory and Commonwealth governments, economic efficiency and competitiveness became the most pervasive policy shift of recent decades. Supported by significant Commonwealth funding and intergovernmental agreements and schedules,

National Competition Policy drove reform in many policy domains, and the “Council of Australian Governments water reforms” of the 1990s were a leading example. These reforms focused on productivity, reduction of state subsidies, user-pays, separation of policy and provision, privatization and corporatization of functions, break-up to allow competition, use of market and property right mechanisms and importantly, provision of flows to the environment. As significant as they were, and underlined by severe early-1990s drought, the Council of Australian Governments water reforms were only a partial construction, and set the scene for the 2004-2014 National Water Initiative discussed in the next section.

We can identify a number of core imperatives and value-sets that have evolved at different times, yet co-exist in current policy debates and manifest in management experiments. While none are particular to Australia, the combination perhaps is, especially in the context of extreme climate variability and the specific constitutional and legal system.

1. Security and predictability of water entitlements for consumptive users, in particular irrigated agriculture. It is useful to separate two related yet different imperatives here, which at times are conflated with ensuing confusion. The first suggests public subsidy and long-term planning; the latter the primacy of efficiency and market forces:
 - the social and equity imperative of maintaining water-dependent communities, established purposefully through previous government policy; and
 - the economic imperative of productivity, competition in export trade, and efficiency in inputs, including of policy interventions.
2. Increasing prospects of water scarcity and the need for efficiency of use and change to allocation rules, a product of increased withdrawal, greater number of water “users” (including environment), climate change and variability, and physical and economic limitations to expanding supply.
3. Widening of water policy and management debates to (i) create a “national” water policy

arena, as opposed to several states or catchment limited arenas and (ii) greater awareness of urban and peri-urban as well as rural water issues.

4. An increasing role for catchment and regional organization and delivery of policy objectives, viewed as an efficient and suitable scale where integration of resource management can occur.
5. The importance of participatory approaches to resource management, at the catchment/regional scale but also at the local or “district” scale, through numerous programs epitomized by Landcare. The allowance of public participation in higher order policy formulation is not so apparent.
6. Ongoing efforts to rationalize or at least coordinate roles and responsibilities for resource management within a federal system. The main debates concern the Commonwealth versus state/territory powers, with the role of local government often ignored (Wild River 2003).
7. Increased emphasis on environmental water flows, not simply in volume but also quality and timing of flows to maintain riverine ecosystems.²
8. Recognition of Indigenous water values and uses, encompassing environmental, cultural, subsistence, health, and economic development dimensions.
9. As in all areas of public policy, changes in policy approaches and management styles were strongly influenced by dominant neo-liberal political philosophy and neo-classical economic theory, manifesting in the Australian term “economic rationalism,” and managerial styles termed New Public Management (McLaughlin et al. 2002).

The following describes the National Water Initiative and the ways in which the above are reflected in it and interact in both synergistic and oppositional ways. We should note that consistent with history, the formulation of the National Water Initiative coincided with severe drought from 2001-04.

The National Water Initiative

Signed in June 2004³ and building on the

1994 Council of Australian Governments agenda, the National Water Initiative represents a multi-component, national-level policy framework of unprecedented scale—a “new philosophical approach to water management” (Connell et al. 2005). It is a major step forward in Australian water policy: first, because important ideas that were previously proposals now have official status at the national level; and second, because the National Water Initiative is now the primary statement of policy with which all water-related legislation and policy must comply⁴.

The National Water Initiative was adopted in recognition of the continuing national imperative to “increase the productivity and efficiency of Australia’s water use, the need to service rural and urban communities, and to ensure the health of river and ground water systems by establishing clear pathways to return all systems to environmentally sustainable levels of extraction” ([5]). In doing so, it reflects the policy agendas of a number of major stakeholders that have been active in the water reform debate, including advocates of accelerated water trading, environmental restoration, indigenous interests, and regional development (Connell et al. 2005). These interests are in turn reflected in the main elements of the National Water Initiative, which include provision for environmental flows allowing for quality and seasonal variability, as well as volume, the establishment and trading of water rights, intergovernmental coordination and institutional development, and regional and catchment scale planning⁵. However, there are clear tensions between these components and associated difficult implementation challenges.

Reflecting growing public concern for the environmental health of Australia’s water resources, the National Water Initiative requires the complete return of all currently over-allocated or overused surface and ground water systems to *environmentally sustainable levels of extraction* ([23(iv)]). Water that has been identified by the States and Territories to meet agreed environmental and other public benefit outcomes is to be given statutory recognition and “at least the same degree of security as water access entitlements for *consumptive use*” (para 35(i)), and only water that is not required to meet environmental outcomes can be made available for trading ([35(iii)]). In this

way, the National Water Initiative is a major step forward in Australia’s approach to environmental management. In implementing these objectives, there are, however, a number of significant challenges, which will ultimately test the National Water Initiative’s efficacy. The first relates to the definition of *environmentally sustainable levels of extraction*. In recent years considerable research effort has focused on the connections between surface and ground water systems (Department of the Environment and Heritage 2004⁶), the impacts of various land-use practices on interception (Dillion et al. 2001, Keenan et al. 2004), and the merits of various approaches to environmental management (Gunningham 1999, Dovers and Wild River 2003, Gunningham 2004). While progress has been made, the complexities that exist, particularly in dynamic conditions such as those under climate change, in response to bushfires or as a result of different land uses and tenures suggest that defining *environmentally sustainable levels of extraction* will require far more research than is currently advocated in the National Water Initiative.

A second problem relates to the number of regional water systems that will need significant management adjustments to achieve that standard. It is the responsibility of the States and Territories to develop water plans that will secure ecological outcomes for water systems ([37 (i)]) and resource security outcomes for consumptive use ([37 (ii)]). However, the areas to be covered, level of detail required, duration and frequency of review, and the amount of resources devoted in each plan, are determined exclusively by the State or Territory ([38]). Reading the National Water Initiative suggests that formal identification of currently over-allocated water bodies is likely to be limited (Connell et al. 2005; National Water Initiative [33(ii)]; [43]).

A third related problem concerns the tensions that will inevitably arise between different stakeholders when over-allocated water systems are identified and state water plans emerge to return the system to an environmentally sustainable condition. Experience in the Murray-Darling Basin,⁷ the health of which was so poor as to be deemed “significantly impaired” and “no longer healthy,” suggests that even where considerable pressure and financial commitment from the

Commonwealth has spawned new and progressive policy to reallocate water for environmental purposes, the resultant policies have been so diluted by agricultural pressure groups that it has failed to achieve its stated goals. Thus, the tensions that existed between different values and rationalities in the drafting of the National Water Initiative will persist through its implementation, likely resulting in further highly politicized and lengthy debate, if not legal conflict.

If the National Water Initiative represents on the one hand, the consolidation of “environmental sustainability” in water resource management, on the other hand it embraces the Australian government’s preference for policies grounded in neo-liberal political philosophy and neoclassical economic theory to achieve that end—in this case, the use of market-based instruments and property rights for the management of public goods. It is clear that the overarching objective in the National Water Initiative, upon which all other objectives depend, is the establishment of clear, nationally-compatible water access entitlements to facilitate the operation of water markets within and between jurisdictions ([24], [25], [58(i)]). The wholehearted adoption of *water markets* reflects an economic rationality and the imperatives of efficiency, productivity, a limited role for government and crucially, the need for well-defined property rights: “environmental problems must be understood more as failures by governments to specify property rights than as offshoots of private profit-seeking” (Mitchell and Simmon 1994). However, the implementation of efficient water markets under the National Water Initiative is ambitious, and will be enormously problematic and, it has to be noted that the vast majority of the research agenda in the National Water Initiative is focused on water trading, *a priori*⁸. The main challenge to water trading is also the reason for its failure hitherto, which is the extensive jurisdictional fragmentation that has developed in water entitlements in Australia over the last 100 years. There are eight jurisdictions covered by the National Water Initiative and all of them differ in substance and institutional arrangements for water entitlements, making it very difficult to trade “like with like.” Connell et al. (2005) suggest that:

Given the relatively weak processes that will be in

place to encourage coordination, there is a strong possibility that the implementation teams in the various states will develop new water entitlement products, registers and institutional processes that will continue to be as incompatible with those of their neighbors as they have been in the past.

The principles for trading operations are set out in Schedule G of the National Water Initiative, and one of its primary objectives is to promote trade in water entitlements of more varied levels of security of supply and across much larger geographical areas. However, a further problem in water trading relates to the variations in biophysical characteristics of respective surface and ground water systems between states: how will a proportion of X as established by the water plan for one water system for example, be translated into a proportion of Y as determined by the water plan that applies to the delivery site of the purchaser, when the two water systems have different hydrological characteristics (Connell et al. 2005) While not insurmountable, the knowledge and coordination required to reconcile these problems is great, and as yet not articulated.

A key difference between water trading under the National Water Initiative and experience to-date in the Murray-Darling Basin is the extension of trading to water bodies of varying hydrological characteristics and thus varying degrees of security of supply. The result has been the shift to a framework where buyers of water access entitlements will purchase a “perpetual or open-ended share of the *consumptive* pool of a specified water resource, as determined by the relevant water plan” (Gardner 2006, 28). The difference is the variation from year to year of what the consumptive pool will be, thus undermining users’ confidence in how much water they will get for their money (Connell et al. 2005).

Respecting the “environmental sustainability” imperative as a principle objective in the National Water Initiative, provision has been made such that a trade can be refused if it is inconsistent with the relevant water plan or will result in sustainable yields being exceeded. Further, trading should not “increase seasonal reversals in flow regimes above sustainable levels identified in relevant water plans such that environmental water or water dependent ecosystems are adversely affected” (National Water Initiative Schedule G [5]). However, the means to allow such decisions to be made have all yet to be

established. These include a nationally consistent framework to define the product that is being traded, water registers to record the trades undertaken (water accounting) and the biophysical knowledge to make judgments on environmental flow thresholds (National Water Initiative Schedule A).

The success of the National Water Initiative relies heavily on coordination of the multi-levels of government within the federal system. At Commonwealth level, responsibility for overseeing the implementation of the National Water Initiative lies with the Natural Resources Management Ministerial Council ([18]; [104]), with significant support from the new National Water Commission ([19]), a federally-funded body whose Commissioners are dominated by the Commonwealth government⁹. The development of detailed water plans are the responsibility of the states and territories, and the efficacy of a national trading scheme will depend on the coordination *between* states as much as between the states and Commonwealth. However, as evidenced by the now century-old Murray-Darling Basin commission, protecting state sovereignty remains a high priority in the Australian federal system (Pigram and Musgrave 1998, Connell et al. 2005). The only tangible incentive the Commonwealth has to encourage state cooperation is the A\$2 billion in funding that states can access in return for compliance. However, even where intergovernmental coordination is politically sanctioned by the states, the transaction costs incurred remain high with so many jurisdictions and players involved.

Finally, it is implicit in the National Water Initiative that much of its implementation will be driven by regional catchment management authorities (CMAs). A catchment management approach to water resources management is not new in Australia (Murray Darling Basin Commission 2002) but the National Water Initiative makes their role far more ambitious, complex and politically contentious (Connell et al. 2005). In the development of state water plans, it is likely that catchment management authorities will be the primary source of information on: the variability of water supply in their catchment ([25(viii)]); the needs of indigenous Australians in relation to water access and management ([25(ix)]; the

identification of surface and ground water systems of high conservation value ([25(x)]); and, finally, the closest level of government able to “protect the integrity of water access entitlements from unregulated growth in interception through land-use change” ([25(xi)]. Ultimately, there will need to be sufficient institutional capacity-building at the catchment management authorities and local government level to enable the National Water Initiative’s implementation. Currently, the institutional, informational, statutory and human resources of catchment and regional organizations are widely perceived as insufficient (Ewing 2003, Robins and Dovers in press).

Policy Styles and Political Drivers

The incorporation of regulatory, market-based, informational and educational policy instruments, together with institutional and implementation demands placed at new relatively weak regional administrative scales, is indicative of the myriad of drivers in the National Water Initiative’s formulation. The consolidation of important principles for water resources management—principally the provision of environmental water allocations in statutory state water plans—and the elevation of water policy to a national overarching framework confirms the increased awareness of, and commitment to an ecological imperative. However, the National Water Initiative also embodies a number of tensions and challenges that reflect insufficiently-identified differences in values, rationalities and political imperatives, the resolution or at least negotiation of which will need to be attended to during implementation, because they were not resolved or properly attended to in the policy formulation stage.

A useful framework to understand these deep differences in perceived ecological, social and economic imperatives is the concept of “environmental discourses,” the shared ways of understanding the world and thus of responding to challenges faced, as delineated by Dryzek (1997):

In the last four decades, the politics of the Earth has featured a large and growing range of issues...with a whole range of moral and aesthetic questions about human livelihood, human attitudes, and our proper relation to other entities on the planet... thus the whole environmental area is home to some heated debates and disputes, ranging

from the details of the implementation of policy choice in particular localities, to the arguments of philosophers debating the appropriate ethical position to apply to environmental affairs in general.

Dryzek classifies the main environmental discourses according to whether they are reformist or radical in nature on the one hand, and prosaic or imaginative on the other. Combining these two dimensions produces nine separate environmental discourses (Table 1). Discontinuity within discourses is rare, and while interchange across discourse boundaries can occur, it can prove difficult. This is borne out by the varied imperatives addressed in the National Water Initiative and embodied in the policy instruments, which in turn can be seen to draw on a number of the ideas in multiple environmental discourses. In this section we examine those relationships and conclude that the tensions in the National Water Initiative can be explained by a blurring of environmental discourses which are then reflected in sometimes conflicting water policy.

As already articulated, the National Water Initiative is the culmination of a long history of water reform in Australia, but it is particularly distinctive owing to the varied ideas and realities that have pushed it forward. The first of these concerned the increasing urgency of water scarcity as a result of rising numbers of water “users” including the environment, increased climate variability and the frequency and intensity of drought, and growing cognizance of the physical and economic limitations to expanding supply. In this sense, it relates closely to the “survivalism” discourse with its recognition of the limited carrying capacity of natural resources to support human activity. Certainly, a body with some influence in the development of the National Water Initiative—the “Wentworth Group of Concerned Scientists” (TWG)—did much to highlight the urgency and unsustainability of Australia’s natural resource management practices:

Our land management practices over the past 200 years have left a landscape in which freshwater rivers are choking with sand, where topsoil is being blown into the Tasman Sea, where salt is destroying the rivers and land like a cancer, and where many of our native plants and animals are

heading for extinction (TWG 2002).

That these imperatives were persuasive is evident in the National Water Initiative’s emphasis on *environmentally sustainable levels of extraction*. However, the equally persuasive economic rationalism discourse, based on neoliberal philosophies and neoclassical economics, was already permeating Australia’s policy style, across policy domains. In the context of the National Water Initiative, these ideas were focused on *efficiency* of water use and the central role of the *market* to achieve it. The result was a framework heavily reliant on the establishment of *efficient water markets*, which required revision of the water allocation regime across jurisdictions. While other discourses do not dismiss the role of market mechanisms, they may be doubtful of them on social and environmental grounds, see them correctly as an efficient allocation mechanism within a broader environmental constraint, or be sensitive to the implementation difficulties of a “transformative policy option” which shifts the logic of resource allocation from the social and ecological to the economic and ecological (Connor and Dovers 2004). A more whole-hearted adherent to the economic rationalist discourse may inappropriately see markets as a social goal rather than a contributing instrument to that goal (Common 1995).

However, the changes to the allocation regime were in turn subject to significant advocacy in the formulation stages, stressing the need for security and predictability of water entitlements for consumptive users, in particular for irrigated agriculture. The influence of Australia’s strong farmers’ lobby and irrigators’ councils can be seen here. It is useful to separate two related yet different imperatives in the allocation aspects of the National Water Initiative. The first, a social imperative, relies on public subsidy and long term planning; the second, an economic imperative, advances the primacy of efficiency and market forces. The former is the social imperative of maintaining water-dependent communities even where they “will never be economically viable but need to be maintained to meet social and public health obligations” ([66(v)]). The second relates to the economic imperative of productivity, competition in export trade, and efficiency in inputs. Both of these provisions reflect the ideas embedded in the

Table 1. Typology of Environmental Discourses.

Environmental Discourse		Description
Sustainability	Sustainable Development	Reinforces capitalist economy but economic growth, environmental protection, distributive justice, and long-term sustainability are seen to go together. Reassures developed societies that no tough choice will be made between economic growth and environmental protection.
	Ecological Modernization	A systems approach which takes seriously the complex pathways by which consumption, production, resource depletion, and pollution are interrelated. Emphasizes the need for partnerships between governments, business, moderate environmentalists, and scientists to restructure the capitalist political economy along green lines.
Problem Solving	Administrative Rationalism	Seeks to organize scientific and technical expertise into bureaucratic hierarchy in the service of the state, treated in monolithic terms. Strong emphasis on regulation. Strong conception of the nature of government as the administrative state.
	Democratic Pragmatism	Stresses the importance of interactive problem-solving involving participants from within government and outside it. Like administrative rationalism, it takes the structural status quo of liberal capitalism as given, but government is seen not as the administrative state, but rather as a multiplicity of decision processes populated by citizens and driven by liberal democracy.
	Economic Rationalism	Relies exclusively on the deployment of market mechanisms to achieve public ends. Opposes regulation. No role for government except to establish the basic parameters (property rights, infrastructure etc) of designed markets. There are no citizens in economic rationalism, only consumers and producers.
Survivalism	Survivalism	Recognizes and emphasizes the resources upon which human beings depend. Stresses that human demands on the carrying capacity of ecosystems threaten to explode out of control. Population seen as an aggregate entity to be managed by elites. Rich in metaphors based on “limits to growth” theory.
	The Promethean	Denies the existence of natural resources, ecosystems, and nature itself and therefore denies that there could be a limit to them. Humans are seen to dominate everything else, and together with energy, competition, technology and markets nature can be totally controlled (once it is fully understood).
Green Radicalism	Green Romanticism	Considers that industrial society involves and induces a warped conceptions of persons and their place in the world. Emphasizes the need for new kinds of human sensibilities that are less destructive to nature. Two conceptions of nature captured in this discourse: “inner nature” and “outer nature.” Founded on the belief that governments, market and policies are of no consequence to the environment—the key to changing the world is through ideas.
	Green Rationalism	Recognizes that nature is a series of complex ecosystems whose wellbeing requires change in human behavior. Social, political and economic structures are recognized as having important influence that cannot be reduced to the sensibilities of the individuals inhabiting them (such as in Green Romanticism). Humans are set apart from nature by virtue of their reasoning capacities, but they are not seen to dominate. A stewardship relationship between humans and nature is advocated.

Source: Adapted from Dryzek (1997).

environmental discourse on “sustainable development.”

One of the key recommendations of the “Wentworth Group” in the formulation of the National Water Initiative was that the role of regional, catchment-based institutions should be consolidated as the preferred approach to natural resource management:

Management must be local, because social and environmental conditions vary and state level structures are not sufficiently connected to the farmers and irrigators who must implement the strategy through their actions. Distant authorities do not have access to the local knowledge required to develop and deliver innovative strategies (TWG 2003).

The decentralization of government policy and its implementation is not a new idea (Hutchcroft 2001) and it has been widely promoted as a mechanism to promote democratic and development objectives. The National Water Initiative’s emphasis on participatory approaches to resource management, at the catchment and local scales through programs such as Landcare, reflects the shared problem-solving approach encapsulated in the “democratic pragmatism” discourse.

A further theme in the National Water Initiative, and indeed in Australian natural resource management policies more broadly, is the potential role of “stewardship.” While not made explicit in the National Water Initiative, the appointment of *environmental water managers* to achieve environmental and other public benefit outcomes ([78(ii)]), together with recent scholarship on the subject within policy circles¹⁰ reflects the notion closely. There has also been increasing debate about the potential role of indigenous Australians to act as environmental stewards in return for financial compensation (Altman 2006). These ideas insert the discourse of “green radicalism” into the National Water Initiative agenda.

The objectives of the National Water Initiative, and the choice of policy instruments to achieve them reflect the divergent influences of various, often competing ideas that have evolved over many years and now culminate in contemporary water policy. The two key imperatives of environmental sustainability and economic rationalism have been enshrined in the National Water Initiative, but as we saw in the previous section, the inability to reconcile many of the

conflicting rationalities between them has resulted in significant challenges for the successful implementation of the National Water Initiative. The difficulties of implementation have been recognized through a research agenda developed by leading policy and research and development figures (Land and Water Australia 2005).

Comparative Perspectives: Water Policy in the European Union and the United States

The European Union, United States and Australia share a number of challenges in water resource management: all are characterized by multi-jurisdictional and multi-level governance structures with often significant fragmentation; all rely on shared water resources between states for agricultural and industrial production; and all have influential agricultural interests that inevitably advocate strongly for that sector in policy formulation. In this section, we briefly examine the contrasts and similarities between the European Union and United States water policy, in relation to Australia’s National Water Initiative.

In September 2000, after a decade of political struggle, the European Union adopted a new framework for Europe’s water legislation, known as the Water Framework Directive. When the European Commission formally drafted a proposal for the Water Framework Directive in February 1997, the then European Union Environment Commissioner hailed it as a triumph:

This important proposal is on the cutting edge of environmental protection. All water uses necessary to life and society—from drinking to bathing to agriculture to industry—will be carried out with a respect that ensures that water is fit and sustainable into the next century...¹¹

Like the National Water Initiative, the Water Framework Directive represents a major advance in water policy with three concepts included in European water legislation for the first time: the need to protect and improve the aquatic environment and its ecosystems (Article 1); the organization and regulation of water management at the level of river basins (Article 3); and that water pricing should be determined on the basis of full cost recovery (Article 9). The main elements of the Water Framework Directive are:

1. an ecological and holistic water status

- assessment approach
2. river basin management
 3. a strategy for elimination of pollution by dangerous substances
 4. public information and consultation
 5. the use of financial instruments.

As is obvious, there are many similarities between the European Union's Water Framework Directive and Australia's National Water Initiative, not least in the fact that both entities, unlike the United States, have opted for an overarching, federal framework for water resource management. Similarly, the power and influence of the environmental lobbies in achieving ecological objectives can be seen in each, and the strengthened role of regional, catchment-based institutions is also evident in both.

However, an important difference between the two initiatives is the type of policy instruments adopted. Unlike Australia, the European Union has not pursued water trading, instead focusing on the "full cost recovery concept for determining water prices" which must, by definition, include production as well as environmental and resource costs. This instrument clearly reflected the European Union's requirement that all policies operate according to both the polluter pays principle and the precautionary principle. The inclusion of the full cost-recovery principle was a coup for the environment lobby in the European Union, as the powerful Council of Ministers had demanded it be dropped in the preparatory phase, to be replaced by an "adequate contribution" to the recovery of the costs of water services and further, policies that provide "adequate incentives for users to use water resources efficiently" (Kaika 2003, Kaika and Page 2003). It should be noted, however, that the Council of Ministers did manage to "water down" the full cost recovery for water pricing principle such that member states are now only required to ensure that the price charged to consumers for fresh water and for the treatment of wastewater will "take into account" the full environmental costs (Page 2003).

Three other issues are outstanding in the Water Framework Directive and will pose considerable difficulties in its implementation: first, it is unclear

how strict the penalties for non-compliance will be, or how stringently any potential loopholes may be tightened; second, while environmental policy integration into other sectors of the economy is a mainstay of the European Union's 5th Environmental Action Program, it is unclear in the document how the Water Framework Directive will impact on the Common Agricultural Policy. Finally, there is speculation that the enormous costs imposed on the member states to implement the Water Framework Directive will force member states to outsource those costs to the private sector, with the result that water might become significantly more privatized and thus "commodified," despite the Commission's claims that "water is not a commercial product" (Kaika and Page 2003).

Unlike in Australia and the European Union, the United States has not developed a national framework for the management of water resources. Water policy and law in the United States is significantly fragmented with the eastern states predominantly governed by the doctrine of riparian rights, while the western states have a system that treats water as a kind of private property or commodity, known as prior appropriation. There is a third system known as regulated riparianism which shares characteristics with the Australian legal system, whereby the withdrawal of water requires prior approval and the use of permits and licenses. There are a number of deficiencies in United States water law that have not been addressed at the national level, which is arguably why they are unlikely to be resolved in the near future.

First, there are jurisdictional barriers which have hindered attempts to successfully legislate for both human and environmental needs in the United States to date (Arnold 2005). In particular, jurisdictional fragmentation exists both between levels of government and within the same level of government. For instance, while most point-source pollution control is federal in origin through the Environmental Protection Authority, the responsibility for regulating non-point source pollution lies in State hands. Further, wetland regulation is the province primarily of the United States Army Corps of Engineers, whereas the enforcement of the Endangered Species Act in inland waters belongs to the United States Fish and

Wildlife Service. Moreover, while pollution law and the protection of biodiversity reside largely in Federal hands, water quantity, by contrast, is a matter of state law – and land use management is generally the domain of local government. As Andreen (2006) warns, successive United States legislators:

have spent decades creating... separate legal systems to govern land use, water use and water pollution, and it will take considerable effort to demonstrate to voters, economic interests, and decision-makers at all levels of government precisely how land use and water are inextricably connected throughout the whole of a watershed.

Such jurisdictional fragmentation leads to a second significant problem of regulatory fragmentation between water rights and land rights. In the United States, there is a considerable problem with coordination both vertically with respect to Federal law, state water law, and local land use management, and horizontally with respect to the various agencies and political entities that have responsibilities within each subject area. As in Australia, there have been attempts in the United States to overcome these jurisdictional barriers, including the public trust doctrine and the introduction of environmental impact assessments. However, unlike in Australia and the European Union—where environmental impact assessments have been incorporated into all state and member state legislation—in the United States it has only been enacted into 15 state statutes (Andreen 2006), in addition to the Federal statute. In an effort to overcome this “multi-layered jurisdictional puzzle” there have been calls for the development of watershed institutions, much like the catchment-based institutions in the National Water Initiative and Water Framework Directive. However, to date there has not been a comprehensive Federal push for this kind of regime change.

There are, however, aspects of United States water policy that are very similar to those of Australia and the European Union. The use of financial incentives or economic instruments is extensive in the United States, and they are captured in Federal and state agri-environmental schemes such as the conservation programs in the United States Farm Bill, and vary in substance across the states. Water trading has been implemented in some states such

as California where water is scarce but there are no suggestions that this would become national in extent. Indeed the extensive jurisdictional fragmentation across levels of government would make that particularly difficult. In the main, however, the United States policy style in the water domain could be characterized on the one hand as administrative rationalism par excellence, and on the other hand as economic rationalism owing to the choice of policy instruments, if not in terms of the role of government.

In relation to water quality, there is national legislation in the form of the Clean Water Act, although it is focused primarily on point-source pollution from industry and manufacturing. For non-point source pollution, such as that created by agriculture, the United States Congress instructed states to develop water management plans but the policy was “watered down” such that it permitted the states to use exclusively non-regulatory avenues such as technical assistance, education, training, and demonstration projects to implement the management plans (Andreen 2006). In United States agri-environment policy, dual emphasis is placed on both economic incentives, and participatory approaches to problem-solving.

Conclusion

This paper has established that the apparent “framework” represented by Australia’s National Water Initiative—and by European Union and United States equivalents—contains unresolved tensions:

the demand for a national, property-rights-based water management system and recognition of the need to hold Australia’s freshwater systems to “environmentally sustainable levels of extraction” have resulted in a framework that is weakened by unresolved tensions between the two (Connell et al. 2005).

This should not surprise, as framework policies, especially in federal systems and in complex policy domains such as water, by definition are the product of political compromise, accommodating the aspirations of multiple players. The danger lies in forgetting that unresolved differences and discourses remain to be negotiated during implementation of the policy, and in the construction and maintenance of water management arrangements consistent with

policy goals.

Beyond recognition of this situation, what might constructively be done? First, residual tensions and challenges can be made explicit rather than concealed in communications and in implementation planning. That way, managers involved in implementation can appreciate the nature of their task, and hopefully avoid being “ambushed” by conflict and constraints. Second, those entrusted with implementation—such as regional organizations, stakeholder representatives, state policy officials, etc—can be supported in their task through provision of information, decision support skills and human resources needed to properly acquit the challenging and complex tasks they have been assigned. Third, the iterative and necessarily adaptive nature of integrated water management can be advanced by exposing clearly the nature of the task, accepting uncertainty, long time scales and multiple values. While that should be accepted as normal, it is not clear that genuinely adaptive, experimental-yet-purposeful approaches to water management, and to the policy and institutional underpinnings of management, are anywhere perfected as an art and craft. The announcement of a framework policy, such as the National Water Initiative, becomes the beginning of the hard work, not the end. The National Water Initiative, the Water Framework Directive and approaches in the United States are evidence of how far we have come, but also invite reflection on how far there is yet to travel.

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Endnotes

1. This historical sketch draws on Smith (1998); Powell (2000); Connell (in press).

2. In the 1970-80s, consistent with the longer standing United States policy and legal debate, the term used in Australia regarding environmental water allocations was “instream flows,” inclusive of environmental but also recreational, cultural, aesthetic, and other values. By the 1990s, the narrower construct of “environmental flows” has become dominant. This shift bears closer examination.
3. Signed between the Commonwealth of Australia and the Governments of New South Wales, Victoria, Queensland, South Australia, The Australian Capital Territory and the Northern Territory. The Governments of Tasmania and Western Australia have since signed the National Water Initiative (Tasmania in June 2005, Western Australia in April 2006) Tasmania signed in June 2005.
4. Other initiatives and policies that affect sustainable water management include the National Action Plan for Salinity and Water Quality, the National Water Quality Management Strategy and the Natural Heritage Trust. To the extent of any inconsistency between these and the National Water Initiative, the National Water Initiative prevails.
5. The key elements of the National Water Initiative are (National Water Initiative [24]):
 - Water access entitlements and planning framework;
 - Water markets and trading;
 - Best practice water pricing;
 - Integrated management of water for environmental and other public benefit outcomes;
 - Water resource accounting;
 - Urban water reform;
 - Knowledge and capacity building; and
 - Community partnerships and adjustment.
6. National Groundwater Committee, Integrated groundwater—surface water management Issue Paper 1.
7. The Murray-Darling river system provides critically important water resources for Australia’s agricultural sector. Through the use of dams and water diversions the river system provides water for irrigation in Queensland, New South Wales (NSW), and South Australia. Unfortunately, the environmental costs associated with these altered flows have been very large. In response, there have been a number of intergovernmental agreements on water reform for the Murray-Darling, most recently the “Living Murray Initiative” established by the Murray Darling Basin Council in 2002 with the aim to “create a healthy working river that assures us of continued prosperity, clean water and a flourishing environment” (Department of Environment and Heritage 2004). In light of the Expert Panel’s

recommendation, the Living Murray Initiative aims to reallocate 500 Giga liters per annum to the river from the expenditure of \$500 million, commencing 2004-05. In addition to the reallocation of 500 Giga liters, the Living Murray Initiative focuses on maximizing environmental benefits for six significant ecological assets, and meeting specific ecological objectives and outcomes for each of these assets.

8. National Water Initiative [61].
9. The National Water Commission will comprise up to seven members, appointed for up to 3 years and eligible for re-appointment subject to agreement. Commissioners will be appointed on the basis of experience in audit and evaluation, governance, resource economics, water resource management, freshwater ecology and hydrology. The Commonwealth can appoint four members (including the Chair) and the States and Territories may appoint three. (See National Water Initiative Schedule C).
10. See Binning and Young (1997) and Curtis and De Lacy (1998).
11. Bjerregaard (1997) cited in (Kaika, 2003) page 317.

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