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Land & Water Australia

# Water perspectives

*knowledge for managing Australian landscapes*

Outcomes of an expert workshop scoping social and institutional research questions in support of the implementation of the National Water Initiative

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## Contents




Published by: Land & Water Australia
Postal address: GPO Box 2182
Canberra ACT 2601
Office location: L1, The Phoenix
86 Northbourne Ave
Braddon ACT 2612

Telephone: 02 6263 6000
Facsimile: 02 6263 6099
Email: Land&WaterAustralia@lwa.gov.au
Internet: www.lwa.gov.au




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# Introduction

***The National Water Initiative (NWI) sets the broad parameters for water policy and management in Australia over the coming decade, and establishes a range of specific policy and management tasks for public, private and community interests in the water sector. While the NWI is the outcome of a detailed and negotiated process, it is widely acknowledged that there remain significant uncertainties, knowledge needs and challenges in its implementation.***

This booklet summarises discussions about NWI implementation that took place at a one-day workshop of invited social science experts in May 2005. The workshop was convened by Land & Water Australia's Social and Institutional Research Program to scope a research agenda for funding under its five-year (2005–10) research strategy.

The workshop brought together a range of disciplines with water specific expertise. The range of disciplines covered anthropology, history, sociology, government and policy areas, institutional and public administration, and cultural, economic and legal areas.

Discussion at the workshop focused on opportunities for social and institutional research, including for synthesis of existing knowledge. Workshop discussions were started on the basis of an initial presentation from the National Water Commission participant on the key objectives and tasks of the NWI. Ten key areas of opportunity were identified for social and institutional research and synthesis (see box).

Addressing these complex and interdependent research questions will require a highly collaborative and participative approach. This approach will need to engage interested research providers, funders, policy makers, management, industry and community stakeholders. Land & Water Australia is pleased to give wide circulation to these workshop findings. This will contribute to the development of more integrated and responsive research. Consequently, it will help to underpin policy and practice for more effective national water reform.

## NWI reform areas

1. **Integrated assessment of impacts** of policy and water allocation changes across social, economic and environmental dimensions.
2. **Water plans and accreditation** in regard to content requirements and processes.
3. **Linkages between rural and urban water systems**, including in peri-urban areas.
4. **Indigenous perspectives** in water management, reforms and implementation.
5. **New frameworks for law and regulation**, and current settings as enablers or constraints on reform implementation.
6. **Values** attached to water and their shaping of understanding **and communication** of reform objectives and implementation.
7. **Auditing and review** of policy and water plans for effectiveness, and appropriate performance measures for impact detection and management.
8. **Water markets**, **pricing, trading** and transaction costs, and their establishment and functioning.
9. **Environmental water allocations** and their governance.
10. **Institutional roles, responsibilities and capacities** in reform implementation.

The information contained in this booklet provides a snapshot at the time of the workshop. It is not necessarily comprehensive or the last word on these issues. It does not necessarily represent the views of Land & Water Australia.

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# 1. Integrated assessment of impacts

## what's the challenge?

***Changes in water policy and allocations can impact on a broad range of dimensions—social and economic as well as environmental and biophysical. Understanding and assessing these potential impacts up front, including options for balancing or trading off interests, will inform sound decisions and effective implementation of policy. To do this, policy makers need to have confidence in the knowledge on which they draw. They need confidence in the data that has been generated from the appropriate application of a suite of tools, which is integrated, or at least coordinated, to build a comprehensive picture of the policy environment and the consequences of different policy options.***

## focus for research

- Developing or adapting existing methods for assessing socio-economic impacts
- Tools for defining net social benefit
- Tools for identifying transaction costs
- Methods for estimating risk of concentration of water rights and wealth
- Defining fairness in loss of rights or loss of future possibilities
- Developing methods for identifying optimal use of scarce resources

It is important to clarify both the potential and limitations of tools and methods and the trust that policy makers and communities can place in the data generated from them.

## rationale

There is considerable fragmentation in the ways in which research to inform water policy is currently funded, conducted and used.

Researchers apply a variety of tools and methods to assess social, environmental and economic benefits and impacts. While triple bottom line assessment is becoming more widespread, the range of tools and processes are imperfect. This can lead to both a lower level of confidence in data and less compelling conclusions.

Also, unfortunately, the outcomes from different research activities are not always brought together in a way that integrates findings across all the dimensions.

Too often, the end result is that policy makers do not have a clear picture of the whole puzzle and therefore act on specific aspects where the data is most convincing, where policy decisions can be defended with evidence or where community acceptance is most likely.

There are some real challenges in defining the social and economic impact questions that are to be answered by research and identifying the best tools and methods for interrogating research questions and finding reliable answers.

This field of social impact assessment is one in which Land & Water Australia and other agencies have considerable experience. A rigorous review of methodologies already in use in the resources field and other domains—focused on finding the best fit between questions and methods—would add an immediately valuable resource to funding bodies and policy makers across the water sector.

The focus of such a review would be primarily on developing or adapting current tools and methods for assessing the socio-economic impacts of implementing the NWI and for integrating environmental, social and economic factors into water policy and planning. It is important to clarify both the potential and limitations of tools and methods and the trust that policy makers and communities can place in the data generated from them.

Existing methodologies that are likely to prove valuable here include social impact assessment, strategic environmental assessment, sustainability assessment, multi-criteria, extended cost benefit analysis and various deliberative methods. There is also considerable interest in exploring the value of experimental techniques, prospective tools like role-playing and game theory and tools that can recognise complex, multiple cause and effect linkages in impacts—not only single and linear linkages—including second-order and third-party impacts such as 'stranded assets'.

Beyond broad questions around socio-economic impact assessment, there are a number of specific issues on which policy makers need better information and new or better methodologies for securing relevant data required for making better decisions. These include reliable and rigorous tools to:

- identify and, if possible, measure the factors that contribute to *net social benefit* including economic and legal technicalities, social framing of problems to enable trade-offs between multiple goals and sequencing and ordering of reforms to balance social acceptability with efficiency of market operations
- identify and estimate *transaction costs* of water trading and other policy measures in order to recognise the different costs and tax implications for different users, to identify who bears indirect and direct costs and to understand how cost burdens might be shared across different policy, legal and organisational options
- estimate the likelihood and value of *concentration of rights* within the framework of the changing structure of water ownership and the socioeconomic implications of market-based policy regimes for creating significantly new patterns or concentrations of ownership, especially at local and regional scale
- identify what communities consider to be fair and appropriate *loss of rights* in over-allocated systems or loss of future possibilities in river systems that are reaching extraction limits; this will include trustworthy and transparent methods to balance, integrate or trade off environmental, social, cultural and economic values
- explore the *range of options available to water users* to make the best use of scarce or expensive water resources; this will include exploration of scenarios, possible trajectories in water markets and traditional structural adjustment approaches so that policy makers can better understand barriers to change, roles and constraints for corporate investors and concepts of gain sharing and redistribution of wealth through water markets with newly defined water rights.

# 2. Water plans and accreditation

## what's the challenge?

***Water planning is not a new art. In particular the states and territories have been addressing the over-allocation of water for some years, with varying success, through the development of water sharing plans. There is now a substantial body of experience and expertise in many national, state, territory and regional institutions upon which the NWI implementation processes can draw. The challenge, for the immediate future, is to:***

- ***share the lessons of that experience and draw on existing expertise to determine the characteristics of good process and good content in water plans. This is to ensure that water plans are more robust, sophisticated and take account of the increasingly diverse stakeholder and community interests and the rapidly changing contexts for water plans***
- ***build greater rigour into planning and fill any gaps in current process and content to ensure that water plans can be defended on social, economic and environmental grounds, given the growing potential for political and legal challenges.***

## focus for research

- Methods for translating general policy principles and processes into operational guidelines, including methods for integrating market mechanisms into systems planning at sub-national levels
- Good practice guidelines for use of mediation, negotiation and other conflict resolution techniques in water planning
- Methods and processes for improved risk assessment and management in water planning
- Standards and procedures for water plans including ongoing development and evaluation
- Assessment, through primary research, of opportunities for developing the role of industry in the NWI

## rationale

Under the NWI, there is a growing demand for more innovative and robust water planning to respond to rapidly changing circumstances and a growing range of community and stakeholder interests.

To meet this demand, and to do it in a timely fashion, there is a need for research that brings together the current body of knowledge, identifies gaps and options for filling gaps, and identifies opportunities for innovation in water planning.

Potential users of the proposed research are at all levels in the system, including those who are developing plans, those responsible for accrediting plans and those who will implement them.

While some market mechanisms cannot be integrated into catchment level plans, there is a growing expectation that in the bigger picture—at state or regional level—planners will use a range of methods to integrate market mechanisms. Plans also need to make more use of established tools like risk assessment and management to determine the likelihood of impacts, benefits and costs; and to reflect the policy principles underpinning the NWI and other arrangements in implementation plans.

Increased expectations of water planning are unclear and planners need greater definition, particularly around minimum or appropriate procedures, processes and levels of coverage. These definitions will also help to inform the evolution of criteria for the accreditation of water plans and performance standards for process and content.

At the same time, as private sector users and providers of water, stakeholders and the community become more familiar with the central concepts of the NWI and the resultant changes in systems for water planning and allocation, they too have greatly increased expectations for more sophisticated and consistent approaches to managing and

Increased expectations of water planning are unclear and planners need greater definition, particularly around minimum or appropriate procedures, processes and levels of coverage.

sharing this resource. Consistency is particularly important for industry but it has not been easy to achieve, given the variations in process between and within jurisdictions and the variable capacity of agencies responsible for planning.

Research can also help to explore the part that industry—broadly defined as including the private sector users and providers of water—can play in water planning. Industry currently has a relatively narrow role under the NWI that is often limited to the operation of water markets, although that is expanding with the emergence of water buying and trading corporations. There is potential for industry to participate more in policy development, planning, monitoring and evaluation activities.

Given that there is already a substantial body of expertise and experience in water planning across Australian jurisdictions, there is an opportunity to draw this together and share the learnings to achieve an immediate, positive impact on the quality and rigour of plans submitted for accreditation and to improve the fit between what communities expect and what they see in plans.

It is also clear that the biophysical, social and economic stakes in water planning and allocation are becoming ever higher and this may well lead to more political and legal challenges to plans. For the medium and longer term, there is a need to ensure that the methods and processes used in water planning can withstand the kind of scrutiny that will occur in a court of public opinion or law. One option is to look outside the water sector—research can provide guidance on integrating the lessons of experience from other sectors where, for example, risk management has become standard practice—to improve water management.

The water sector can also learn from other sectors about the potential of mediation, negotiation and other conflict resolution techniques to help reconcile competing values and conflicts of interest that result from water allocations.

This is all about adaptation, learning from direct experience and from others, to keep evolving and improving the process of water planning and to ensure that it continues to be responsive to changes in the environment, in knowledge and skill, and in community and stakeholder values. This adaptive management approach suggests a need for new knowledge around emerging challenges for water planning and the accreditation of water plans, including:

- operational guidelines that draw on general policy principles and processes (e.g. NWI, ESD, NCP) to enable implementation in specific and variable local or regional contexts, including methods for integrating market mechanisms within system planning
- good practice guidelines, drawn from within and outside the sector, for managing and resolving conflicts that arise from conflicting values and differing interests in the outcomes of water plans and allocations
- identification of defensible and useful tools and methods for improved risk assessment and management in water planning and allocation, including for example the value of adaptation of AS/NZS 4360 on risk management to water planning
- minimum standards for both process and content of water plans, including the scope and need for monitoring and evaluation for continuous improvement and the evolution of planning processes to respond to change
- clarification of the potential role of industry water users and providers and appropriate participation in water planning, monitoring and policy development as well as operating in water markets.

# 3. Linkages between rural and urban water systems

## what's the challenge?

***The focus of the NWI is predominantly on rural water policy and systems. Until the NWI, water reform paid little regard to urban water use. The NWI makes a start. Particular challenges are to:***

- ***understand the ways in which urban and rural systems link and impact on each other to assist policy makers' consideration of options for integration of rural and urban water systems***
- ***fill the gap in research and policy knowledge about use of water in peri-urban settings for production or other social or economic benefits, not only in the traditional fields of agriculture and horticulture but also, for example, in industry, tourism and recreation.***

## focus for research

- Identifying consequences for rural systems of supply shortfalls in urban and peri-urban systems, and vice versa
- Identifying efficiency gains and impediments to integration of rural and urban water use
- Characterising peri-urban water use

It is increasingly evident that the dichotomy between 'the city' and 'the bush' is no longer appropriate and there is a need for better linkages between rural and urban water policy and systems.

## rationale

It is increasingly evident that the dichotomy between 'the city' and 'the bush' is no longer appropriate and there is a need for better linkages between rural and urban water policy and systems. There is an opportunity for thinking about the integration of urban and rural water uses and the potential efficiency gains that might be achieved for urban and rural agencies through such integration. As the place where urban merges with rural, the peri-urban zone is of particular interest.

The urban fringe is increasingly significant for water management and therefore the NWI. These areas are strategically important for the agriculture sector as well as for urban and regional development, yet little is known about the needs of this often potentially intensive and high water use sector.

Although these areas only account for 3 per cent of total agricultural lands, studies have shown that they generate approximately 20–25 per cent of the gross value of agricultural production.

Research can help to consider current needs and values, and how these might change in the future. Water sourcing in peri-urban areas is a particular area of concern. Research is needed to enable appropriate assessment of current water sources and to estimate the real water needs of these areas.

Projections indicate that peri-urban regions will be the site of significant population growth. It will be important to understand both the current characteristics of agricultural production and the potential impact on production of population forces such as urbanisation, demand for amenity areas and the 'sea change' effect.

Quantitative research could also shed light on the aspects and functions of urban fringe areas that communities value; for example, while the values of urban development and agricultural or horticultural production are well understood, it is less clear how important peri-urban areas are for tourism, recreation and other community amenities.

By building on our knowledge of peri-urban water uses, needs and values, research can ensure a better role for policy making and improved management systems. Research will also inform communications with peri-urban audiences and provide insights on the forms and content that will be appropriate to different audiences.

Improving our understanding of the inter-face between rural and urban water systems is about being prepared for the future and investigating mechanisms for managing the prospect of future urban water scarcity. Research can help explore the consequences and implications of possible urban water shortages and options such as buy in, mandated diversions and price inequalities for rural systems.

Research will help to:

- find innovative solutions to medium- to long-term policy and knowledge challenges in a newly emerging and relatively poorly understood domain
- examine the effects of removing institutional barriers between urban and rural water trade where the physical infrastructure and hydrological system allows
- identify the costs and benefits of investing in trade-facilitating infrastructure where it does not currently exist
- explore the role for a mix of pricing, regulation and information instruments to encourage new and better ways of managing water resources.

# 4. Indigenous perspectives

## what's the challenge?

***For the first time in national water policy there is explicit recognition of Indigenous water rights and culture in the NWI. Yet Indigenous water use is arguably the most poorly understood area of water research. The challenge is to:***

- ***conduct good primary research on traditional water use and values***
- ***move beyond a site-specific focus, towards incorporating Indigenous use into broader policy frameworks***
- ***consider systems for managing Indigenous water rights, looking at how traditional use affects the trading of water.***

## focus for research

- Defining and understanding Indigenous water values
- Defining and understanding rights, responsibilities and use
- Defining and assessing economic and environmental versus subsistence and cultural values

The questions here have the broad overarching goal of better understanding Indigenous water uses, values, rights and responsibilities in order to improve the research and management of Indigenous water issues.

## rationale

Indigenous peoples have a special relationship with water, a relationship that warrants special attention. Traditionally, water forms part of the unique culture and spiritual identity of Indigenous people, yet the values that Indigenous people place on water and other issues surrounding Indigenous water use tend to be poorly understood.

Research on Indigenous water issues needs to explore both economic and subsistence values of water for Indigenous Australians as well as the cultural values and meanings they give to water. In looking at the values attributed to water by Indigenous people, it is vital to consider both current and future water users. The ultimate outcome will be a better understanding of how to incorporate these values into the NWI.

By building a better understanding of these issues, research will enable improved management of Indigenous water issues and inform policy shifts away from localised, site responses to overarching policies and processes.

> Better understanding of Indigenous water rights and responsibilities will enable their effective incorporation in the new NWI institutional framework.

Indigenous water rights are a key part of this social and institutional research program. Issues to be explored in this area include:

- ownership and custodial responsibility
- access to land and waterways
- use and enjoyment of natural resources
- hunting, fishing and foraging
- protection of cultural heritage and identity.

Research will also need to focus on determining how to build the capacity of Indigenous communities to enable them to engage with the NWI and plan water use in the future.

# 5. New frameworks for law and regulation

## what's the challenge?

***As the NWI reforms water policy across Australia, it will raise a significant number of legal and regulatory issues that may not be easy to address through the frameworks that conventionally support market creation. The challenge is to understand the key elements of a robust legal and regulatory framework that will support implementation of the NWI and also meet community and investor expectations for fairness and transparency.***

## focus for research

- Defining and differentiating between legal and substantive security in water entitlements
- Designing statutory roles and accountabilities under the NWI that enable a range of agencies, including those not directly associated with water, to meet new obligations and requirements
- Clarifying legal rights across different groups of users including rural, peri-urban, urban and Indigenous users

> It is important to identify clearly how much and precisely what of the broader competition reform experience will translate readily and effectively to the field of water sector reform.

## rationale

The NWI has an agenda for the development and reform of laws and regulation that impact on the ownership and use of water resources.

With legal frameworks that are both robust and defensible, the path of implementation for the NWI can be greatly eased; without them, the pace of implementation could be slowed significantly.

While this field of law and regulation is primarily the responsibility of states and territories, national-level organisations have an interest in supporting the reform process to get the best and fairest outcomes.

National competition policy has already generated a body of legal and regulatory practice around the creation of new markets and their associated requirements for planning and information. Each jurisdiction will have a range of experiences to bring to the table and there is a body of international experience on which Australian legislators can draw.

However, it is important to identify clearly how much and precisely what of the broader competition reform experience will translate readily and effectively to the field of water sector reform. In terms of both policy and regulation, water reform is likely to be just as complex and certainly different from other reform agendas, such as telecommunications and forestry.

Among the particular and differentiating characteristics of water in this reform context are the following: the ongoing long term reform agenda involved as distinct from one-off sector specific approaches such as the regional forestry agreements; the objective of creating a nationally consistent market for trading within the inter-jurisdictional complexities of a federal system; the uncertain impacts of long-term climate variability and change on water resource availability; the need for effective water resources management to be integrated to achieve sustainability at various scales with land and biodiversity management.

The research priorities around the issues of adapting and creating frameworks for law and regulation arise from research questions about the characteristics of socially acceptable water markets. Governments recognise the inextricable links between community acceptance of the need and pace of change and the legal frameworks that protect community interests. These links place additional demands on the research that underpins new laws and regulations.

The nature of ecologically sustainable development requires adaptive management. One of the functions of law is to recognise the existence of property rights. The potential for conflict is exacerbated if an additional range of private sector interests or rights is incorporated in the system to encourage water rights trading. It is increasingly one of the functions of the judicial system to adjudicate not only on questions affecting private rights but also those affecting the public interest.

This requires that policy makers understand the principles of how legal frameworks can be adapted or devised to ensure fairness and transparency in newly created markets, secure entitlements and rights, reflect multiple values and provide for full accountability. It is also about exploring the impacts of legal reform on different kinds of market instruments. The challenge is to create legal structures that incorporate conflicting interests in ways that reduce these tensions and avoid disputes.

This focus on the need for appropriate legal frameworks indicates a need for research that will:

- explain to policy makers, communities, water users and investors the significant differences between strict legal security entitlements and substantive or actual security and allocations, and how together they deliver real commercial value
- explore how the design of statutory or regulatory frameworks can reflect multiple values and a complex sustainability agenda and at the same time ensure transparency and procedural fairness
- define organisational roles under the NWI and explore accountabilities, including for non-water-related agencies and planning systems, along with the need to change or modify existing statutory obligations, authorities or accountabilities, if required (such as the establishment of water trade registers and environmental water managers) to allow for new policies and activities consistent with the NWI
- recognise and clarify the different nature and associated legal specifications of rights to and responsibilities of water of rural, peri-urban, urban and Indigenous users and their implications for sustainable development and policy.

# 6. Values and communication

## what's the challenge?

***The NWI represents a major change in water policy and management. Its credibility and effectiveness across many dimensions will depend on stakeholder and community acceptance. The challenge is to understand:***

- ***how to build a shared understanding of the NWI and greater public participation in its implementation***
- ***how attitudes and social and cultural values impact on people's responses to the NWI and how institutions can take account of this in policy and planning***
- ***how institutions can better engage in constructive dialogue with communities about change and reform.***

## focus for research

- Developing a common language for water management and policy (including allocation processes and outcomes) so that greater consistency in the use of terms, definitions and concepts leads to shared understanding of what is happening under the NWI, how it is happening and why
- Developing a clear picture of how the community is segmented around values that relate to all the dimensions impacted by the NWI and a more sophisticated understanding of how values form and change
- Constructing conceptual frameworks to guide policy and planning that explicitly integrate social and cultural values and respond to the impact of these values on attitudes and behaviours
- Creating effective mechanisms for community engagement with the NWI that focus on increasing understanding and opportunities for public participation in policy, planning and implementation of the NWI

## rationale

Traditionally, water resources in Australia are managed by regulation. Under the NWI, there is a significant move towards a national water market, pricing and trading arrangements. This will result in significant changes to the practice of water management and allocation. Major changes like this almost always create some tensions or anxieties in the community.

The move towards market-based approaches gets a mixed review from the Australian community. In some sectors, such as energy, regulatory reform and the shift from publicly owned monopolies towards open and competitive markets has been well received and the community has quickly adapted to change. In other sectors, such as ports or telecommunications, there has been greater resistance to reform and greater concern about how market forces may impact on valued social, economic and environmental assets or services.

People are often concerned that market-based approaches may reduce their access to resources or services or reduce the fairness of a system, giving greater access to those with more money or power and less to those without voice or influence.

Water is a resource that attracts a lot of attention, especially in rural areas and during periods of drought. Australians understand the need for sensible water management and more sustainable practices but sensible and sustainable mean different things to different people. In times of drought, there is more competition for the scarce resource. Conflicting demands from households, industry, agriculture and the environment can result in confusion and tension.

Community acceptance of the NWI and belief in its fundamental fairness will have a significant influence over its effectiveness.

The NWI provides an agreed national framework for improved management of water regulation towards ensuring sustainable use of water through the definition of sustainable limits and the use of market-based instruments. Community acceptance of the NWI and belief in its fundamental fairness will have a significant influence over its effectiveness, certainly in the short to medium term. Unfortunately, the NWI is not well or widely understood, even among key stakeholder groups. In the community, knowledge and awareness are thought to be minimal, despite the NWI's commitment to openness, accessible information and public debate.

This lack of understanding represents a real risk to the implementation of the NWI, which could be mitigated by good mechanisms for communication and recognition of values, and active engagement between the policy-making and planning agencies and the community.

All this points to the need for research that describes the values we hold, how we understand their impact and how we talk to each other about them.

- As a foundation for good communications, there is a need for a common language and shared concepts around water allocation and entitlements—a language that is consistent in its use of terms and definitions, describes the relationships between processes and outcomes, and is used across sectors and across jurisdictions. This common language will help to create a shared understanding of the issues, clarify often differing underlying concepts, and in particular provide legal clarity and reduce misunderstandings about how markets are meant to operate.
- There is also a need for new policy and planning frameworks that can take account not only of economic values and interests in water but also, more explicitly, the social and cultural values that underpin them. These frameworks will enable policy makers and planners to explore the full range of strategies that can be used to respond to the diversity of values and motivations within the community and the attitudes and behaviours that result.
- Linked to this, there is a need for much greater understanding of the dimensions of core values, value thresholds and the relative relationship between values; and how individuals and groups segment around values, form or change values over time or influence each other.
- Mechanisms for community participation in debate and decision making are also important to the effectiveness of the reform agenda, to build both community knowledge and capacity. This will require approaches that are less focused on one-way communication and the delivery of education and more focused on discussion, debate and open exploration of policy directions, problems, instruments, potential impacts and implementation responsibilities.

# 7. Auditing and review

## what's the challenge?

***A feature of the NWI is the range of review processes. These include the establishment of 'baselines' of both resource and governance arrangements, a biennial assessment of states' and territories' NWI implementation and a full review of the effectiveness of the NWI as part of the third biennial review in 2010–11. In establishing the scope and methods for reviews, there is an opportunity to:***

- ***develop a clearly defined adaptive approach to policy, planning and management that is supported by sound monitoring and evaluation systems and that responds to the complexity and uncertainty of water management***
- ***create new frameworks for linking data, policy objectives and performance measures that will underpin shifts in information collection, sharing and use among stakeholders.***

## focus for research

The questions for research here are primarily about review methods and how they might contribute to innovation, learning and adaptive management. They are strongly linked to the methodological questions identified for water planning and accreditation and for impact assessments. They include:

- the scope, process and methods for the 2007 review, including development of appropriate performance measures and standards and the role of audits and other monitoring and evaluation strategies in driving adaptive management approaches
- defining data needs for policy and methods for ensuring data quality and privacy, and the accessibility and transparency of information used in auditing.

> Requirements for data should be driven by the needs of policy—what data is needed to inform policy development and to test the value and impact of policies when they are implemented?

## rationale

The reviews of the NWI, especially the review of the new water trading arrangements scheduled for 2007, will excite considerable interest and scrutiny among stakeholders as well as those agencies responsible for developing and implementing water plans. It is critical that both the process for the review and the outcomes achieve widespread acceptance.

Acceptance and support will depend not only on the credibility of the scope, process and methods used but also on the extent to which the review is seen to make a real contribution to more rigorous and more innovative ways of working in the future.

For a number of reasons, it is unlikely that a conventional audit-based approach, or at least an approach limited to audit, will meet these expectations. Water management is complex and the mandate of the NWI still includes many areas of uncertainty. Prescribed monitoring and evaluation requirements manage some uncertainties but there are many others that can only be addressed effectively by a long-term, evolutionary approach that is driven by a commitment to continuous improvement in strategy development and performance assessment.

This presents some real and specific challenges for data collection systems and for the ways in which data is used to inform policy development.

Requirements for data should be driven by the needs of policy—what data is needed to inform policy development and to test the value and impact of policies when they are implemented? When there are shifts in the policy agenda, there have to be accompanying shifts in the strategies for data and information to ensure that the data being collected and analysed is still useful, timely and direct.

The infrastructure for data collection is expensive and stakeholders already make a considerable investment to maintain the integrity and relevance of their systems. Changing policy demands often result in some increased investment, so state and territory jurisdictions and other stakeholders want to have a *high level of confidence* in the relevance and usefulness of data and *trust in the purposes it will serve* if they are to justify the cost, and value the outcomes, from data collection and use.

The methods and measures for the 2007 water trading review need to be established early in order to gain the acceptance and confidence of stakeholders and their commitment to levels of investment that ensure that systems are in place to capture the data needed for the review.

Before that can happen, it would be desirable to define the specific performance measures against which the implementation of the NWI will be assessed. This would probably require defining specific metrics for each level of implementation—national, state or territory and local—and about establishing standards for processes and outcomes, including tests for the assumptions that underpin both long-term and intermediate outcomes for NWI activities.

These information requirements for the review also raise issues around continuity, quality and privacy of information components, and particularly the extent to which data used in the review will be accessible and transparent to others, including in the context of a competitive commercial water trading market.

While the review itself has a defined purpose and value, there is an opportunity to inform the process of scoping and designing it so as to enhance the role of audits and other monitoring and evaluation systems in driving innovation in policy and management. This will foster processes of adaptive management and continuous improvement that are about learning to do better.

All this suggests a need for research to:

- define the *appropriate scope, process and method* for the 2007 water trading review to ensure that it is successfully carried out and credible to stakeholders
- define the *performance metrics* for different levels of implementation—including the NWI level, state or territory level and water plan level—and standards that distinguish between process and outcomes
- define *data needs for policy* including the linkages between data and policy in order to build ownership among institutions that will be responsible for investing in infrastructure for data collection and maintenance
- identify the *role of audits and monitoring and evaluation systems* in driving an adaptive approach to learning and management.

# 8. Water markets, pricing and trading

## what's the challenge?

***One of the central reasons for the establishment of the NWI is to move towards nationally consistent water markets and pricing regimes—a significant change for policy and practice in water management. The challenges now are to:***

- ***understand the dimensions of this complex endeavour***
- ***develop Australian expertise in using market-based institutions to manage water resources***
- ***explore the characteristics of socially acceptable markets for the community.***

## focus for research

- Assessing the ability of water markets and prices to integrate multiple uses and values
- Identifying any exemptions from trade and markets
- Addressing legal and privacy issues associated with the rights register and water accounts

One of the quickest ways to overcome this problem is to draw on the lessons and experiences of other sectors that have already implemented market-based approaches.

## rationale

Managing resources through the operation of competitive markets is not new, but it is a major change for the Australian water sector. While there has been some active trading of water in the rural sector this has not been on a national scale or between broad sectors. Market-based instruments are familiar tools in other fields, but they are not yet part of the stock in trade for water policy makers, managers or users. Market systems are complex and the Australian water industry does not yet have the depth of experience to exploit all the opportunities that competitive markets create.

One of the quickest ways to overcome this problem is to draw on the lessons and experiences of other sectors that have already implemented market-based approaches. There is a body of theoretical and practical literature that documents the experience of establishing and operating markets and managing resource demands, both in Australia and overseas. A review of the literature would be an immediate and valuable resource on which the water sector could draw.

One of the primary requirements of a successful market is a clear and defensible legal framework. However, there is always room to explore the opportunities and constraints within these frameworks, particularly to reflect community values and resource parameters and to identify the ways in which regulatory and market mechanisms can work together to achieve good social outcomes.

Other sectors will also have relevant experience on these issues from which the Australian water sector can learn, particularly around the ways in which market exemptions are determined or specific mechanisms are used to take account of specific values or to manage competing values and uses for water.

For example, in some parts of Australia there may be strong arguments against pricing and trading across rural and urban water systems. In order to determine if such an exemption is merited, and if it is, the conditions for such an exemption, policy makers need to understand the range of uses and values that underpin the arguments. There will also be competition for water allocations between environmental, urban, rural and cultural water users. It is not clear which regulatory or market mechanisms, or their combinations, will best manage those competing interests.

The NWI has made a commitment to make trade and rights information publicly available so decisions about water use can be made in the widest possible public interest.

There may be specific cultural values, for example among Indigenous Australians, that provide justification for exempting specific water resources or specific groups of water users from market-based pricing or trade. Human rights and other core social or cultural values may also provide sound reasons for exemptions.

Research can define the opportunities and constraints for accommodating these multiple perspectives, uses and values within a legally defensible framework for the water market. It will also be important to clarify the distinctive or complementary roles of mechanisms for pricing and trade, and of regulatory mechanisms that are responsive to the needs and values of specific users.

There is also a need to understand in much greater depth how a socially acceptable market for water might be characterised. Research can help to identify credible approaches for defining market boundaries and processes and for identifying the role of negotiation, mediation and other conflict resolution mechanisms in operating markets effectively.

Competitive markets can give rise to a host of legal and privacy issues. The NWI has made a commitment to make trade and rights information publicly available so decisions about water use can be made in the widest possible public interest. But this commitment may give rise to other legal issues, for example around the rights of users to privacy in the operations of the rights register and water accounts. Research is required to understand the scope of such issues and the options for addressing them.

This is about understanding how the structure and operation of competitive markets can accommodate a broad range of values, not only economic and legal, but also social, cultural and environmental, so that the processes and outcomes of water markets are socially acceptable and seen to be in the public interest. It is also about developing the institutional capacity to manage these complexities in the market and understanding how the operation of a water market will impact on issues and values beyond the strict boundaries of water supply and use.

Research is needed to support those aims, specifically to:

- scope the opportunities and constraints to integration of multiple uses and values in water markets, such as environmental, urban, rural or cultural water use and allocation
- identify specific water resources, users or values that should be exempted from market-based pricing or trade
- address legal and privacy issues that arise from NWI commitments to openness and transparency of information.

# 9. Environmental water allocations

## what's the challenge?

***We rely primarily on natural science research to help us understand and determine extraction limits and define environmental flows. We also need to understand social, economic and cultural values that influence perceptions and assist us in determining fair and reasonable outcomes. The challenge here is for implementation of the NWI to be based on understanding of the key elements of good process and governance and how those elements impact on community acceptance of non-extractive allocation decisions or the management of conflicting values.***

## focus for research

- What makes decisions about environmental flows defensible in legal, cultural and administrative terms?
- What kind of governance practices are required to manage the contestability of decisions about environmental flows?

There is a need for research that will help to clarify the essential elements of defensible process and the kind of governance practices that can anticipate and manage contestability of environmental flow management.

## rationale

Natural science research can provide fairly precise answers to questions about the limits that should apply to water extraction in order to ensure environmental sustainability—and therefore about the amount of water that should be allocated to river systems to ensure environmental flows. These limits are the bedrock of the NWI, markets and water plans.

These extraction limits should be a fundamental component of local and regional water management/sharing plans and have a significant impact both on the implementation of plans and on the operation of water markets. Because of this, decisions about limits not only have economic implications but also impact on social, legal, cultural and management issues. Values other than the purely scientific will play a part in determining whether or not decisions are acceptable or will be contested and therefore whether or not water plans can be fully and effectively implemented.

Almost inevitably, with a range of community values and interests in play, there will be disagreement and conflict over environmental allocations. The question is how good process and good governance can reduce the potential for conflict or manage it well by ensuring that decisions are defensible on a broad range of grounds—social, legal, cultural and economic as well as scientific.

This is complex as there are uncertainties and ambiguities in some of the measures used to determine what might constitute over-allocation and a range of views about the relative importance or value of different dimensions of the decision. There are also diverse views about who should be involved in making the decision and whether processes are sufficiently transparent to reassure individuals, communities and industry about fairness and balance.

There is a need for research that will help to clarify the essential elements of defensible process and the kind of governance practices that can anticipate and manage contestability of environmental flow management. This includes:

- clarifying the social, cultural, legal and political defensibility of the process used to determine environmental flows, particularly in over-allocated water systems or those close to over-allocation
- exploring the measures that can anticipate and manage a contest over the rigour and acceptability of processes
- clarifying the ambiguities and uncertainties that arise from using culturally determined constructs such as ecologically sustainable development within a market-based system, given that it might be variously construed for legal purposes as an outcome, a process, a performance standard or measure, or a set of rights, duties and responsibilities
- defining the role and authority of the environmental water manager and the governance process for managing environmental flows, which might include clarifying the basis of decisions and who is involved in making them
- exploring options for securing environmental flows, including purchasing environmental allocations, entitlements, or derivative products and other instruments and the differences between environmental flows in urban and peri-urban systems.

# 10. Institutional roles, responsibilities and capacities

## what's the challenge?

***While the National Water Commission (NWC) has been established at the Commonwealth level as a lead agency for water policy and management under the NWI, much of the work of implementing reform will fall to many other organisations and groups. This will especially be at the state and territory level, and at the regional, catchment and local government level. This will mean significant change to their current roles, responsibilities, management tasks and processes. The challenge is to clarify who will do what under the new arrangements and the kind of organisational or institutional changes that will be required to enable agencies to meet their obligations under the new arrangements.***

## focus for research

- Examining the roles and accountabilities of public sector agencies and institutions
- Clarifying the NWI and its implications for processes and capacities for regional natural resource management
- Examining the roles and capacities required by catchment management authorities under the NWI
- Identifying institutional barriers to integration and coordination

The NWI has not only changed the way we agree to share and manage our water resources; it has also changed the roles and responsibilities of agencies across Australia that have a part to play either directly in water policy or in broader natural resource management.

## rationale

The NWI has not only changed the way we agree to share and manage our water resources; it has also changed the roles and responsibilities of agencies across Australia that have a part to play either directly in water policy or in broader natural resource management. The NWI also redefines some management tasks and processes and if these are to be adopted and implemented effectively, there will be a need for organisational and institutional change across government agencies and non-government organisations at all levels.

It would be useful to assess and clarify responsibilities, accountabilities and expectations, particularly among public sector participants in the NWI. This also presents an opportunity to identify the ways in which the NWI can leverage stronger links and synergies between related roles in different institutions or jurisdictions and reduce overlap, duplication, redundancies or conflict between the NWI and other policies or structures.

These considerations points to the need for research about what the institutional landscape for NWI implementation needs to look like and the features that will be required now and in the medium and long term.

In the first instance, there is a need for robust institutional mapping that:

- defines the roles and accountabilities of public sector participants in the NWI at all levels of government

- specifies legal and regulatory performance measures
- recognises the particular challenge presented by disaggregation in the water sector that is the outcome of a decade or more of institutional reform.

In particular, this mapping should be helpful at the regional level to identify the actual or potential links, opportunities for efficiencies and synergies and any overlaps, redundancies or conflicts with the NWI (for example, in respect of catchment scale delivery of the National Action Plan on Salinity and the Natural Heritage Trust).

It is not yet clear what is expected of those regional and catchment scale institutions in implementing the NWI, what capacities they will need to meet expectations and what gaps exist between current and projected capacity requirements.

Research can play an important role in describing and designing an integrated, holistic approach to NWI implementation by:

- anticipating any institutional barriers to integration and coordination of efforts across sectors, portfolios and agencies
- exploring the ways in which barriers can progressively be removed
- identifying the most promising opportunities within the existing institutional arrangements for increasing integration.

One of the more complex issues for exploration is the *question of autonomy*. There is a need for research to scope the current and future potential for discretion in decision making and identify the characteristics and varying degrees of discretion that might be applied at different levels of policy management and implementation of the NWI. This will require an assessment of the value of prescriptive and discretionary approaches as they might apply across different policy instruments or processes and the optimal mix of approaches within decision-making hierarchies and processes.

A particularly challenging aspect of this question focuses on how institutions might stretch their decision-making approach to go beyond thinking primarily about balancing competing interests to an approach that aligns information, capacities and incentives at different scales in order to generate more sophisticated and robust decisions.

Finally, there is a strong interest in the *application of adaptive management* to implementation of the NWI. Research here might focus on consolidating insights from both the theory and practice of adaptive governance and management, for example proactive or ameliorative responses or approaches to flexible implementation. There is also a need to understand how adaptive approaches can still provide for certainty and security about the agenda in water policy and how key agencies can develop a shared understanding and a shared learning culture that encourages and supports adaptive management.

# Forum participants

| | | |
|---|---|---|
| ***Convenor*** | | |
| **Michael Lester**, Manager, Social and Institutional Research, Land & Water Australia | | |
| ***Facilitator*** | | |
| **Stephen Dovers**, Research Fellow, Centre for Resource & Environmental Studies, Australian National University | | |
| ***Participants*** | | |
| Volker Aeuckens | Steve Cork | Catherine Mobbs |
| Tom Aldred | Peter Crawford | Deborah Peterson |
| Neil Barr | Donna Craig | Alice Roughley |
| Jeff Bennett | Peter Cullen | Simon Smalley |
| Taron Brearley | Matthew Durack | Sarah Vandermark |
| Michael Buxton | Helen Foard | Doug Walsham |
| Andrew Campbell | Doug Fisher | Neil Ward |
| Daniel Connell | Steve Hatfield Dodds | Blair Wood |

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***Further information***

Social and Institutional
Research Program
Land & Water Australia
Ph: 02 6263 6000