Australian Government

National Water Commission

NATIONAL WATER INITIATIVE

First Biennial Assessment of Progress in Implementation

2007

The National Water Commission is an independent statutory body in the Environment and Water Resources portfolio.
Its role is to drive the national water reform agenda.

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Australian Government

National Water Commission

Chairman

The Hon John Howard MP
Prime Minister
Parliament House
CANBERRA ACT 2600

Dear Prime Minister

In your capacity as Chairman of the Council of Australian Governments, I am pleased to provide you with the first biennial assessment of progress under the National Water Initiative (NWI). This report is a product of the intergovernmental agreement on the NWI which requires the National Water Commission (Commission) to undertake biennial assessments of progress in water reform and to report to the Council of Australian Governments.

The report provides a snapshot review of the successes and deficiencies in water reform in Australia since the NWI was signed on 25 June 2004. The intergovernmental agreement on the NWI also requires the Commission to provide advice on additional actions needed to better realise the objectives of the NWI. The Commission makes a number of recommendations accordingly.

The Commission has found that the NWI remains the primary and enduring national blueprint for water reform in Australia. The implementation of the NWI is delivering real improvements in the management, use and understanding of water in Australia. Despite considerable change in Australia's water circumstances since signature of the NWI, the NWI's policy prescriptions continue to be widely accepted as the right ones for Australia.

However the Commission urges governments to avoid complacency. There is much that needs to be done, and much that needs to be done faster. I want to highlight for you and the Premiers and Chief Ministers, 15 action-oriented points from the Commission's assessment:

1. Overallocation of water resources continues to be a central national challenge. It is still not being managed as envisaged under the NWI. A number of states have not delivered on their commitment to move to sustainable levels of water extraction.
2. As a consequence of the NWI, water planning practices have improved across all states but the quality of science underpinning water plans in Australia needs sustained attention and resources.
3. Progress in rolling out completed and operational NWI-consistent water plans continues to be difficult for governments. The clarity and certainty promised under the NWI will not be realised until these plans are in place.
4. There is a growing need for more effective compliance and enforcement action by governments if the integrity of Australia's water management is to be preserved.
5. The Commission sees an urgent need for water managers to determine the degree of connectivity between surface water and groundwater and then to manage the joint resource in more sophisticated ways.
6. Water interception activities (such as large scale forestry and farm dams) continue to be recognised by governments as serious challenges to water security but action by governments to date has been neither concerted nor systematic.
7. Following considerable pressure from the Commission, good progress has been made in the expansion of water trading among southern Murray-Darling states. This will be a great help in adjusting to future water shortages. Governments will need to continue to build the necessary institutions and conditions for markets to function smoothly.
8. There has been a particular challenge in designing state and Commonwealth Government contributions to the costs of urban water infrastructure. Such investments and associated pricing need to be managed to maximise NWI outcomes and to minimise distortions to water prices.
9. Water pricing regulators and pricing oversight authorities need to be strengthened in some states.
10. In some states, responsibility for the increasingly sophisticated tasks of urban water delivery remains with small and poorly resourced local government authorities. In the Commission's view, such arrangements warrant fundamental reform.
11. Arrangements for the management of environmental water have not emerged as envisaged in the NWI; too often environmental managers lack clear identity, authority and sufficient financial and technical capacity, and independent audits of environmental outcomes are not yet occurring. Environmental water management arrangements deserve renewed attention.

12. A more harmonised and rigorous national approach to monitoring river health and groundwater is required (the Commission has proposed a national framework for assessing river and wetland health for this purpose).
13. The substantial investment in water data you have foreshadowed in the National Plan for Water Security is a milestone in improved water management across Australia. The next steps of achieving open sharing of water data within and among the states, and making the new water accounting and measurement arrangements operational, will require sustained collaborative efforts.
14. There is a serious and growing shortage of skilled water resource professionals to support water reform and the necessary water investments in Australia. There is a role for governments to address this.
15. Finally, the Commission is concerned about disappointing performance across most Australian jurisdictions in urban water planning. Urban water shortages in the current drought and the rush to invest in new urban water infrastructure are evidence of planning failure. The fundamental NWI outcome of reliable urban water supplies has not been delivered. In its report, the Commission recommends that Australian governments should now consider supplementing the NWI with an enhanced set of urban water reform commitments to:
    - lift the standard of future urban water supply planning (especially to meet the risks of climate change)
    - remove 'policy bans' on any water supply option and require objective consideration of all options (including recycled water, desalination, rural-to-urban trade, new dams, inter-basin transfers, and cross-border transfers)
    - encourage diversification towards less climate dependent water supply options
    - consider a floor under urban water shortages by adoption of a national minimum reliability benchmark for water supply for Australia's major population centres
    - reduce the widespread public confusion associated with water restrictions
    - encourage fundamental reforms to institutional and market arrangements for water supply (these are detailed in the Report), and
    - review the role of local government in urban water delivery.

Overall, the Commission reports that the NWI is working, and its reforms are taking us in the right direction. Tackling the reforms in the NWI is already yielding worthwhile benefits. More gains can be made by re-doubling efforts in the areas highlighted in (1) to (14) above. In the Commission's view, the NWI can now be made even more worthwhile by the new, additional reform focus on urban water in (15) above.

Consistent with the requirements of the *National Water Commission Act 2004*, I am copying this letter and the attached report to all parties to the NWI.

Yours sincerely

Ken Matthews

3 August 2007

CONTENTS

Abbreviations

2005 NCP Assessment	*2005 National Competition Policy: assessment of water reform progress*
ACCC	Australian Competition and Consumer Commission
AWR	Australian Water Resources
BoM	Bureau of Meteorology
COAG	Council of Australian Governments
Commission	National Water Commission
CSIRO	Commonwealth Scientific Industrial Research Organisation
EDO	Environmental Defenders Office
ESCAWRI	Executive Steering Committee on Australian Water Resources Information
GL	Gigalitre (unit volume of water—one billion litres)
IPART	Independent Pricing and Regulatory Tribunal—NSW
JSCWSC	Joint Steering Committee on Water Sensitive Cities
MDB	Murray-Darling Basin
MIL	Murray Irrigation Limited
ML	Megalitre (unit volume of water—one million litres)
NCP	National Competition Policy
NPWS	National Plan for Water Security
NRM	Natural Resource Management
NRM Ministers	Natural Resource Management Ministerial Council
NWI	National Water Initiative
PWC	PricewaterhouseCoopers
ROP	Resource Operations Plan—used in Queensland
SAWM	Smart Approved Water Mark
SGWC	Steering Group on Water Charges
SKM	Sinclair Knight Merz
states	states and territories
WADC	Water Accounting Development Committee
WELS	Water Efficiency Labelling and Standards
WRP	water resource plan—used in Queensland
WSAA	Water Services Association of Australia
WSPs	Water Sharing Plan—used in New South Wales

KEY FINDINGS

Overall

This National Water Commission (the Commission) biennial assessment finds that:

- the National Water Initiative (NWI) remains the primary and enduring national blueprint for water reform
- despite the intensification of water challenges since the signature of the NWI, the NWI's policy prescriptions continue to be widely accepted as the right ones for Australia
- governments have made considerable progress in implementing the NWI over its first two years
- adapting to future water management challenges requires more work to improve and accelerate the implementation of NWI reforms, particularly in the areas of:
  - overallocation of water resources
  - groundwater and surface water interaction
  - interception of water from land use change
  - integrated management of environmental water
  - water accounting, measurement and compliance, and
  - urban water management
- these areas are the subject of recommendations below.

Severe water scarcity across many parts of Australia, and increased uncertainty about future water availability due to the potential impacts of climate change has prompted considerable action by governments, including investing in urban water supply, severe urban water restrictions, contingency planning for record low inflows in the Murray-Darling Basin (MDB), and development of the National Plan for Water Security (NPWS).

This assessment finds that NWI reforms are providing the tools and flexibility needed by water managers and users to better handle the challenges presented by drought and ongoing competing demands for water. This is especially true of improved water trading.

The NWI has prompted, shaped, informed and—in some cases—challenged all of this new activity. This assessment confirms the vital role of the NWI as Australia's blueprint for water reform as governments, industry and communities adapt to change and improve the way we manage and use water.

Specific findings on the main elements of the NWI and recommendations follow.

Water entitlements and planning

Almost all states and territories (states) have made good progress in implementing NWI-consistent water access entitlement and planning frameworks. Good progress has also been made in specifying NWI-compliant water access entitlements in high priority water systems.

The overallocation and/or overuse of water resources is still being addressed by governments in different ways in different states. The Commission considers that a number of states do not meet the requirement of the NWI to move to sustainable levels of extraction. The Commission is strongly of the view that a new shared national understanding of overallocation is required which reconciles the varying approaches (and terminology) used by states.

All states have started, and in some cases substantially completed, NWI-consistent water planning processes that aim to meet the NWI timelines (which go to 2009). Nevertheless, progress in rolling out completed and operational plans continues to be a challenge for governments.

Planning practices have improved across all states. But the quality and extent of science underpinning water plans remains a concern—especially understanding the relationships between water and the environment. Continued effort is required both to improve the available science, and to ensure that the best information is used in water planning.

Climate change presents significant challenges for water planning and management, and reinforces the need to ensure the highest quality information underpins development and review of plans.

Severe water scarcity across Australia has highlighted the critical importance of water resource monitoring in effective water resource management. The Commission also emphasises the growing importance of effective compliance and enforcement action. The degree of monitoring and compliance needs to significantly improve in line with the risk to the water resource.

There is still a long way to go to build the knowledge and capacity needed to jointly manage surface water and groundwater. Urgent national effort is needed here.

Similarly, achieving NWI outcomes in relation to changes in land use activities (such as large scale forestry and farm dams) which intercept significant amounts of surface water and groundwater, requires significantly improved understanding and management of these activities through entitlement, planning and enforcement regimes.

Water trading

States have made good progress, particularly over the past year, in introducing institutional, legislative and administrative arrangements that enable water trade. Water trading, within and between states, has been very effective in reallocating water supplies during the current period of drought.

Continued effort is required to enhance the compatibility of individual southern MDB registers (as operated by states and private irrigation entities) to support timely and low-cost water transfers across irrigation area boundaries and state borders.

Best practice pricing

States have so far largely met their ongoing NWI commitment to move towards upper-bound pricing for metropolitan water storage and delivery.

The level of cost recovery for rural and regional water supply is mixed across states. Ongoing effort is required to meet NWI commitments in this area.

Cost recovery for water planning and management has not met NWI commitments in a number of states. In periods of extended water scarcity, there is a case for governments to provide some fee relief so long as it is transparent and time-limited. However, clear arrangements for recovering costs of water planning and management are needed to ensure ongoing capacity for managing the resource.

The significant wave of government investment in urban water supply augmentation (including investments in south-east Queensland, proposed and current investments in Victoria, and desalination plants for Sydney and Perth) makes NWI pricing principles and independent prices oversight even more important. This is also true of proposed rural infrastructure investments (including under the NPWS).

The Commission considers that government contributions to urban water infrastructure should be managed to maximise NWI outcomes and minimise price distortions. For example, this may be achieved through conditions imposed to achieve NWI or other public good outcomes, or through time-limited assistance to infrastructure projects.

At the same time, the Commission considers that some of the prerequisites for achieving NWI-consistent pricing outcomes will be stronger prices oversight arrangements, together with institutional and market arrangements (especially in urban areas) to improve price signals between water suppliers and water users. These are not currently included as actions under the NWI.

Integrated management of water for the environment

The Commission considers that the NWI outcomes for integrated management of environmental water for the environment are not yet being achieved.

The Commission has concerns about whether environmental managers have been clearly established, have clear authority (both statutory and in terms of community recognition and acceptance) and sufficient financial and technical capacity to enable them to perform the role envisaged for them under the NWI.

Most states do not have an independent audit of environmental outcomes as required by the NWI. Such audits are important to building public confidence in the delivery of environmental outcomes.

Improved river health and groundwater monitoring and incorporation of that information in the adaptive management of water resources are significant challenges that are beginning to receive attention in many states. The Commission considers a more harmonised national approach is required and has developed and made available the Australian Water Resources Framework for Assessing River and Wetland Health.

The multiplicity of programmes and mechanisms for recovering water for the environment—especially in the MDB—is potentially inefficient.

Water resource accounting

States are making good progress in developing the National Water Accounting Model. Completion of the model in 2010 is considered to be reasonable given the benefits that will accrue from its implementation.

Making new water accounting and measurement standards operational presents a significant challenge to governments and water users. States will need to become increasingly active in the rollout of standards. Investments and institutional changes proposed under the NPWS will greatly assist in achieving NWI outcomes in this area.

Significant improvements in compliance and enforcement are needed to underpin investments in improved water accounting, measurement and monitoring.

In 2006, the Natural Resource Management Ministerial Council (NRM Ministers) endorsement of the principle of open and efficient sharing of water data information greatly advanced national information sharing. Proposed enhancements to the capacity of the Bureau of Meteorology (BoM) to collect water data and disseminate water information on a national basis will build on this work and help to achieve the desired NWI outcomes.

Urban water reform

Reasonable progress is being made to implement the various urban reforms called for under the NWI. While the NWI urban actions are worthwhile and being implemented by governments in such a way as to address some of the broader urban issues, the challenge of urban water management has intensified significantly since the NWI was signed. The scale of current and emerging water challenges facing Australia's major cities has overshadowed the more limited actions agreed in the NWI to advance urban water reform. These actions do not capture the extent of work being undertaken by individual states to address these challenges.

The Commission considers that current NWI actions should now be supplemented by an enhanced set of actions in order to better achieve NWI outcomes, and to improve urban water supply security in light of current and emerging water challenges across Australia.

The enhanced set of actions should cover improved supply and demand planning (especially for climate risk), fundamental reforms to institutional and market arrangements for water supply and improved delivery of water supply, and on-the-ground demand management options.

Knowledge and capacity building

The shortage of skilled water resource professionals, to support implementation of the NWI, is having a major impact on the timely delivery of the NWI in some areas.

RECOMMENDATIONS

The Commission recommends that the Council of Australian Governments (COAG) undertake the following actions to better realise the objectives and outcomes of the NWI:

1. Prepare a workplan to ensure nationally coordinated actions to:
    1.1. develop a shared national understanding of and approach to handling overallocation
    1.2. improve understanding of groundwater, and management of groundwater-surface water interaction
    1.3. improve understanding of interception activities and develop nationally-consistent approaches that enable states to more effectively and speedily bring major interception activities into their water planning and entitlement regimes, consistent with the NWI
    1.4. improve and harmonise river health and groundwater ecosystem monitoring and assessment to enable states to incorporate information from this monitoring into their adaptive management frameworks, and
    1.5. undertake a comprehensive evaluation of the cost effectiveness of various water recovery programmes and mechanisms, in the next year.
2. Include the agreed actions for the development of the National Water Accounting Model as additional actions required under the NWI in order to allow for ongoing monitoring and assessment as part of the implementation of the NWI.
3. Develop a supplementary set of urban water actions as soon as possible, to be implemented as additional actions required under the NWI and covering improved:
    3.1. urban water planning, including to ensure:
        3.1.1 better integration of water supply and demand scenarios and options
        3.1.2 consideration of all supply options (including recycled water, desalination, rural-to-urban water trade, and cross-border and inter-basin water transfers where economically viable and environmentally sustainable)
        3.1.3 best practice climate change scenario planning, and strategies to introduce non-climate dependent water supply options when required to secure water supplies, and
        3.1.4 clearer articulation of supply risk and security in plans, including exploring the feasibility of a national minimum reliability benchmark for water supply for major centres (in regard to expected frequency and severity of water restrictions) developed in consultation with the community
    3.2 institutional and market arrangements, including to enable:
        3.2.1 new urban water supply products that offer consumers choice in reliability of water, supported by advances in metering technology which provide better information to all water users (including users in medium and high density dwellings in some states who are not currently exposed to volumetric pricing)
        3.2.2 clearer specification of entitlements for new water sources such as recycled water and stormwater
        3.2.3 allocation of tradable entitlements to major urban water users in the first instance

3.2.4 strong and independent pricing oversight in each state, and pricing regulation that encourages more flexible or market-driven pricing approaches to emerge in response to water scarcity

3.2.5 structural reform of the water sector in order to create competitive pressure for water supply and delivery, and greater private sector investment and innovation, and

3.2.6 safe, reliable and cost effective delivery of water services in smaller centres where current small scale providers may lack technical and financial resources

3.3 onground delivery of water supply and demand management options, including through measures to ensure:

3.3.1 a full assessment of the relative cost effectiveness of various water supply options gives consideration to environmental externalities, including a full assessment of greenhouse gas impacts

3.3.2 transparent and consistent setting of water restrictions levels and of the arrangements for introducing restrictions

3.3.3 closer integration between urban planning and development and water supply planning

3.3.4 adoption of the nationally-agreed recycled water guidelines in practice, and

3.3.5 greater clarity about the role of developer charges in promoting water sensitive urban design and decentralised urban water management.

PART A

1. OVERVIEW

1.1 Context

Three years have passed since the NWI Intergovernmental Agreement was agreed by COAG in June 2004. Tasmania signed the NWI in 2005 and Western Australia in 2006. In 2007, the NWI remains Australia's national blueprint for water reform.

The NWI is to be implemented over a ten-year period. It was agreed by COAG 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 groundwater systems.*

The objective in implementing the NWI is to:

> *… provide greater certainty for investment and the environment and underpin the capacity of Australia's water management regimes to deal with change responsibly and fairly.*

This first biennial assessment comes at a time of severe water scarcity across most parts of Australia, and increased uncertainty about future water availability due to the potential impacts of climate change. The extended drought conditions faced by many parts of the continent have seriously tested existing water management arrangements and water use practices. These conditions have also coincided with continued strong economic growth (driven especially by mining and energy activity) and no slowing in urban population growth[1].

Taken together, these conditions have prompted major and far-reaching initiatives by governments, including investment in water supply augmentation for towns and cities, severe water restrictions in many parts of urban Australia, contingency planning for historically low inflows in the MDB, new programmes to recover water for the environment, and development of the NPWS (see discussion in section 1.2).

Against this backdrop, it is timely to assess the progress of governments in implementing the NWI, and to test the ongoing effectiveness of the NWI itself in meeting current challenges.

1.2 This assessment

Under the NWI, the Commission is required to undertake biennial assessments of progress in implementing the NWI (NWI clause 106). The first of these is set down for 2006-07. The biennial assessments have two main objectives, to:

1. report to COAG on progress with implementation of the NWI, and
2. advise COAG on any actions required to better realise the objectives and outcomes of the NWI.

This first biennial assessment covers the period to the end of March 2007[2].

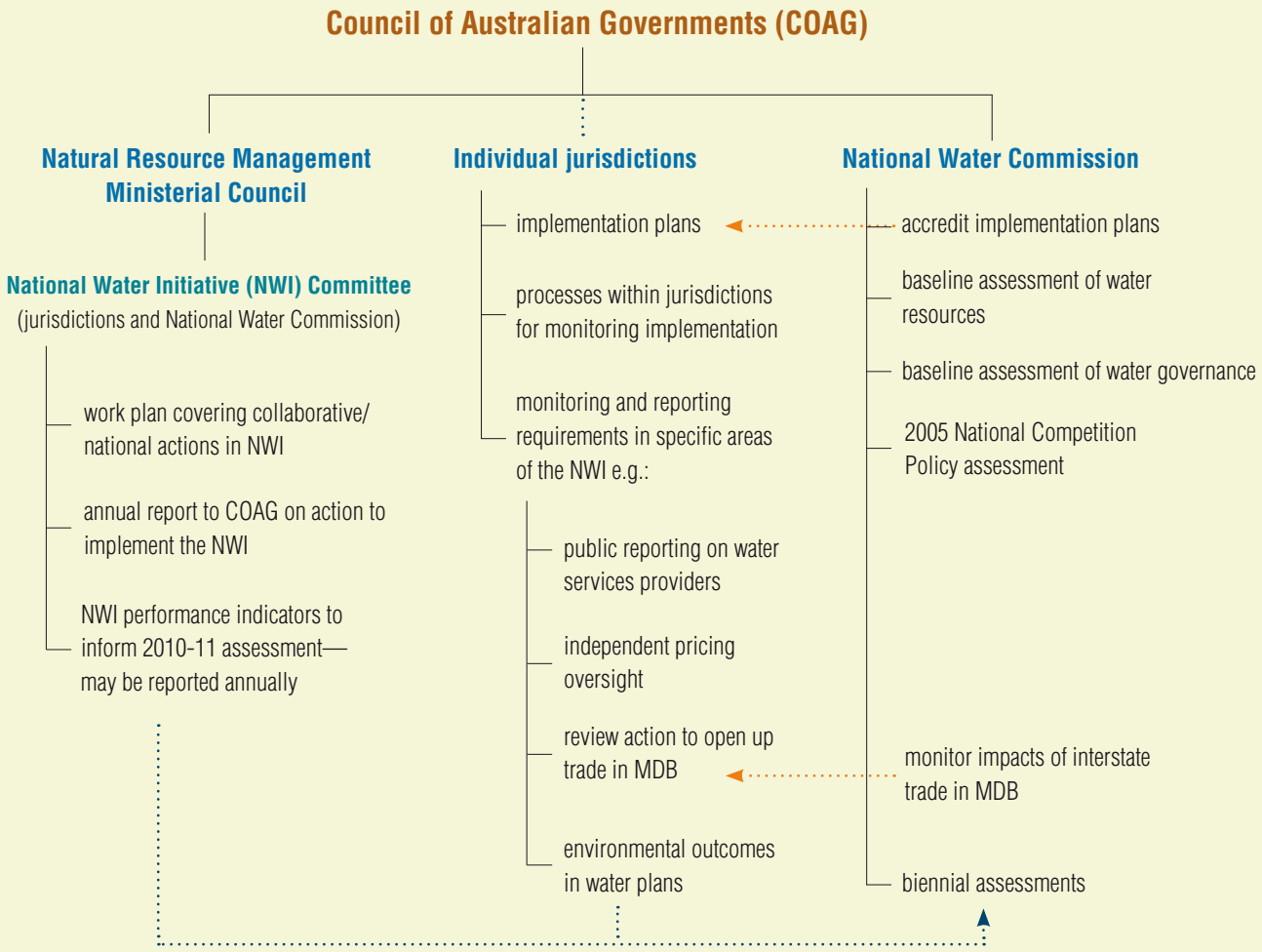
The biennial assessment is one of a number of mechanisms by which NWI commitments are monitored and evaluated. These include: annual reporting to the NRM Ministers; the Commission's role in accrediting NWI Implementation Plans for each jurisdiction; and the baseline assessment of water resources and water governance arrangements (see Figure 1).

The focus of this assessment is on reporting and assessing how the significant work being undertaken by all governments to implement the NWI is progressing against the stated objectives and agreed outcomes of the NWI. In many instances it is too early in this first biennial assessment to determine progress against the desired outcomes and objectives. Nevertheless, this report

1 As noted in the Commission's June 2006 report to COAG, many of these conditions existed at the time the NWI was agreed by COAG in 2004.

2 As far as possible, the assessment has been updated for significant matters post March 2007.

Figure 1—Implementation of the NWI—monitoring and evaluation



identifies challenges faced by governments and communities in implementing some of the actions, forms conclusions as to the status of progress and draws out key findings on actions that could be taken to better achieve the NWI objectives and outcomes. The structure of this report is based on the following key NWI elements:

1. water access entitlement and planning framework
2. water markets and trading
3. best practice water pricing
4. integrated management of water for environmental and other public benefit outcomes
5. water resource accounting
6. urban water reform.

The remaining key elements of *knowledge and capacity building and community partnerships and adjustment* are considered in the context of the above elements.

The general process applied for the purposes of this assessment is to:

- consider progress against timelines for actions stated in NWI Implementation Plans
- consider, in the event that progress has not met the desired timeline, whether the process put in place by states individually, or collectively, is still able to achieve the desired outcomes in a timely manner
- analyse what impact, if any, current progress may have on the desired NWI outcomes, and
- identify gaps or deficiencies that may lead to a failure to achieve the desired outcomes.

States developed Implementation Plans, subsequently accredited by the Commission, that set out how they would proceed to implement the actions required under the NWI. A summary of progress against these Implementation Plans is at Attachment 1.

To assist in this analysis this assessment draws on information provided by states including through their accredited NWI Implementation Plans, progress reports to NRM Ministers and through extensive discussions and interaction with state and Australian Government officials.

Recognising that many actions of governments involve implementation of more than one NWI theme, this assessment uses relevant case studies to illustrate practical progress in implementing the NWI. Where relevant it draws on input from a public call for community comment. It also draws on work commissioned by the Commission as part of its Raising National Water Standards programme and work undertaken by parties to the NWI as they implement the agreement. Work drawn on in this assessment (references at Appendix 1) includes:

- *2005 National Competition Policy: assessment of water reform progress* (2005 NCP Assessment)
- Kiri-ganai reports on public submissions received (see box on next page*)
- Australian Water Resources (AWR) 2005
- Interception and land use report (unpublished)
- stocktake on water accounting
- stocktake on water pricing
- initial assessment of water governance.

In January 2007, the Prime Minister announced a proposal to implement a $10 billion NPWS. The NPWS was put forward as a means to achieving fundamental change in water management and use, especially in the MDB. The NPWS recognises the NWI as Australia's blueprint for water reform and is intended to assist in accelerating its implementation. At the time of writing, the NPWS is still being negotiated, and therefore its contribution to implementing the NWI is not assessed in this report. If implemented by the MDB governments, it is expected to have a significant influence on the nature and rate of progress in implementing the NWI.

*Public submissions

The Commission engaged Kiri-ganai Research Pty Limited to manage a process seeking public submissions on progress in implementing the NWI. The request for submissions was widely advertised and resulted in 109 written submissions being received. A small number of optional survey forms were also completed. The public submissions represent a wide and diverse range of views. A representation of views drawn from the public submissions has been presented under the 'community views' heading of each theme as a means to highlight the varying opinions on progress with the NWI. The individual submissions and summary synthesis reports are available on the Commission website at *www.nwc.gov.au/nwi/biennial_assessment.cfm*.

National Plan for Water Security

The NPWS is intended to significantly improve water management across the nation with a focus on the MDB. The NPWS provides major opportunities for governments to better meet their commitments to improve water management and use agreed under the NWI. A specific objective of the NPWS is to accelerate the implementation of the NWI as the blueprint for water reform in Australia.

Areas where the NPWS is proposed to help to accelerate NWI implementation and achieve NWI outcomes include:

- water accounting, measurement and information
  - investment to modernise and extend monitoring networks, and water resource reporting, including the adoption of more accurate water meters
  - providing national coordination of water data and information (through the proposed role for BoM)
- water access entitlements and planning framework
  - addressing overallocation
  - development of a water plan for the MDB as a whole which takes account of groundwater and other impacts on inflows
- water markets and trading
  - dealing with stranded assets through assistance to relocate or assist non-viable or inefficient irrigators to exit the industry
  - addressing overallocation
  - market oversight arrangements for the MDB (through the proposed role for the Australian Competition and Consumer Commission)
- integrated management of environmental water
  - reform of water management arrangements in the MDB
  - creation of an entity to hold environmental water entitlements in the MDB and nationally.

2. CONCLUSIONS SUMMARY

2.1 Water access entitlement and planning framework

Almost all states have made good progress in establishing the water access entitlement and planning framework as prescribed by the NWI, although all are at different stages of implementing this framework on the ground.

Likewise, almost all states have made statutory provision for water to meet environmental and public benefit outcomes within water plans.

Nevertheless, this assessment found that some factors are reducing water user and stakeholder confidence in water access entitlements and in the security of water provided for the environment. These factors relate to those areas where further progress is required in implementing the NWI.

Important among these is addressing existing overallocation of water resources. The NWI treats addressing overallocation as a first step which is fundamental to the long-term sustainability of the resource base and investment certainty for consumptive users.

Debate continues about sustainable levels of extraction from water resources and, by extension, the meaning of 'overallocation'. Despite its clear and agreed place in the NWI, the Commission has found that there is now no shared national understanding of what is meant by overallocation. However, all states indicate that some of their surface water and groundwater systems continue to be considered as (depending on the terminology they use) under stress, potentially under stress, at risk, requiring water beyond the basic ecological needs, or overallocated.

Good, although in some states slow, progress has been made in specifying NWI-consistent water access entitlements for high priority water resources. Effort needs to continue to develop water plans that enable existing water licences to be replaced with water access entitlements which have the characteristics set out in the NWI (secure, perpetual/ongoing, mortgageable, tradable, etcetera).

The extended drought has placed significant pressure on governments' water allocation arrangements (especially seasonal allocations in regulated surface water systems, and groundwater allocations). In some cases, this has contributed to an erosion of confidence in the water access entitlement arrangements. It has also highlighted the important role that effective water measurement and accounting, and effective compliance regimes play in implementing the NWI.

Effective water planning is fundamental to the NWI. All states have started, and in some cases substantially completed, water planning processes that aim to meet the NWI timelines (which stretch out to 2009).

Despite most states indicating that they are on track with NWI timing for water plans, progress in rolling out plans consistent with the NWI continues to be a challenge for governments. The slow and in some cases inadequate delivery of water plans is a potential threat to achieving NWI outcomes on a statewide and national scale.

This assessment found clear examples of improved planning practices across all states. At the same time, the quality and adequacy of science underpinning water plans remains an ongoing concern of the Commission. This is especially true of understanding relationships between water and the environment. As states develop new plans and review existing plans, effort will need to continue to be directed at ensuring that the best available science and information is made available to enable planning decisions. This will also mean taking the initiative to obtain new knowledge before plans are developed/reviewed.

Climate change impacts on the availability of, and demand for, water. Climate change presents significant challenges for the

development of water plans and water management over the life of plans. Potential climate change impacts reinforce the need to ensure the highest quality information underpins development and review of plans.

So far there has been limited recognition in water plans of the connectivity between surface water and groundwater resources. States have arrangements in place to manage groundwater, although they do not yet amount to sophisticated, integrated management. This is largely due to the complexity of the hydrology and a lack of knowledge of linkages and impacts. Significantly more effort needs to go into building knowledge of groundwater resources and the capacity to manage them.

Likewise, substantive work will be required to develop a better understanding of the impact of activities that intercept water, and implement more sophisticated policies to address interception—as required by the NWI. Despite significant interception activities being very different in different parts of Australia (e.g. plantation forestry, floodplain harvesting, farm dams), the Commission considers that there are benefits in nationally-consistent approaches to bring interception activities into water access entitlement and planning regimes.

2.2 Water markets and trading

Good progress has been made by all states to ensure that they have the institutional, legislative and administrative arrangements to enable trade in water. New South Wales, Victoria and South Australia have taken steps to put in place arrangements to allow for permanent interstate trade of water access entitlements across the southern MDB and states continue to take steps to remove remaining barriers that may affect potential trade.

Significant effort has already been made to implement statutory registers to handle water access entitlements consistent with the NWI in New South Wales, Victoria, Queensland, South Australia and Tasmania.

Registers of the states in the southern MDB (where trade across borders is physically possible), are not yet compatible. There are also concerns about time delays and high transaction costs of operating in the market. The ability of the individual southern MDB registers (both state-run and those of private irrigation entities) to interact in a relatively simple, smooth and timely manner when entitlements are bought and sold across irrigation area boundaries and state borders is still being established. Changes are being made to, and planned for, entitlement registers in many states over the coming year or so. Therefore compatibility will need to be sought, and tested, as this occurs.

Coming out of the 2006 water trading study (which endorsed the NWI actions, if implemented, as a sound basis for achieving effective water markets), NRM Ministers have agreed to a workplan to help ensure the ongoing implementation of NWI actions.

This biennial assessment has found that water trading, within and between states, has been very effective in managing water in current difficult circumstances. Water trading within Victoria and in Tasmania was at record levels in the 2006-07 season. There are also positive signs that interstate trade in the southern MDB is opening up as a result of the significant effort of states. The volume of permanent water entitlement traded from Victoria to South Australia in less than a year since July 2006 is almost as much as the total traded from Victoria to South Australia during the almost eight years of the MDB interstate trading pilot.

2.3 Best practice pricing

States have made progress in implementing the various aspects of NWI commitments relating to water storage and delivery pricing. Methodologies for cost recovery are well established. Levels of cost recovery are around the upper bound for almost all metropolitan water providers. Progress has also been made by some states (particularly New South Wales and Victoria) and nationally to develop pricing policies for recycled water and stormwater.

For rural and regional water supply, progress on cost recovery is mixed across states, with only Victoria able to demonstrate that its government-owned rural and regional water providers have achieved lower-bound pricing and are on a path towards the upper bound. The status of private irrigation entities and a multiplicity of local government water providers remains ambiguous in relation to the NWI commitments. The Commission considers that such providers should be subject to NWI principles to the extent that the amount of water they provide is material, and taking into account the amount of competition they face (e.g. with the operation of water markets between irrigation districts).

The first national performance monitoring report of major and non-major urban water utilities was released in May 2007, meeting the NWI commitment to make independent, public and annual reports on the performance of such utilities. A performance reporting framework for rural water utilities is being developed by governments in time to enable a first report to be provided in 2007-08.

Cost recovery for water planning and management still lags NWI commitments in a number of states (notably Queensland, with emergent arrangements, and South Australia and Western Australia with less developed policy positions). In periods of extended drought, there is a case for governments to provide some fee relief so long as it is transparent and time-limited. Nevertheless, clear arrangements for recovering costs of water planning and management are needed to ensure ongoing capacity for managing the resource.

While there is an overlap in some states between this cost recovery and charges for externalities, more work needs to be done nationally to tease out these charges and further explore the scope for market-based responses to externalities of water use.

Work on consistent approaches to pricing being undertaken by governments as a national action under the NWI has so far identified where greater consistency in pricing is needed.

The NWI pricing commitments are now even more important in the face of a significant wave of government investment in urban water supply augmentation, as well as rural investments proposed under the NPWS and by some states. The Commission considers that government contributions to urban water infrastructure should be managed to maximise NWI outcomes and minimise price distortions. For example, this may be achieved through conditions imposed to achieve NWI or other public good outcomes, or through time-limited assistance to infrastructure projects. The Commission is particularly concerned that pricing arrangements for urban water supply in south-east Queensland will not comply with NWI commitments made by the Queensland Government.

At the same time, the Commission considers that some of the major prerequisites for achieving improved pricing outcomes derive from reforms outside of the NWI, including:

- stronger independent prices oversight in some states
- improved institutional arrangements for water services, especially addressing the lack of financial and technical resources available to small (typically local government) water providers
- institutional and market arrangements (especially in urban areas) that deliver competition and choice in water services and water products, and
- better means of responsive pricing to signal scarcity in urban areas, including smart metering of households, metering of medium and high density dwellings, and new approaches to urban tariff structures.

Some of these factors are reinforced in section 2.6 on urban water reform.

2.4 Integrated management of water for environmental and other public benefit outcomes

All governments have management and institutional arrangements in place to achieve environmental outcomes. These vary depending on the broader nature of the water management regime in those states.

Several states have established management arrangements that rely on complex interactions between multiple entities. The clear accountability of these entities to deliver environmental outcomes, as envisaged by the NWI, is not being achieved. The Commission has concerns about whether such entities have sufficient capacity (financial and technical) and clear authority (statutory and community accepted) to enable them to carry out their responsibilities.

In addition, the independent audit of outcomes in most states does not yet meet NWI commitments.

Adaptive environmental management as envisaged in the NWI will only be as good as the:

- specificity of environmental outcomes being sought and
- monitoring for those outcomes.

A major challenge facing water planning in Australia is to improve the science underpinning the setting of environmental outcomes and the water required for their achievement. In addition the establishment of systematic statewide efforts to measure ongoing river health is only just commencing. Improved river health monitoring and incorporation of that information in the adaptive management of water resources is a significant challenge which is starting to receive attention in many states, and will require further effort nationally.

The work currently being done (under NRM Ministers) on formal provision for high conservation value freshwater areas, should address whether more specific arrangements to manage for high conservation values need to be in place in some states and nationally.

States have various arrangements in place for water recovery to the extent that they have identified that they recover, or may need to recover, water in order to meet environmental outcomes. The MDB has been a major focus of water recovery measures to date. A comparative evaluation of the cost effectiveness of various water recovery mechanisms in the MDB is required in the next year. Beyond the MDB, there is a need for states to develop and/or keep under review arrangements for current or potential water recovery to ensure they are consistent with NWI commitments.

2.5 Water resource accounting

There is strong national progress for the delivery of water accounting objectives under the NWI. A major benchmark of states' water accounting practices was completed in 2006, in accordance with NWI requirements. This study found that, while showing signs of some good practice, water accounting in Australia is at an immature phase and being developed in an ad hoc fashion. As a result, NRM Ministers agreed to develop the National Water Accounting Model based on a disciplinary approach—similar to financial accounting.

The National Water Accounting Model goes beyond the actions required by the NWI, but is an approach that is likely to achieve a nationally-consistent result as envisaged in the NWI.

The work on developing a national water accounting system, expected to be completed in 2010, includes the development of national standards for water market accounting, resource accounting and environmental water accounting as well as standards for water accounting information systems.

Work on sharing information is proceeding steadily through jurisdictional cooperation at the national level. The endorsement by NRM Ministers of the principle of open and efficient water data sharing is a positive step in establishing a common vision for water data sharing. The proposed enhanced capacity of BoM (under the NPWS) to collect water data and disseminate water information on a national basis will be able to build on this work and help to achieve the desired NWI outcomes.

While there is currently no Australian standard for water meters or ancillary data collection systems, good progress has been made on the development of standards for meters through the National Measurement Institute. Based on this work, NRM Ministers agreed in November 2006 to adopt a meter standard accuracy band of 2.5 per cent. It is apparent that there are currently a large number of meters in operation that are unlikely to meet this standard of accuracy. Concerted action by governments will be required to achieve this standard on the ground. Proposed investments under the NPWS will also assist.

2.6 Urban water reform

Reasonable progress is being made against NWI urban actions (albeit slow in some areas—due in part to the effort required to more effectively organise/coordinate the NWI urban actions). While these actions are worthwhile, and are being implemented by governments in such a way as to address some of the broader urban issues, they have been overshadowed by the scale of water challenges facing Australia's major cities. With the exception of Perth, these challenges were not presenting themselves when the NWI was agreed by COAG in June 2004. In addition, current NWI actions do not capture the extent of work currently being undertaken by individual states to address these challenges.

Despite reforms in the urban water sector since the 1994 COAG Water Reform Framework, structural reform in the sector has generally not kept pace with that in similar sectors such as gas, electricity or transport. Challenging climatic conditions have led to severe and protracted water restrictions, both in our major cites and regional centres, testing the NWI outcome of reliable urban water supplies.

The range of actions being taken by states in response to urban water scarcity are, understandably, often in the nature of an emergency response and vary in their strategic focus and reform nature. The future water security of our major urban centres in the face of climate variability and growing population warrants the coherent national policy framework that an extension of the NWI in the urban water area would provide.

Overall, the Commission considers that the NWI outcomes for urban water reform still hold, including to provide healthy, safe and reliable water supplies, increase water use efficiency, encourage innovation in water supply sourcing, treatment, storage and discharge, and to achieve improved pricing.

In the face of current challenges, however, the Commission considers that the NWI actions should be enhanced to better achieve these outcomes and to improve urban water supply security across Australia. Elements of an enhanced urban water reform agenda should cover improved:

- urban water planning, including to ensure:
  - better integration of water supply and demand scenarios and options
  - consideration of all supply options (including recycled water, desalination, rural to urban water trade, and cross-border and inter-basin water transfers where economically viable and environmentally sustainable)

- best practice climate change scenario planning, and strategies to introduce non-climate dependent water supply options when required to secure water supplies, and
- clearer articulation of supply risk and security in plans, including exploring the feasibility of a national minimum reliability benchmark for water supply for major centres (in regard to expected frequency and severity of water restrictions) developed in consultation with the community

- institutional and market arrangements, including to enable:
  - new urban water supply products that offer consumers choice in reliability of water, supported by advances in metering technology which provide better information to all water users (including users in medium and high density dwellings in some states who are not currently exposed to volumetric pricing)
  - clearer specification of entitlements for new water sources such as recycled water and stormwater
  - allocation of tradable entitlements to major urban water users in the first instance
  - strong and independent pricing oversight in each state, and pricing regulation that encourages more flexible or market-driven pricing approaches to emerge in response to water scarcity
  - structural reform of the water sector in order to create competitive pressure for water supply and delivery, and greater private sector investment and innovation, and
  - safe, reliable and cost effective delivery of water services in smaller centres where current small scale providers may lack technical and financial resources
- onground delivery of water supply and demand management options, including through measures to ensure:
  - a full assessment of the relative cost effectiveness of various water supply options gives consideration to environmental externalities, including a full assessment of greenhouse gas impacts
  - transparent and consistent setting of water restrictions levels and of the arrangements for introducing restrictions
  - closer integration between urban planning and development and water supply planning
  - adoption of the nationally-agreed recycled water guidelines in practice, and
  - greater clarity about the role of developer charges in promoting water sensitive urban design and decentralised urban water management.

2.7 Knowledge and capacity building

In the course of undertaking the assessment on the key NWI elements, a number of issues specifically relating to knowledge and capacity building have also emerged. If the NWI is to continue to be implemented and achieve its outcomes in a climate of public confidence, it will be essential that resources continue to be directed to improving knowledge and developing capacity to deal with the water management challenges ahead. Issues identified in this assessment are summarised below.

Improving the quality of science underpinning plans

The quality and adequacy of science underpinning plans has been an ongoing concern of the Commission. It is essential that the process required under the NWI to develop plans, not only makes use of the best available science but is transparent about how decisions using that science are made. This will also mean taking the initiative to obtain new knowledge before plans are developed/reviewed.

Improved knowledge on surface water-groundwater interaction

Due largely to the complexity of issues and a lack of knowledge of linkages and impacts, the desired NWI integration of surface water and groundwater plans to enable connected systems to be managed as a single resource has not occurred to a significant degree.

Overallocation of water resources—achieving desired environmental outcomes

Many public submissions expressed concern with what they feel is an overallocation of resources in some water systems. These generally relate to a lack of confidence that enough is being done to address overallocation.

In circumstances of tight water availability, difficult choices sometimes have to be made to provide water for consumptive use over environmental uses. This should be done with an understanding of the consequences for environmental outcomes, and what other actions need to be taken to achieve these outcomes over time.

There is an ongoing need to better understand the relationship between the hydrological and ecological function and undertake further work to deliver agreed environmental outcomes. Improved

river health monitoring and incorporation of that information in the adaptive management of water resources is a significant area requiring further effort nationally.

Improving knowledge in interception management

This assessment identified some stakeholder concern over the lack of national consistency in implementation of the NWI interception requirements. Concerns are also raised on the adequacy of monitoring of key water balance elements to enable interception to be specifically accounted for and elements of the science and knowledge base are said to be 'debatable and variable'. Substantive work will be required to develop a better understanding of the impact of activities which intercept water, and implement more sophisticated policies to address interception—as required by the NWI.

Capacity to deliver water accounting and measurement and compliance regimes

The connecting thread in the points raised above is improving public confidence in the water management regimes implemented through the NWI. Water resource accounting and measurement is a cross-cutting element that fundamentally supports the need to provide public confidence in water management.

Significant knowledge and capacity building is incorporated into the development of the National Water Accounting Model. The model recognises that the capacity to address and implement standardised water accounting and measurement does not necessarily exist and seeks to develop this capacity through its practical pilot projects.

An end point of developing and implementing standard water accounting procedures and standards for water measurement is the need for an adequate compliance regime. This will ensure that water is extracted, diverted, stored, traded and used in accordance with the conditions set out by water plans and defined in water access entitlements. This assessment found some evidence that existing compliance regimes may be found wanting under current scarce water conditions. Making a large investment in developing the capacity to account, measure and monitor water will be ineffective without making an investment in stronger compliance regimes.

Skills Shortages

Implementing the many elements of the NWI depends to a significant degree on being able to draw on human resources that have the range of skills necessary to undertake the tasks. Widespread anecdotal evidence suggests that there is a shortage of skilled water resource professionals. In some areas, the water sector's demands for more skilled professionals to deal with its many challenges are competing with demands from the booming mining sector. The Commission found some evidence that the lack of skilled resources is having an impact on the timely delivery of the NWI.

2.8 Community partnerships and adjustment

The importance of community consultation and awareness in respect of NWI activities was a prominent theme in public submissions made to the assessment.

Clearly the progress already made in implementing the NWI could not have been achieved without the engagement of water users and the community at many levels in developing the required management responses. However, there is some evidence that water users are struggling with the impact of lower water availability, and the pace of change in some management regimes.

The key findings of the assessment indicate a number of areas requiring more effort where the ongoing engagement or improved engagement of the community in partnerships will continue to be a vital element of the NWI implementation. Examples of this include:

- the sometimes inadequate onground delivery of the envisaged NWI water planning regime leading to community concerns about the adequacy of water plans
- residual concerns about the security of water access entitlements
- the potential inadequacy of monitoring and compliance regimes and ready provision of information that leads to a lack of confidence in the water management systems being developed
- ongoing perceptions that the best available science is not being made available to the decision making process, and
- developing policies for interception that are manageable and understood by community and industry groups.

Active water markets within regions and between regions indicate that advantage is being taken of the role of water trading to enable adjustment in ownership and land use.

More direct intervention has also occurred for example, through the Australian Government's Water Smart Australia project in New South Wales to achieve sustainable groundwater entitlements. This project will assist groundwater licence holders and their communities to adjust to reductions in their water access entitlements.

Programmes to recover water to address overallocation and meet environmental outcomes are proliferating, especially in the MDB. As noted in section 2.4 above, it will be important to evaluate the effectiveness of these programmes and mechanisms within the next year, including from the perspective of water users and the community.

PART B

3. ASSESSMENT OF PROGRESS ON THE KEY ELEMENTS

3.1 Water access entitlement and planning framework

3.1.1 Objectives and outcomes

Objectives

In setting out its actions under the water access entitlement and planning framework element, the NWI has the objective of achieving:

- clear and nationally-compatible characteristics for secure water access entitlements
- transparent, statutory-based water planning
- statutory provision for environmental and other public benefit outcomes, and improved environmental management practices
- complete the return of all currently over-allocated or overused systems to environmentally-sustainable levels of extraction
- clarity around the assignment of risk arising from future changes in the availability of water for the consumptive pool, and
- recognition of the connectivity between surface water and groundwater resources and connected systems managed as a single resource.

Outcomes

The expected outcomes from successful implementation of the actions is to have water access entitlement and planning frameworks that:

- enhance the security and commercial certainty of water access entitlements by clearly specifying the statutory nature of those entitlements
- provide a statutory basis for environmental and other public benefit outcomes in surface water and groundwater systems to protect water sources and their dependent ecosystems
- are characterised by planning processes in which there is adequate opportunity for productive, environmental and other public benefit considerations to be identified and considered in an open and transparent way
- provide for adaptive management of surface water and groundwater systems in order to meet productive, environmental and other public benefit outcomes
- implement firm pathways and open processes for returning previously overallocated and/or overdrawn surface water and groundwater systems to environmentally-sustainable levels of extraction
- clearly assign the risks arising from future changes to the consumptive pool
- water access entitlements that are compatible across states to improve investment certainty, are competitively neutral and minimise transaction costs on water trades (where relevant)
- reflect regional differences in the variability of water supply and the state of knowledge underpinning regional allocation decisions
- recognise Indigenous needs in relation to water access and management
- identify and acknowledge surface water and groundwater systems of high conservation value, and manage these systems to protect and enhance those values, and
- protect the integrity of water access entitlements from unregulated growth in interception through land-use change.

Relevance to the NWI

The NWI framework for surface water and groundwater access entitlements and planning is presented in seven inter-dependent parts:

1. Establishing and/or converting existing water rights into water access entitlements. These then establish the security, commercial certainty and tradability of the entitlements necessary for investment and functioning water markets. The reliability of the access entitlements issued depends on the quality of the water plan that determines the water available to be extracted for consumptive use.
2. Ensuring that there is provision for environmental outcomes in the plans through statutory recognition of water for the environment at least equal in security to the consumptive water access entitlements.
3. Completing or developing water plans through transparent processes and using best available science. Sound, scientifically based plans with community support that provide statutory recognition for the environment are essential to the sustainability of the resource base and its ability to adapt to changing climate.
4. Ensuring that overallocation and/or overuse previously identified, or identified through NWI-compliant plans, is dealt with. Continuing overallocation with no pathway for adjustment will undermine the security of both the established consumptive and environmental entitlements and the resource base itself.
5. Establishing who bears the risk of change to the plan. This provides greater certainty and security as well as an equitable basis for any necessary adjustment.
6. Ensuring that Indigenous interests in water resources are taken into account in the plans.
7. Providing a means to deal with land use change that may intercept existing water resources. This is aimed at ensuring that entitlements granted under a plan are not undermined.

Implementation of the NWI water access entitlement and planning framework is also an essential pre-cursor to the ability to make use of water markets and trading. COAG, in its communiqué on signing the NWI, declared one of the benefits to arise from implementation of the NWI to be an:

> *...expansion of permanent trade in water bringing about more profitable use of water and more cost effective and flexible recovery of water to achieve environmental outcomes*

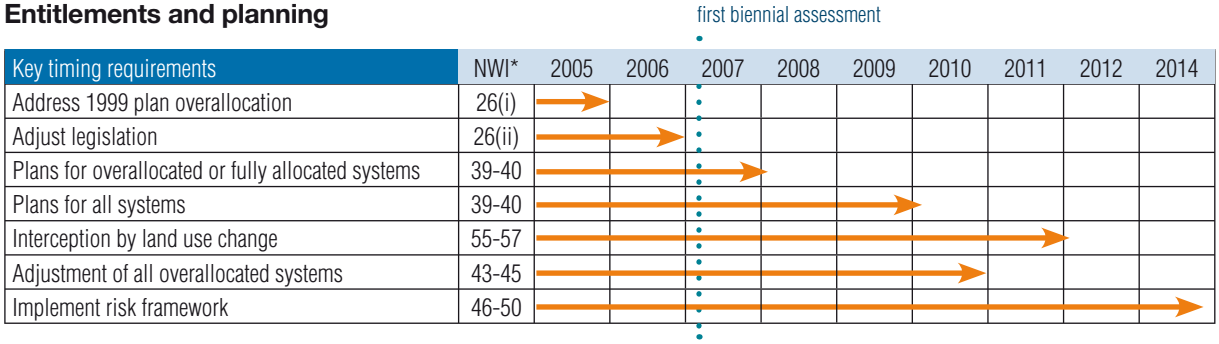
A central premise of the NWI is an expectation that water plans will be the main means for managing surface water and groundwater systems and providing the degree of confidence and security set out in the NWI. The NWI does not however, expect that all plans are developed to the same level of detail. The NWI allows states to make decisions on the need for a plan, the level of detail required, or the resources that should be invested in its preparation. This is on the basis of an ongoing assessment of the level of development of a water system, projected demands and the risk of not having a detailed plan in place (clause 38).

Timelines

The NWI recognised the various stages that states were at in their existing planning and entitlement processes and provided a prescriptive approach to implementing the entitlements and allocations framework. This involves:

- addressing existing overallocation by 2005 (already identified in the National Competition Policy (NCP) process in 1999)
- adjusting legislation and administrative arrangements to bring them into line with the NWI commitments by 2006

Entitlements and planning



Key timing requirements	NWI*	2005	2006	2007	2008	2009	2010	2011	2012	2014
Address 1999 plan overallocation	26(i)	→								
Adjust legislation	26(ii)	→	→							
Plans for overallocated or fully allocated systems	39-40	→	→	→						
Plans for all systems	39-40	→	→	→	→	→				
Interception by land use change	55-57	→	→	→	→	→	→	→		
Adjustment of all overallocated systems	43-45	→	→	→	→	→	→			
Implement risk framework	46-50	→	→	→	→	→	→	→	→	→

*NWI clause reference

- reviewing (immediately) existing plans to ensure they are compliant with the transparency, reporting and risk requirements of the NWI, and
- developing (immediately) new plans on a priority basis, including Indigenous water issues and applying the risk assignment framework to all plans initialised.

Other key timing requirements are:

- immediate definition and implementation of NWI-compliant water access entitlements
- immediate definition, provision and management of water to meet environmental and other public benefit outcomes
- plans for all systems that are overallocated, fully allocated or approaching full allocation by the end of 2007
- plans for other systems by the end of 2009
- substantial progress toward adjusting all overallocated and/or overused systems by 2010, and
- implementation of measures to address interception by land use change activities in accordance with water plans by no later than 2011.

3.1.2 Progress

3.1.2.1 Implementing the framework

All states have made good progress in implementing the water access entitlements and planning framework as prescribed by the NWI, although all are at different stages of implementation depending on their individual circumstances.

The first step in the approach to implementing the framework is the requirement for states to substantially complete, by 2005, plans to address overallocation in accordance with commitments given under the 1994 COAG agreement, as set out in the COAG tripartite agreement of 14 January 1999.

New South Wales, Victoria, South Australia, Northern Territory and the Australian Capital Territory indicate that they have met this commitment.

Queensland is implementing its master plan for statewide water allocation planning which indicates that all plans will be completed by 2009. The Queensland plan rollout has not progressed as rapidly as initially envisaged due to a number of factors including greater needs for community consultation, the resource pressures of the south-east Queensland drought and amendments required due to the boom in mining. To date, Queensland has completed, 17 of the 22 plans identified in its 1999 timetable to the National Competition Council to the water resource plan (WRP) stage, with 10 of these plans completed to resource operations plan (ROP) stage.

Tasmania also has a comprehensive plan for rolling out its planning processes. Although only five out of 16 plans identified in 1999 have been completed a better understanding has been gained since 1999 of the impacts on its systems, arising from a further four years of monitoring water resources. With this knowledge, Tasmania has now modified its approach to one of implementing management responses on the basis of risk rather than progressing a wide-scale development of new plans for conservation and freshwater use (see box on page opposite). Tasmania is continuing to work through a comprehensive rollout of plans in priority water systems as required by the NWI.

Western Australia commenced a major review of its planning processes in 2006 and has set a timetable for completing plans on a priority basis as indicated in 1999. Since 1999 four groundwater plans and one surface water management plan have been produced and implemented. Six more plans are near completion and will be produced by the first quarter in 2007–08. A further six plans will be produced to draft stage by the third quarter 2007–08. All of these plans will be subject to transition or review arrangements to become NWI-compliant statutory management plans once new legislation is effected. At the same time Western Australia addresses any stress issues with the current licensing, management and policy systems.

New South Wales, Victoria, Queensland and South Australia have put in place or amended legislation to incorporate elements of the entitlements and planning framework of the NWI. Western Australia is reviewing its water management regime with a view to having appropriate legislation introduced to parliament by end 2007. Tasmania, Northern Territory and the Australian Capital Territory are reviewing their legislation to ensure that it meets NWI requirements.

Why this is important to the NWI

A failure to finalise water plans that deal with overallocated or stressed systems in accordance with COAG 1994 commitments has a significant impact on the desired NWI outcomes. It will not provide firm pathways and open processes for returning previously overallocated and/or overdrawn surface water and

groundwater systems to environmentally-sustainable levels of extraction in the desired timeframe.

It will also impact on the desired NWI outcome to provide for adaptive management of surface water and groundwater systems in order to meet productive, environmental and other public benefit outcomes.

Community views

Community submissions do not specifically address the overall implementation of the water access entitlement framework. Issues are raised about aspects of entitlements related to market confidence, including mortgageability, indefeasibility of title and the variable approach to perpetuity of title. Comment also relates to concerns about how environmental water allocations have been determined in New South Wales water sharing plans (WSPs) and the problems of dealing with overallocation.

Tasmania's approach to water management planning

Water management plans in Tasmania are statutory-based plans that provide a framework for managing a catchment's water resources in accordance with agreed objectives, and the objectives of the *Water Management Act 1999* and the State Policy on Water Quality Management 1997. Consistent with the NWI, a water management plan presents a clear statement of the community's environmental, social and economic objectives for the relevant water resources and describes the water management regime that best gives effect to these objectives.

Tasmania has found that in some circumstances, similar outcomes can be achieved without the heavy resource and time demands of developing a formal water management plan. From work undertaken since 1999, the level of existing water use, hydrology, environmental values and water needs for many of Tasmania's catchments are now known. With this improved knowledge, it is evident that a number of catchments have relatively low water use and projected future demand, and therefore the risks of not having a detailed, formal water management plan are low.

For low risk catchments, the existing water management arrangements are strengthened in the short term by putting in place further statutory-based measures, such as restriction triggers and allocation limits, that clearly define access to water. At the same time, water allocations have been formalised, water users are progressively installing meters, and limits have been set on new allocations. By monitoring the water development status and river health in these catchments, it can be determined whether the risk of not having a detailed water management plan in place remains low.

This approach is consistent with the NWI's risk-based approach to rolling out water management plans.

Many of Tasmania's catchments such as, Boobyalla and Tomahawk, are relatively small, and therefore lend themselves to an 'informal' approach. They typically have unregulated flow with low intensity water use for much of the year and the impacts of water use are generally confined to the summer base-flow period, such that the flow regime is close to natural across most flow components. In most cases, an assessment of environmental water needs during the low flow part of the regime has been conducted and an accurate picture of historical water use has been established through the water use sustainability project, enabling this usage to be formalised through issuing additional, lower reliability allocations.

At the other end of the spectrum, the Derwent River is much larger in size. However, it also lends itself to the informal approach because demands for water are very low in comparison to its annual flow. In both settings, the balance between environmental and consumptive water needs and the greater certainty can be achieved in the short term using an informal approach.

With an appraisal of freshwater ecosystem assets through the conservation of freshwater ecosystem values analytical framework, and refinement of the restriction management regime utilising the environmental water assessments previously conducted, statutory-based provisions can be established to ensure that the current level of water use is managed in a way that balances the needs of water users and the environment.

Comment

Addressing existing overallocation in stressed systems as a first step is fundamental to the long-term sustainability of the resource base and the certainty for consumptive users.

While plans or management frameworks to address overallocation or stress have largely been put in place, it is apparent that 'overallocation' remains a major concern, particularly in the MDB states.

There appears to be a wide gap between putting in place NWI-compliant water plans that address overallocation and perceptions that, despite these plans, systems remain significantly stressed, or overallocated. This is because debate continues over the meaning of sustainable levels of water extraction in practice and by extension, the definition of 'overallocation'. There is no shared national understanding of what is meant by overallocation.

At the Prime Minister's and Premiers' summit on 7 November 2006 it was agreed that there was a need to accelerate action on overallocation in the MDB and they commissioned the Commonwealth Scientific Industrial Research Organisation (CSIRO) to report progressively by the end of 2007 on sustainable yields of surface water and groundwater systems within the MDB. The CSIRO Sustainable Yield Project is expected to provide a robust, basin-wide estimate of the future availability of water resources on an individual catchment and aquifer basis, taking into account climate change and other risks. Governments will use the results to help inform the development of a new sustainable level of water extraction for both the surface water and groundwater systems of the MDB.

Reinforcing the concerns about the speed of action to address overallocation, the Australian Government's NPWS seeks to address the overallocation of water in rural Australia, particularly in the MDB.

The NWI defines 'overallocation' as situations where with full development of water access entitlements in a particular system, the total volume of water able to be extracted by entitlement holders at a given time exceeds the environmentally sustainable level of extraction for that system. 'Environmentally sustainable level of water extraction' is separately defined as the level of water extraction … which, if exceeded, would compromise key environmental assets, or ecosystem functions and the productive base of the resource. The NWI also recognises that, determining the needs of consumptive and environmental uses in the water plans (clause 36), involves settling trade-offs in competing outcomes for water systems that will involve judgments informed by best available science, socio-economic analysis and community input. It is clear that in developing their plans all states are striving to achieve this balance.

New South Wales puts the view that no system under its WSPs can be 'overallocated'. This is because an access entitlement is given a share of the available resource. The potential for overuse is managed through ensuring that allocations made to each share do not exceed the long-term average extraction limit established by the WSP. Other states also maintain that they address overallocation through managing their water plans so they remain in balance.

The AWR 2005 level 1 report noted that there has been a significant reduction in areas reported by states as overallocated in the last six years, but it is not clear if this is due to management actions or changes in definitions of sustainable yield. The report found that there is no nationally agreed, standardised method for calculating or reporting sustainable yield. It also found that in many areas, estimates of sustainable yield are based on the current level of entitlements. The recent AWR 2005 level 2 report, using a nationally-consistent set of water resource development ratios (still dependent on states' own assessments of sustainable yield) has identified those areas that are most likely to be 'stressed' (overallocated, fully allocated, or approaching full allocation). This assessment is more consistent with the previous finding of the AWR assessment in 2000. The AWR 2005 level 2 report recommends that agreement on a consistent approach to sustainable resource management, including the definition of sustainable yield, or a surrogate, is needed across many states and also nationwide.

3.1.2.2 Specify and implement water access entitlements

All states, with the exception of Western Australia which is in the process of developing its new legislation for water management, have largely met the commitment to clearly specify and implement water access entitlements consistent with NWI requirements in their legislation and administrative arrangements.

In most states, progress in rolling out water access entitlements on the ground is closely linked to the rollout of water allocation plans. This means that where there is no completed water allocation plan (see part 3.1.2.4 below), NWI-consistent water access entitlements are yet to be created and statutory water licences continue. New South Wales has NWI-consistent water access entitlements for its entire Group A[3] plans that cover 80 per cent of surface water use. Queensland's NWI-compliant entitlements have been established in seven plan areas creating more than 7500 NWI-compliant entitlements.

Determining sustainable needs of river systems—Victoria's approach

Defining what is in the river system is a critical precursor to determining what the river needs to be sustained. In 1994, the COAG agreement paved the way for determining the exact quantities allocated from the river in the form of bulk entitlements. At the same time, work commenced on measuring unallocated flows and defining and identifying stressed rivers.

By the next COAG agreement, in 1999, specification of bulk entitlements in Victoria had improved and the knowledge behind environmental flows had become more sophisticated. It was only as a consequence of this information that allocations and sustainable limits could begin to be understood.

In Victoria, the measuring of bulk entitlements and improved knowledge of river ecology has enabled the development of sustainable water strategies.

The sustainable water strategies plan for the supply of water for local growth and—using improved knowledge of river ecology—plan for the use of the river's entitlement in a way which will safeguard rivers' future. These plans identify all water resources available within a region then provide a strategy to ensure a secure and healthy water supply for all users in the context of conditions that may change supply (through climate change for example) and demand (through population increases for example). Catchment management authorities, water authorities, local government and the community are collaborators in the development of these strategies.

In Victoria, the 10 catchment management authorities are also responsible for the preparation of regional catchment strategies and management of the environmental water reserve, and are the designated waterways managers (including regional drainage, floodplain management and management of crown frontages). As a consequence of these responsibilities, they bring together all the knowledge of demand and supply pressures on the rivers, and are well placed to develop a programme of works which will optimise environmental outcomes.

Building on the growing sophistication of waterway management, Victoria has indicated that the next priority in this area is to address the definitions of overallocation and sustainable yield.

Victoria's fully unbundled[4] water access entitlement system, which goes beyond the requirements of the NWI, will be operational from 1 July 2007 for northern Victoria and December 2007 for the remainder of the state. South Australia is also undertaking work to separate out its water use regulatory approvals from the water access entitlement, beyond the requirements of the NWI. Tasmania's water access entitlements are unbundled. The Northern Territory's existing licences comply with the NWI but with the review of Northern Territory's legislation, are in the process of being unbundled through a separation of the water access entitlement from annual allocations.

Why this is important to the NWI

Specification of water access entitlements consistent with the characteristics set out in the NWI is required to achieve the desired outcome to: *enhance the security and commercial certainty of water access entitlements.* Properly specified water access entitlements across developed water systems are also an essential element to meet COAG's desire to expand permanent trade in water.

Community views

The National Farmers' Federation and the New South Wales Irrigators' Council believe that there are a number of factors eroding confidence in the water access entitlements established by the NWI. These factors include variations in the treatment

3 Group A: 27 river plans and four coastal groundwater plans commenced on 1 July 2004.

4 Separation of the water access entitlement from water delivery and water use.

of licences in perpetuity, disclaimers on licences, the need for licences for supplementary water interception and a failure to provide a fully indefeasible title. The Tasmanian Farmers and Grazier's Association is concerned that the 10 year rolling allocation in Tasmania does not meet the NWI requirement for 'perpetual or open ended' water access entitlements.

The Australian Bankers Association believes that clear and nationally compatible characteristics for secure water access entitlements have not been implemented across basins or catchments. This is said to be because some states (New South Wales, South Australia and Western Australia) have maintained the form of the entitlement held by end users where the bulk entitlement is held and managed by a cooperative, trust or corporation. Murray Irrigation Limited (MIL), a corporate holder of a bulk New South Wales entitlement, believes that the statutory entitlement does not need to rest with individual irrigators.

Comment

Good progress has been made in specifying NWI-consistent water access entitlements in high priority areas. However, overall progress over the past two years has been slow. A significant number of entitlements in some states remain attached to land 13 years after COAG originally agreed (1994) that water entitlements be separated from land. Effort needs to continue to develop plans that enable the replacement of existing water licences with NWI-compliant water access entitlements.

The NWI does not specify a need for entitlements to be held at an individual level. The original COAG water reform principles, on which the NWI is based, required that water access entitlements be held by end users as far as practicable. Properly specified bulk water access entitlements are consistent with the NWI, provided that individual 'entitlement holders' within a bulk entitlement holding have the level of security sought by the NWI, and are able to freely trade water out of, or into, the areas covered by a bulk holding.

The Commission continues to consider that Tasmania's 10 year entitlement with clear presumption of renewal is consistent with the NWI requirement for perpetual or open-ended tenure. Nevertheless, Tasmania is currently undertaking an independent review of its entitlement tenure arrangements to assess whether it has any impact on access entitlement holders' financial security.

3.1.2.3 Provision for environmental outcomes

All states have progressed the requirement to make statutory provision for water to meet environmental and public benefit outcomes within water plans. Typical arrangements include:

- Victoria makes its provisions through environmental water reserves and bulk entitlements and uses a layering of plans designed to ensure that the interacting elements in water management and the ecological needs of the river systems are managed to achieve optimal results.
- New South Wales provides its environmental water as planned environmental water (water allocated to meet the basic ecological needs of the system under a WSP) and through adaptive environmental water that is recovered or purchased and held as a share of the consumptive entitlements of the water source.
- Queensland addresses environmental flow objectives and water allocation security objectives through rules in each plan and gives them statutory recognition.
- Tasmania is currently updating the Water for Ecosystems Policy to better reflect the state's contemporary, holistic approach to determining environmental water needs and providing statutory based environmental water.
- Western Australia's water management principles are embedded in the current licensing regime. The environmental and social impacts of water are major elements of consideration in the issuance of licences and the conditions on licences.

It is noted that there are significant differences in providing for environmental outcomes between regulated systems that use combinations of rules and specific volumetric allocations, and unregulated surface water and groundwater systems that generally use a rules-based management regime. This is recognised by the NWI through its requirement that water provided to meet environmental and other public benefit outcomes be defined as 'water management arrangements required to meet the outcomes sought'. The NWI covers water provided for the environment through both rules and entitlements.

The NRM Ministers' NWI Workplan includes work by all governments to develop standards for environmental accounting and reporting in conjunction with the Water Accounting Standards project. In particular, resources will be directed to standardising reporting of the application of rules to meet environmental outcomes.

Why this is important to the NWI

A failure to adequately provide for environmental outcomes will undermine the security of both the established consumptive and environmental entitlements and the resource base itself.

Community views

There are wide ranging views put forward in community submissions on provision of water for the environment, ranging from basic access being a human right, through the environment needing the primary share, to the consumptive users being afforded an appropriate priority. These views are not necessarily consistent with the NWI itself which requires that environmental water be given 'at least the same degree of security as water access entitlements for consumptive use'.

Other submissions are concerned with the way New South Wales WSPs already agreed have determined the environmental water allocations. Concerns were expressed (Environmental Defenders Office (EDO) Victoria) about the security of environmental water allocations in Victoria and that planning for environmental water allocations has started on the premise that existing consumptive rights are recognised, thereby limiting the ability to address overallocation.

Comment

The arrangements that now exist in states to provide for water to meet environmental outcomes indicate that there has been substantial progress in this area.

The adequacy and timeliness of water provided to meet environmental outcomes is a separate matter however, and the comments on water planning in section 3.1.2.4 and on dealing with overallocation in section 3.1.2.5 relate to this issue.

3.1.2.4 Water planning

States are required to complete NWI-consistent plans for all systems that are overallocated, fully allocated or approaching full allocation by 2007 and complete all other plans by 2009. The NWI allows states to take a risk management approach to determining the timing and level of detail required for each plan (clause 38).

The NWI approach to water planning implies an expectation that states have in place management regimes that cover their entire areas of responsibility. Areas that are overallocated, fully allocated or approaching full allocation would be expected to be covered by water plans that would allow the full benefits of the NWI to take effect. Areas where water resources are not at risk and there is no scarcity issue, are less developed, or less well understood may currently be covered by a management system that involves the issuing of less secure water licences.

Against an existing framework of water management across all their water systems, all states have started or substantially completed planning processes that aim to provide water allocation plans within the expected timelines. Tasmania is implementing a risk-based approach to adopting formal plans accompanied by a comprehensive management framework for all water systems in order to adapt to the immediate needs of that state.

Relevance to outcome

Effective water allocation planning is fundamental to the NWI. Developing and implementing water allocation plans consistent with the requirements of the NWI will provide the basis to:

- enhance the security and commercial certainty of water access entitlements
- protect water sources and their dependent eco-systems through providing water for environmental and public benefit outcomes
- enhance community confidence through transparency of planning processes, and
- provide for adaptive management of surface water and groundwater sources.

Community views

Some concern has been expressed in regard to the pace of the rollout of plans in Queensland (Queensland Resources Council). Concern about the lack of public information on technical data underpinning plans (New South Wales EDO). Concern was also expressed by Murrumbidgee Private Irrigators Inc as to the lack of community involvement in the New South Wales macro planning process.

Comment

From discussion in the preceding sections it is clear that how and when plans are developed and implemented is the critical driver for implementing the NWI water access entitlement and planning framework.

As the NWI is being implemented, developed water systems that have NWI-compliant water plans and entitlements will exist side by side with systems still subject to the issuing of water licences and other resource management arrangements. The ability for these significantly different water management systems to exist side by side

Water resource planning in Queensland—Pioneer Valley case study

The following is a practical example of the statutory process being followed by Queensland in the development of its WRPs.

A WRP which covers the allocation and management of the surface water resources of this basin was put in place for the Pioneer Valley, a coastal catchment based around the city of Mackay, on 20 December 2002. The ROP that implements the WRP has been in place since 20 June 2005. Implementation of the WRP has generally led to more productive use of the available water.

The Pioneer Valley WRP is currently being amended to provide for the allocation and sustainable management of groundwater resources. A final amended plan that includes groundwater is expected in late 2007.

A WRP is subordinate legislation under the *Water Act 2000*. It has a 10-year life at which time it will be reviewed and a new plan will be put in place. Key strategies of the plan are to establish tradable water allocations, environmental flow objectives, water allocation security objectives and make provision for some unallocated water. Particular ecological outcomes sought include provisions to improve flows to the estuary, manage streamflows to maintain water quality in the connecting aquifer and improved management of waterholes.

The WRP for the Pioneer Valley was developed following a prescribed process as set out under the *Water Act 2000*. Key steps in developing this plan included:

- minister's public notice of intent to develop a WRP together with a release of an information report
- formation of a community reference panel that is consulted and used to obtain community views on the issues and possible plan positions
- assessment of existing water resources, environmental conditions, social and economic dependencies on water
- release of an overview report and draft plan for public submissions
- finalisation of the WRP including a consultation report.

The *Water Act 2000* requires the WRP be implemented by ROPs that are to be developed by the chief executive officer of the department. A ROP for Pioneer Valley has been in place since 20 June 2005. The ROP establishes:

- tradable water allocations (supplemented and unsupplemented) and subsequent trading rules
- operating rules for scheme infrastructure operators
- the release process for unallocated water
- monitoring and reporting requirements
- performance assessment programme.

The minister is required to prepare an annual report outlining progress on the implementation of a WRP and the effectiveness of its management regime in achieving the desired outcomes.

Outcomes from implementation through the ROP to date include:

- good understanding by water service providers of their responsibilities such as operational and stream management rules and compliance needs
- modest level of permanent trading of water allocations
- relatively high level of temporary trading.

should not be used as a barrier to moving to the full entitlement and planning frameworks required by the NWI. The NWI is quite explicit (clauses 33 (i) and (ii)) in setting out the conditions where non-NWI-compliant entitlements (such as annual licences) are acceptable, and in the requirement to move areas to a full entitlement framework when necessary for effective water management.

In response to the Commission's 2006 report on progress on the NWI, COAG agreed in July 2006 that governments' resources and effort need to be prioritised to deliver six fundamental reform elements of the NWI. Of these six fundamental reforms, three directly concerned implementation of the entitlement and planning framework:

1. conversion of existing water rights into secure and tradable water access entitlements
2. completion of water plans that are consistent with the NWI through transparent processes and using best available science
3. implementation of these plans to achieve sustainable levels of surface water and groundwater extraction in practice.

Despite most governments indicating that they are on track with the NWI timing in rolling out water plans, progress consistent with the NWI continues to be a challenge for governments. The slow and in some cases inadequate delivery of the envisaged NWI planning regime is a potential threat to achieving desired outcomes on a statewide and national scale.

While some community concerns are expressed as to the adequacy of consultation—an important step in the planning process—Queensland notes that one reason for delays in rolling out its plans is due to the time taken to adequately consult with communities. By way of example, New South Wales advises that the Murrumbidgee Catchment Management Authority will be coordinating two consultation stages.

The ongoing drought and scarcity of water in the eastern states has brought into focus the potential risks to the quantity of the available water resource and reliability of allocations made to water access entitlements under a water plan.

The quality and adequacy of science underpinning plans has been an ongoing concern of the Commission. In an area where communities and governments need to make tradeoffs between environmental and consumptive needs of systems, it is essential that this consultative process not only makes use of the best available science but is transparent about how decisions using that science are made.

Climate change impacts on the availability of, and demand for, water. Climate change presents significant challenges for the development of water plans and water management over the life of plans. Potential climate change impacts reinforce the need to ensure the highest quality information underpins development and review of plans.

There has been limited recognition in water plans of the connectivity between surface water and groundwater resources. Due largely to the complexity of issues and a lack of knowledge of linkages and impacts, the integration of surface water and groundwater plans to enable connected systems to be managed as a single resource has not occurred to a significant degree. Queensland is considering a recently completed statewide risk assessment of surface water-groundwater interaction. South Australia, in developing its plans for the Mt Lofty Ranges, is progressing towards more integrated management of surface water and groundwater resources.

One approach to integration is being implemented in New South Wales where surface water plans recognise the link to the groundwater by allocating water to 'losses' before water is allocated for extraction. Groundwater plans recognise the source of water being either rainfall or 'leakage' from the river in determining the sustainable yield. For example in the narrow Peel Valley, in which most of the groundwater is shallow and comes directly from the river, all groundwater entitlements are in effect a surface water allocation. Surface water and groundwater connectivity is also being addressed in the macro plans currently under preparation.

Western Australia has initiated a multi-agency approach to address issues relating to the impacts, management and cost of a number of land use and land management strategies aimed at increasing recharge to the Gnangara Mound. The Gnangara Sustainability Strategy, is expected to be completed in July 2009. Results of the strategy will inform the development of a Statutory Water Management Plan for the Gnangara groundwater areas (see box on next page).

Questions also remain as to whether existing plans cover a scale appropriate to achieving desired management outcomes. There appears to be a need to increase efforts to complete planning processes and where appropriate revisit and review existing water allocation plans.

3.1.2.5 Dealing with overallocation

States are required, by 2005, to have substantially completed implementation programmes on allocations to provide a better balance in water resource use for systems identified in their NCP commitments of 1999. States are also required to have made substantial progress toward adjusting all overallocated and/or overused systems by 2010.

NWI groundwater management challenges—the Gnangara Mound, Western Australia

Increasingly, around Australia, groundwater systems are seen as important water sources in the face of climate change and reduced reliability of surface water systems.

Western Australia has a long history of the management of groundwater, as it provides over three quarters of water used in Perth. Western Australia currently uses water licences to share and allocate available water for private and public benefit. One of the key challenges for Western Australia in implementing the NWI is determining how and when to adopt NWI-compliant statutory water management plans, consumptive pools and water access entitlements in groundwater systems. For these systems, there is generally less certainty about water availability, changes to available water is often gradual and localised and environmental water requirements are complex and difficult to accurately determine.

The state has initiated a multi-agency approach to address issues relating to the impacts, management and cost of a number of land-use and land-management strategies aimed at increasing recharge to the Gnangara Mound. The study, known as the Gnangara Sustainability Strategy, is a two-year project, expected to be completed in July 2009. Results of the strategy will inform the development of a Statutory Water Management Plan for the Gnangara groundwater areas. In the interim, a new Water Management Plan for the Gnangara groundwater areas is being produced and this will address a number of short-term options relating to water allocation on the mound.

The development of a statutory water management plan for the Gnangara Mound will be of national significance, as it will test the application and workability of NWI approaches in a very significant urban groundwater source. Ongoing national effort is required to better understand the nature of, and optimal management requirements for groundwater systems.

The Gnangara Mound is by far, Australia's largest freshwater urban groundwater resource that is under stress from the current economic boom, rapid industrial and population growth and climate change. It is pressured by a drying climate and growing demand. It covers an area of approximately 2200 square kilometres and is bounded by the Swan River to the south and Gingin Brook to the north and extends inland to the Darling Fault.

This resource supplies approximately 70 per cent of the water requirements for the greater Perth metropolitan area and supports a horticultural industry valued at more than $100 million annually. It also provides water to the Goldfields Agricultural Supply Scheme, supplying towns in regional areas and Kalgoorlie-Boulder.

The sustainability of the resource and its dependent ecological and socio-economic values are considered threatened due to declining water levels across most of the mound. An increased rate of decline has been noted since the mid-1990s. The major

continued next page

cause of this decline is attributed to reduced recharge to groundwater resulting from the significant reduction in the average annual rainfall experienced since the mid-1970s. This is coupled with increased abstraction of groundwater for public water supply and private use. Climate scenarios indicate that below average rainfall is likely to continue for the foreseeable future, with a possibility of greater decreases.

Recharge has also been impacted through interception by extensive pine plantations and the increasing density of native woodland (as a result of less frequent burning) that covers a significant portion of the Mound.

Current groundwater abstracted from the Gnangara Mound is estimated at 335 Gigalitres (GL) per year. Of this, 158 GL per year is for public water supply, 110 GL per year for licensed users such as horticulture and agricultural uses together with industry and services and parks and recreation. Domestic bores are estimated to utilise a further 67 GL per year. Due to low storage in water supply dams, a direct result of extremely low rainfall especially in 2001, annual public water supply abstraction from groundwater increased by 60 GL between 1997 and 2005. Forty GL of this additional abstraction was taken from the deeper confined aquifers. Licensed allocation to private users has also increased during this period.

While the growth in groundwater use from the mound has more than doubled over the past 20 years, the level of overallocation and overuse in the Gnangara Mound is low compared to many other heavily utilised water resources around Australia. Demand, however, is ever increasing and there is a limit to the sustainable abstraction of groundwater from the mound. To address this, management initiatives are being developed now to ensure that the mound continues to contribute to the sustainable socio-economic development of the Perth region. The development of a statutory water management plan for the mound will enable the adoption of more robust management arrangements.

Substantial completion of the individual implementation programme referred to in NWI clause 41, relating to the systems identified in 1999 as part of the NCP process as being under stress, means having actually returned the indicated systems to balance.

Why this is important to the NWI

A failure to address overallocated systems in accordance with NWI requirements will have a significant impact on the desired NWI outcomes. It will impact on the security and commercial certainty of water access entitlements and undermine the adaptive management capability for water systems.

Community views

Many submissions expressed concern with overallocation of water resources in some systems. These generally relate to a lack of confidence that enough is being done to address overallocation. One submission (EDO New South Wales) notes that the New South Wales WSPs will reduce, but not resolve, overallocation. Concern is expressed that the WSPs are not delivering end of system flow in tributaries to the MDB system.

Comment

As discussed in the previous sections (3.1.2.1 and 3.1.2.3), provision for environmental outcomes as required by the NWI is linked to the rollout of water plans. Where plans are yet to be completed, water for environmental outcomes may not have the same degree of security as water for consumptive use.

The security of environmental water in practice will also be tested in the circumstances of tight water availability which Australia is currently experiencing. In these circumstances difficult choices sometimes have to be made to provide water for consumptive use over environmental uses. This should be done with an understanding of the consequences for environmental outcomes, and what other actions need to be taken to achieve these outcomes, especially as more water again becomes available.

Notwithstanding the real progress that has been made, it is interesting to consider the following observations in relation to how environmental outcomes are delivered in various states.

South Australia, which has completed its plans for all of its key resources, excluding the Mt Lofty Ranges, has commenced a methodology for identifying water resources that are 'under stress' and to prioritise those resources not currently prescribed under the *Natural Resources Management Act 2004*. New South Wales

is recovering water as Adaptive Environmental Water through its own riverbank programme, and other joint programmes, to meet specific environmental outcomes above 'basic ecological needs'. Victoria is giving further consideration to recovering additional water where priority stressed rivers exist. Queensland recognises there could be potential for overallocation and/or overuse in some groundwater systems and is amending or developing water resources plans to include high risk aquifers. The MDB Ministerial Council's Living Murray Initiative has set aside $500 million to improve environmental outcomes at six icon sites in the basin. The Prime Minister and Premiers' summit (7 November 2006) agreed to accelerate action on overallocation in the MDB. The Australian Government's NPWS has as central planks, investment to address overallocation in the MDB, and to recover water through modernising irrigated agriculture nationally.

The above points indicate that surface water and groundwater systems continue to be considered as (terminology varies depending on the particular jurisdiction) under stress, potentially under stress, at risk, requiring water beyond the basic ecological needs of a system, or overallocated.

It is apparent that despite the arrangements in place there is an ongoing need for further work to deliver agreed environmental outcomes.

See comments on overallocation in context of implementation of the framework at 3.1.2.1 and discussion relating to environmental outcomes at 3.1.2.3.

3.1.2.6 Risk assignment

The NWI risk assignment framework has been designed on the basis of what will happen to future changes in water availability—those changes that 'are additional to those identified for addressing known overallocation or overuse' (clause 46). In other words the risk assignment arrangements are clearly intended to apply after a system has been brought into balance and any overallocation has been dealt with.

All states have indicated that they are well down the path of taking the necessary action to bring the risk assignment framework into effect. Queensland and New South Wales have indicated that they will implement arrangements that are consistent with the risk sharing approach set out in the NWI. New South Wales has already passed some legislation to this effect. Victoria passed legislation in November 2005 to establish its NWI-compliant risk assignment framework and the remaining states have also indicated that they will be developing their own approaches to risk assignment consistent with clause 51 of the NWI.

Why this is important to the NWI

The outcome sought from the risk assignment framework is to 'clearly assign the risks arising from future changes to the consumptive pool'. This will support another desired outcome to 'enhance the security and commercial certainty of water access entitlements'.

Community views

There was concern expressed about the lack of work done on benchmarking the conditions for assignment of risk or basis for establishing, qualifying and reviewing scientific input into the assessment of risk (National Farmers' Federation, Murrumbidgee Private Irrigators Incorporated and the New South Wales Irrigators' Council). The National Farmers' Federation notes industry concerns about the quality of scientific data underpinning water planning, especially in the absence of benchmark conditions. New South Wales EDO notes that only those with agreed WSPs have a risk assignment applied, with all others remaining subject to the *Water Act 1912*.

Comment

While administrative processes are in train to enable risk assignment arrangements to come into effect, the onground effectiveness of the risk assignment framework as a means of providing market and investment certainty is perhaps becoming less clear.

As indicated, the risk assignment framework under the NWI depends on systems having been brought back into balance. The challenges of dealing decisively with overallocation, including identifying and addressing sustainable levels of extraction, have been complicated by the social and economic impacts of the protracted drought and, for many locations, step changes in rainfall and run-off attributed to climate change and/or long-term climate cycles. At the same time there are current and proposed government investments over the next decade to enable irrigators to adapt to changing water availability and to recover water for the environment, especially in the MDB. These include the Living Murray Initiative, Riverbank and the Australian Government's NPWS.

All of these factors combine to create uncertainty about how the principles of the risk assignment framework will come into operation post 2014.

3.1.2.7 Indigenous interests

This part of the entitlement and planning framework is intended to ensure that positive action is taken to provide for Indigenous interests in preparing water allocation plans.

All states have in place mechanisms that involve Indigenous representation in water planning processes and seek to ensure that water plans incorporate Indigenous social, spiritual and customary objectives and take into account the existence of native title rights to water.

Relevance to the NWI

Inclusion of Indigenous interests is a specific identification of interests that need to be taken into account to achieve the outcome of planning processes in which there is adequate opportunity for productive, environmental and other public benefit considerations to be identified and considered in an open and transparent way.

Community views

The Wilderness Society notes that there is not yet a negotiated and agreed framework to provide and account for Indigenous water entitlements. The *Native Title Act* gives little guidance on this. However, many plans recognise and provide for this on resolution of specific claims.

Comment

There are indications that, while governments are making substantive efforts to ensure Indigenous inclusion in water planning processes, the explicit inclusion of Indigenous interests in water plans is rare. Examples of approaches taken include:

- The engagement process in preparing WSPs on the mid-north coast of New South Wales resulted in allowance being made for Aboriginal cultural and commercial licences, and introduced a requirement to consult the local Aboriginal Land Council prior to issuing access licences. The macro WSPs under development make specific provision for Aboriginal cultural and Aboriginal community development (commercial) access licences.

Indigenous access in the Northern Territory

Northern Territory water allocation planning provides for Indigenous access to water resources, both in terms of non-consumptive cultural beneficial uses and, as appropriate, for access to the consumptive pool for agriculture, aquaculture, public water supply, industry or rural stock and domestic uses. Indigenous ecological knowledge is also sought to assist in making allocations for environmental beneficial uses. Indigenous engagement is especially sought in the processes of developing water allocation plans and in their implementation through membership of water advisory committees subsequent to the declaration of plans.

It is recognised, however, that much work needs to be done to improve processes for appropriate inclusion and consultation with Indigenous stakeholders. Often, this requires engagement of external consultants and facilitators who are both expert in this field and accepted and trusted by stakeholders. Always, Indigenous consultation is a lengthy, often iterative process for which timetabling is difficult.

Indigenous ownership of water allocation plans is essential: Indigenous Australians make up a significant proportion of the territory population; there is a need to recognise traditional values and knowledge held; and planning should seek to encourage Indigenous community development and wellbeing by preserving cultural values in water and offering sustainable water resource development opportunities.

The Northern Territory's Ti Tree Water Plan was developed with little input from regional Indigenous interests, despite continuous efforts to bring representatives to the Water Advisory Committee that directed the plan's preparation. As a consequence, this water plan has been criticised for falling short in representing Indigenous interests. Independent research work, supported by the plan is, however, nearing completion to identify Indigenous values and rights in regional water resources; and is intended to be incorporated into the first five-year review of the plan later in 2007. It is also of interest to note, in response to sustainable development opportunity identified in the water plan, that recently concluded native title negotiations will see one of three new irrigation blocks being held by local Indigenous interests.

- Queensland provides for Indigenous interests through providing environmental flows. Although no additional zIndigenous cultural requirements have been identified with needs greater than environmental flows, these additional needs are able to be accommodated through the ROPs element of water planning.
- A statewide Aboriginal Advisory Committee has been established in South Australia. The committee provides advice to the NRM council on mechanisms for Aboriginal engagement by NRM boards. NRM boards have established Indigenous focus groups. Examples of activities underway include a programme to protect water holes and maintain cultural integrity of sites.
- Western Australia considers social and cultural values, including Indigenous interests, in determining Environmental Water Provisions. Aboriginal cultural value surveys to identify Indigenous water interests for water allocation planning purposes have been carried out in several areas of Western Australia including the Gnangara Mound, Collie, Busselton-Bunbury-Blackwood Groundwater Areas, Pilbara and Kimberley regions. The South West Regional Water Plan, the first in a series of nine regional plans, has engaged the Indigenous community in the water planning process to inform, invite participation, identify water issues of importance and to identify Indigenous people willing to represent country and people on a South West Indigenous Water Group.

3.1.2.8 Interception

Interception of surface water and/or groundwater has been included as part of the NWI commitments to ensure that potential risk to the future integrity of water access entitlements and ability to realise the environmental objectives for water systems is addressed. Increasing afforestation, increasing groundwater extraction and increasing numbers of farm dams impose a significant threat to both current catchment water plans and potentially to future water availability. States are required to have taken into account significant interception activities in water systems that are fully allocated, overallocated or approaching full allocation by 2011.

Depending on particular prevailing circumstances, all states have commenced work to incorporate interception into their water allocation planning regimes in varying ways and with varying degrees of progress. For example, South Australia has legislative provisions for managing interception of water by plantation forestry (see box on next page). Significant attention has been given by Queensland to better measuring interception of overland flows and bringing this into the water access entitlement regime.

Relevance to the NWI

As noted previously the priority dictated by a 2011 delivery date suggests that interception is seen as a second step issue. Nevertheless its inclusion in the NWI acknowledges the importance of the secure water access entitlement and planning regime established by the NWI not being undermined by unknown, unaccounted for or unlicensed interception activities. In this regard it will be essential that states work collectively to overcome the many challenges identified in this assessment report.

Community views

The National Farmers' Federation notes that in some states, community consultation on the development of policies in relation to interception has been lacking and suggests this serves to disenfranchise affected stakeholders and reduce their willingness to contribute to the eventual outcomes.

MIL has no confidence in the current planning framework in New South Wales to evaluate and address reductions in overland flow harvesting. MIL notes that the close scrutiny of water resources and river flows in the current year of drought has highlighted record high river transmission losses and raises questions about where the water is going. They stress the importance of New South Wales working towards a July 2007 timetable to clearly define surface water interception as an extraction category.

The plantation forestry industry calls on the Commission to provide greater rigour and national consistency to the implementation of the NWI interception clauses.

Comment

While work is underway in all states to address specific instances of interception, there is some uncertainty as to how to approach the requirements of the NWI clauses 55–57. The current jurisdictional responses to interception are variable and patchy and even where there is legislation, compliance does not appear to be adequate, and policing very sporadic.

A Commission-sponsored review of current practices in managing interception (forthcoming) identifies a number of

Managing the impacts of commercial forestry on regional water resources in lower south-east South Australia

In 2000, the plantation forest estate in the lower south-east of South Australia was approximately 100 000 hectares. Around this time, planning approvals for commercial forestry in the lower south-east indicated a significant shift from an annual rate of forest expansion of about one to two per cent per year, with a proposed expansion of the forest estate of 35 000 hectares (or 35 per cent) over two years. While this level of expansion was allowed for in the water budget, it was observed that water resource management arrangements did not adequately address the impacts of significant land use change on water resources that were fully allocated, or approaching full allocation.

The accountable and transparent management system introduced by the South Australian Government in June 2004 to deal with this significant land use change is one example of a system that is currently in operation to deal with the indirect impacts of interception from commercial forestry activities.

Key features of the system, which tackles the input side of the water budget rather than the extraction side and distinguishes between commercial forestry and farm forestry, include:

- prescribing commercial forestry in the lower south-east as a *water affecting activity* requiring a permit under the *Natural Resources Management Act 2004*
- managing the permit system concurrently with local government development approvals for land use change to commercial forestry where development applications need to be referred to the minister responsible for the administration of the *Natural Resources Management Act 2004* for direction
- dedicating a minimum area of commercial forest expansion within each water resources management area, calculated to ensure that the impact of that development on recharge to the groundwater system does not affect existing water users, whilst securing sustainable management of the water resource
- providing for a commercial forest expansion, to an overall threshold of 59 000 hectares, or to the maximum area in water resources management areas set aside for forest development, without the need to secure water allocations to offset the impact of expansion
- allowing expansion beyond the threshold on the basis of a proponent securing and quarantining an appropriate water allocation equivalent to the recharge impact of the forest development through purchase or leasing of existing allocation that cannot be further transferred once used as an offset water allocation.

The current management system does not take account of direct extraction by plantation forest from shallow water tables which has since been identified by a CSIRO technical investigation.

Inclusion of a management system for the direct extraction impacts of plantations is proposed for the next regional water allocation plan which is in preparation.

challenges facing jurisdictions in implementing interception policies. The review suggests that data and information at the catchment level is not available to quantify adequately the impact of interception on run-off into rivers or deep drainage to groundwater. In order to monitor key water balance elements and enable interception to be specifically accounted for, measurement technologies that provide more accurate data into the models and tools used by catchment planners to determine water availability and allocations are required.

Issues raised by industry groups in the Commission-sponsored review relate to a lack of knowledge about sources of interception, not specified in the NWI, such as interception of return irrigation flows, conversion from livestock to cropping and regrowth of managed forests. While accepting these factors as potential runoff and recharge interceptors, it is noted that the land use change activities listed in the NWI are there on the basis of their potential to intercept significant volumes of water.

This suggests that substantive work will be required to develop and implement regionally applicable interception policies that are manageable and acceptable to community and industry groups.

The Commission believes that if the commitments in the NWI regarding interception are to be met, transparent methodologies have to be developed that quantify and apportion the impact of current and future land use change on water availability. There will also have to be an emphasis on ensuring that these methodologies are developed in collaboration with major industry and environmental groups and that they are explained and promoted to catchment planners and managers. In the Commission's view there are benefits in ensuring that approaches taken to incorporate interception into water access entitlement and planning regimes are nationally consistent.

3.1.3 Conclusions—water access entitlement and planning framework

Almost all states have made good progress in implementing NWI-consistent water access entitlement and planning frameworks, although all are at different stages of implementing this framework on the ground.

Likewise, almost all states have made statutory provision for water to meet environmental and public benefit outcomes within water plans.

Nevertheless, this assessment found that some factors are reducing water user and stakeholder confidence in water access entitlements and in the security of water provided for the environment. These factors relate to those areas where further progress is required in implementing the NWI.

Important among these is addressing existing overallocation of water resources. The NWI treats addressing overallocation as a first step which is fundamental to the long-term sustainability of the resource base and investment certainty for consumptive users.

Debate continues about sustainable levels of extraction from water resources and, by extension, the meaning of 'overallocation'. Despite its clear and agreed place in the NWI, the Commission has found that there is now no shared national understanding of what is meant by overallocation. However, all states indicate that some of their surface water and groundwater systems continue to be considered as (depending on the terminology they use) under stress, potentially under stress, at risk, requiring water beyond the basic ecological needs, or overallocated.

Good, although in some states slow, progress has been made in specifying NWI-consistent water access entitlements for high priority water resources. Effort needs to continue to develop water plans that enable existing water licences to be replaced with water access entitlements that have the characteristics set out in the NWI (secure, perpetual/ongoing, mortgageable, tradable, etcetera).

The extended drought has placed significant pressure on governments' water allocation arrangements (especially seasonal allocations in regulated surface water systems, and groundwater allocations). In some cases, this has contributed to an erosion of confidence in the water access entitlement arrangements. It has also highlighted the important role that effective water measurement and accounting, and effective compliance regimes play in implementing the NWI.

Effective water planning is fundamental to the NWI. All states have started, and in some cases substantially completed, water planning processes that aim to meet the NWI timelines (which stretch out to 2009).

Despite most states indicating that they are on track with NWI timing for water plans, progress in rolling out plans consistent with the NWI continues to be a challenge for governments. The slow and in some cases inadequate delivery of water plans is a potential threat to achieving NWI outcomes on a statewide and national scale.

This assessment found clear examples of improved planning practices across all states. At the same time, the quality and adequacy of science underpinning water plans remains an

ongoing concern of the Commission. This is especially true of understanding relationships between water and the environment. As states develop new plans and review existing plans, effort will need to continue to be directed at ensuring that the best available science and information is made available to enable planning decisions. This will also mean taking the initiative to obtain new knowledge before plans are developed/reviewed.

Climate change presents significant challenges for water planning and management, and reinforces the need to ensure the highest quality information underpins the development and review of plans.

So far there has been limited recognition in water plans of the connectivity between surface water and groundwater resources. States have arrangements in place to manage groundwater, although it does not yet amount to sophisticated, integrated management. This is largely due to the complexity of the hydrology and a lack of knowledge of linkages and impacts. Significantly more effort needs to go into building knowledge of groundwater resources and the capacity to manage them.

Likewise, substantive work will be required to develop a better understanding of the impact of activities which intercept water, and implement more sophisticated policies to address interception—as required by the NWI. Despite significant interception activities being very different in different parts of Australia (e.g. plantation forestry, floodplain harvesting, farm dams), the Commission considers that there are benefits in nationally-consistent approaches to bring interception activities into water access entitlement and planning regimes.

3.2 Water markets and trading

Water trading has long been a centrepiece of national water reform. The potential benefits of water trading have been recognised in Australia for the last two decades. Temporary trade has been occurring in the regulated rivers in New South Wales since the early 1980s and permanent trade commenced in the southern MDB from mid-1975. Victoria has had permanent trade since 1991 and since then has seen intrastate trade of 140 GL leaving irrigation areas and 110 GL within areas. The 1994 COAG Water Reform Framework required the separation of water rights from land, a necessary first step to expand trade in water and sought the opening up of trading arrangements including interstate trading. The geographically limited MDB interstate trade pilot commenced in 1998 and led to 20 GL of permanent net trade to South Australia.

COAG agreed in the NWI to an expansion of permanent trade in water bringing about more profitable use of water and more cost effective and flexible recovery of water to achieve environmental outcomes. This was primarily to promote an expansion of the area of coverage and the volume of interstate permanent trade and to overcome the barriers facing some forms of water trade.

3.2.1 Objectives and outcomes

Objective

The actions under the water markets and trading element of the NWI have the objective of achieving progressive removal of barriers to trade in water and meeting other requirements to facilitate the broadening and deepening of the water market, with an open trading market to be in place.

Outcomes

The expected outcomes from implementing water markets and trading are to:

- facilitate the operation of efficient water markets and the opportunities for trading, within and between states, where water systems are physically shared or hydrologic connections and water supply considerations will permit water trading
- minimise transaction costs on water trades, including through good information flows in the market and compatible entitlement, registry, regulatory and other arrangements across states
- enable the appropriate mix of water products to develop, based on access entitlements which can be traded either in whole or in part, and either temporarily or permanently, or through lease arrangements or other trading options that may evolve over time
- recognise and protect the needs of the environment, and
- provide appropriate protection of third-party interests.

The degree to which these outcomes are achieved depends on how successfully the water access entitlement and planning framework discussed in section 3.1 is implemented.

Relevance to the NWI

NWI action on water markets and trading is grouped in four inter-related parts:

1. Ensuring that there are compatible, publicly-accessible and reliable registers of all water access entitlements and trade,

based on principles specified in an attached schedule (clause 59). Compatibility of registers is important in the direct sense as an essential requirement for physical interstate trade, in particular to ensure market confidence and minimise transaction costs. Compatibility is also important in a wider sense to provide more confidence for those investing in the water industry. As well as providing the statutory basis for ownership and trade in water access entitlements, registers are required to enable resource managers to monitor and accumulate trade and water use volumes accrued in water accounting systems. As such, action on registers also has close links to the Water Resource Accounting elements of the NWI.

2. General commitments applicable to all states to ensure that there are compatible, institutional and regulatory arrangements in place to facilitate trade and to manage differences in reliability, supply losses, source constraints and trade between systems. The commitments cover trading rules, transfer between systems and zones, pricing policies, removal of barriers to trade and rationalisation of inefficient infrastructure (clauses 60 and 62).

3. Undertaking studies that will assist states with implementing their water markets and provide a basis for their future development. It was intended that states would look at the outcome of these studies and consider implementation of any recommendations. While four studies were proposed (clauses 61 and 63 iv)), states subsequently agreed (in the context of the COAG Water Trading Group), that the objectives of the four studies could be covered by two studies, one undertaken by PricewaterhouseCoopers (PWC) and the other by the Productivity Commission (refer Appendix 1 for hyperlinks).

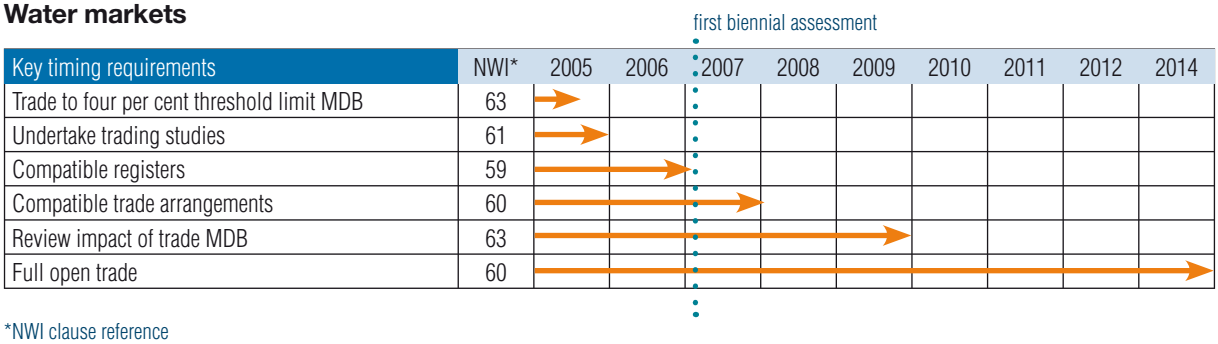
4. Specific commitments applicable to the southern MDB states (New South Wales, Victoria and South Australia together with the Commonwealth). These were specifically designed to overcome the known difficulties in expanding permanent interstate trade in the southern MDB and recognise the need to act in a collective, cooperative manner. The main commitments cover arrangements, including legislation, to enable transfers across states using exchange rates and/or tagging and expanding permanent trade to an interim threshold limit of four per cent of the total water access entitlement per annum. The threshold limit was introduced to allow trade to expand in a controlled manner and provide time to allow communities to adjust. Commitments are also made to review implementation progress, take any necessary further action and to monitor the impacts of trade so the threshold limit could be adjusted if appropriate, leading up to the commitment (60 (iv) (b)) to move to full and open trade by 2014.

Timelines

Recognising the differing circumstances of states resulting from implementation of trade since 1994 and allowing for the perceived complexities of broadening trade, the NWI set a number of key timelines that would allow the benefits of opening up trade to be realised in a manner congruent with implementation of other key elements of the NWI. Key timelines are:

- General
  - removal of barriers to temporary trade and permanent trade to a threshold limit of four per cent—immediate
  - undertake agreed supporting studies—by June 2005
  - compatible water access entitlement registers—implementation by end of 2006
  - compatible arrangements to facilitate trade—established by end of 2007
  - move to full open trade—by 2014
- Southern MDB
  - administrative and legislative changes for interstate trade—by June 2005
  - permit open trade to interim four per cent threshold—by June 2005

Water markets



Key timing requirements	NWI*	2005	2006	2007	2008	2009	2010	2011	2012	2014
Trade to four per cent threshold limit MDB	63	→								
Undertake trading studies	61	→	→							
Compatible registers	59	→	→	→						
Compatible trade arrangements	60	→	→	→	→					
Review impact of trade MDB	63	→	→	→	→	→				
Full open trade	60	→	→	→	→	→	→	→	→	→

*NWI clause reference

Victoria's water register

The Victorian water register has been designed and built over the last two and a half years and will be in operation on 1 July 2007. The need to manage a reformed entitlement system has been a central driver for creating the new register. The traditional entitlements (water rights in districts and take-and-use licences on waterways) are being unbundled into three separate rights:

1. water shares, able to be held independently of land
2. delivery shares (in districts) or extraction shares (on waterways) and
3. water-use licences.

The water register holding water shares (together with mortgages and leases) will be recorded by the registrar. Other entitlements (such as allocations of water made each year, and water-use licences) will be recorded by the Office of Water or water authorities.

If water is to be put on a farm, several different entitlements are required, and the relationships between these and parcels of land must be tracked. The register will need to include work flows to process and keep audit trails of dealings—which in some cases may involve two different water authorities and the registrar.

The Victorian water register is a publicly available accounting system, which enables the volumes of water shares, water allocations, and so on to be added up and reconciled in light of seasonal determinations, usage, and trade. Statistics and reports can be generated, e.g. on usage levels, volumes and directions of trade, and prices paid, which will be important for resource management and for the water market. It will be the platform for carrying out bulk water accounting and eventually, whole-resource water accounting.

The water register will be publicly accessible either over a water authority counter or online. Key statistics will be available for free, and a copy of individual records for entitlements will be available on payment of a fee.

- review actions to open trade—in June 2005
- review outcome arising from opening to four per cent threshold—by end of 2007, and
- review impact of trade under four per cent threshold—by end of 2009.

3.2.2 Progress

3.2.2.1 Compatible registers

Significant effort has already been made to implement statutory registers to handle water access entitlements consistent with the NWI in New South Wales, Victoria, Queensland, South Australia and Tasmania. The focus of collective work under NRM Ministers (so far led by the Commission) has been to ensure that the registers set up by individual states will be compatible in the direct sense required for physical trade within and across state borders as well as in the wider sense required for investment confidence.

The essential characteristics for national compatibility were determined by a national working group and endorsed by NRM Ministers on 21 April 2006. States reviewed their existing registers and agreed to implement any changes necessary to ensure compatibility.

All registers of the states in the southern MDB, where trade across borders is physically possible, do not yet reflect the essential characteristics for national compatibility. However, this has not prevented interstate trade from occurring. The New South Wales register meets the compatibility characteristics, although a significant proportion of its water access entitlement volume is registered as single (bulk) irrigation corporation entitlements. The entitlements of the individual irrigators within these corporations have no statutory standing in their own right. It should be noted that the NWI does not require devolution of entitlements to individuals provided that the 'entitlements' held by the individuals have the level of security sought by the NWI and there is a clear pathway for trading their entitlement. Insofar as the registers of those individual entitlements within the bulk entitlement are not compatible with the main state register, there may be a question about the degree of security afforded to the individual entitlement holder and the openness of trading pathways.

Victoria will have a compliant compatible register when its unbundled water access entitlements are implemented on 1 July 2007. South Australia is working on ensuring compatibility and has a similar issue to New South Wales in relation to individual entitlements held as bulk entitlements by irrigation trusts. The NRM Ministers' NWI Committee, Working Group on Registers has held discussions with private irrigation entities to resolve issues relating to individual entitlements held on registers inside these entities. Private irrigation entities are also cooperating to develop more compatible registers. Queensland's Water Allocation Register records ownership information on water allocations similar to the way in which ownership details are recorded on the land registry. The Queensland register meets the compatibility characteristics of the NWI although it is noted that its linkage to water accounts is through manual means.

Of the other states, Tasmania is reviewing its register with a view to achieving compatibility by December 2007. Western Australia is currently undertaking an analysis of its current licensing system to ascertain development requirements. Western Australia is also actively participating in the national initiatives in relation to the compatible registers and water accounting systems.

Northern Territory has yet to commence establishment of a complying registry system pending its legislative review.

Why this is important to the NWI

A failure to provide publicly accessible, compatible, registers of water access entitlements, in particular in southern MDB states where water systems are physically shared, will hold back the opening up of water markets between states and add to the transaction costs of trade. It may also frustrate the improved water resource accounting which the NWI requires.

Community views

The Bondi Group, representing major private irrigation entities, expressed concern with the view put by the Australian Bankers Association that individual entitlement holders supplied from their bulk licences should have their entitlements entered onto a statutory register. They propose to develop a nationally compatible register for their members that meets the requirements of the NWI. The Water Industry Alliance notes that there are real problems, time delays and high transaction costs in operating the market due to, among other things, 'systems being unable to cope with work volumes'.

Comment

This is an area which has had significant input from states. Despite this effort, and compatible characteristics of registers in most areas, the ability of the individual southern MDB registers (state run and private irrigation entities) to interact in a relatively straightforward, smooth and timely manner when entitlements are bought and sold across irrigation area boundaries and state borders remains uncertain. Issues of entitlement security, coverage and interoperability are still to be resolved. The fact that significant changes are being made to the Victorian register and are planned for the South Australian register, and that changes are apparently being made by private irrigation entities, means that compatibility will need to be sought, and tested, over the coming year or so. Proposed changes to registers in Western Australia, Tasmania, and the Northern Territory further underscore the need to pursue this NWI commitment.

3.2.2.2 Compatible institutional and regulatory arrangements

Good progress has been made in all states in ensuring that they have the institutional, legislative and administrative arrangements in place that will facilitate trade in water entitlements. As indicated previously, trade is generally restricted to areas covered by water access planning and entitlements and as a result, a lack of progress on rolling out water plans limits the ability to trade in the water access entitlements created by the plans. It is noted that all of Victoria is covered by plans and in New South Wales trading is permitted in areas that are currently not covered by WSPs and are governed by the *Water Act 1912*.

Significant difficulties have been encountered by states seeking to expand permanent interstate trade due to issues of competitive neutrality—see section 3.2.2.4 on southern MDB trade.

Why this is important to the NWI

Compatible institutional, legislative regulatory and administrative arrangements in all states are essential to achieving an outcome that facilitates the operation of efficient water markets and opportunities for trading.

Community views

There is a general view expressed in submissions that the implementation of water trading has been slow, with limited progress. The New South Wales Irrigators' Council points to a lack of minimum trading standards and operating protocols as well as transaction and conveyancing inefficiencies for both temporary and permanent water

trade. The Business Council of Australia seeks agreement to national standards for water markets. The Water Industry Alliance considers that progress has been hampered by the lack of understanding of buyers and sellers and changing rules and procedures. Murrumbidgee Private Irrigators Inc describe as a 'debacle' the recent inability to have water that had been purchased on the market delivered and the suspension of the market.

Northern Victorian Irrigators Inc believes that even though barriers to trade are being removed, trade is causing more problems than any other issue. These problems are said to include social problems of water moving from and into areas, changes in management of the river, water held as a speculative investment and farmers being unable to compete on price with well resourced superannuation funds.

The Queensland Resources Council notes the slow implementation of the NWI in Queensland and urges acceleration of the pace, particularly regarding water resource planning and water trading.

Comment

There has been significant progress in the area of opening up water markets since commencement of the NWI. New South Wales, Victoria and South Australia have put in place arrangements to allow for permanent interstate trade of water access entitlements across the southern MDB and these states continue to take steps to remove remaining barriers that may affect potential trade. New legislation has come into effect in New South Wales and Victoria. Irrigation corporations and trusts in New South Wales and South Australia have lifted barriers on permanent trade out of their areas to the four per cent threshold required by the NWI. Victoria has lifted its two per cent limit to four per cent. Some rules restricting trade have been reviewed and modified where necessary. States have cooperated in trying to resolve remaining policy issues. A revised schedule to the MDB Agreement to allow permanent interstate trade in the MDB has been developed and agreed.

The water trading studies (paragraph 3.2.2.3) indicate that there are further actions that can be taken to ensure that the water market continues to be developed and open up opportunities for trading within and between states. The PWC report in particular notes:

> To the extent the market is not functioning as effectively as it might, this is more to do with frictions caused by certain rules and administrative requirements related to the processing and approval of trade, including at the interstate level but also within states.

States are continuing to take steps to remove remaining barriers that may affect potential trade.

3.2.2.3 Complete water trading studies

The water trading studies set out in the NWI were designed to complement existing knowledge on markets and where necessary provide a basis for future development.

Two major studies were undertaken on behalf of the NWI parties to meet the requirements of the NWI:

1. the *National Water Initiative trading study,* by PWC, involved developing an optimal design for an effective water market, having regard to lessons from other sectors and considering also the particular characteristics of the water sector, and
2. *Rural water use and the environment: the role of market mechanisms* by the Productivity Commission, examined the feasibility of establishing market mechanisms to encourage economic efficiency of rural water use, including managing environmental externalities.

The studies were completed in mid-2006 and a workplan drawn up by the COAG Water Trading Group to ensure that the key actions proposed by the report are addressed. This workplan was endorsed by NRM Ministers in November 2006 (references to studies and workplan at Appendix 1).

Why this is important to the NWI

These studies were designed to test the adequacy of NWI actions to achieve water trading, and further develop the efficient operation of markets and expand opportunities for trade.

Community views

No specific community views were offered on the studies.

Comment

The studies have been very useful in identifying areas where more can be done to further develop water markets. The PWC report in particular endorsed the NWI actions, if implemented, as a sound basis for achieving more effective water markets. It will be important to ensure that the recommendations of the report form part of the ongoing implementation of the NWI. In this regard, implementation of the workplan drawn up by the COAG Water Trading Group and agreed by NRM Ministers should also be reported upon in future Commission biennial assessments. The workplan was also used as a basis for the Commission's follow up NCP assessment of southern MDB trading matters in 2007.

Water markets and trading activity

Trade in Victoria

Water trading has been at record levels in Victoria this season. People have used trading to implement their decisions to continue irrigating or to manage the drought impact in other ways. While drought has been a major short-term driver, it has also influenced people's long-term planning, as they buy water to carry over into next season. Trading has also been affected by low commodity prices for some Mildura produce.

In northern Victoria, temporary trade has set records, with the price of water reaching $950 per megalitre (ML) on the Goulburn and $530 ML on the Murray, and Goulburn Murray Water reporting volumes of 330 GL to the end of April 2007, which is larger than any previous year, notwithstanding the low allocation in the Goulburn. In the First Mildura Irrigation Trust, the trade volume was 11 GL, nearly twice last year's total. Trade allowed an orderly release of 7 GL from the Goulburn water quality reserve in response to representations from orchardists that additional water was necessary within the Goulburn market to allow finalisation of crops.

Permanent trade of water rights and licences also set records, with trade out of Goulburn and Campaspe reaching the 4 per cent district limit in all districts but Shepparton (which itself has reached 3.5 per cent), in the first season after the increase of the limit from 2 per cent to 4 per cent. About 35 per cent of the permanent trade out of Goulburn went to South Australia. For First Mildura Irrigation Trust, trade out was higher than last year, reaching 1.9 per cent of entitlements. Permanent trade prices exceeded $2000 ML, allowing a significant cash injection or reasonable exit for people whose businesses were badly affected by drought.

In southern Victoria, in the Werribee Irrigation District 166 ML of water has been temporarily traded this season. Much of this was to supplement rights to recycled water. Thirty-six ML were traded in the Bacchus Marsh Irrigation District. There have been no permanent trades this season. Trade mechanisms were also used to distribute 12 GL of Blue Rock water held by Treasury to Gippsland Water and some power companies to mitigate the impact of the drought.

Permanent interstate trade

The following table shows volumes of permanent trade under the interstate water trade pilot (1998 to May 2006) between Victoria, New South Wales and South Australia, compared with permanent interstate trade from July 2006 to May 2007.

The volume of permanent water entitlement traded from Victoria to South Australia already this year (July 2006 to May 2007) is almost as much as the total traded from Victoria to South Australia during the entire Pilot Permanent Interstate Water Trade (1998—May 2006). There have been no permanent transfers out of New South Wales recorded after the end of the water trade pilot.

	Pilot permanent interstate water trade (1998–May 2006)	Permanent interstate water trade (July 2006–May 2007)
Total volume Victoria to South Australia	16 629 ML	15 492 ML
Total volume Victoria to New South Wales	4 876 ML	0 ML
Total volume New South Wales to South Australia	7 511 ML	0 ML
Total volume New South Wales to Victoria	345 ML	0 ML
Total volume South Australia to New South Wales	100 ML	0 ML
Total volume South Australia to Victoria	2 074 ML	0 ML

3.2.2.4 Facilitate trade within and between southern MDB states

Building on the actions to facilitate trade required in clause 60 (paragraph 3.2.2.2) the NWI provided a set of specific actions to overcome difficulties with expanding permanent interstate trade in the southern MDB. These actions recognised the situation within particular states and were designed as individual but corresponding actions for specific states which, when implemented, would bring about an expansion of permanent interstate trade.

In its *2005 NCP follow-up assessment of water reform progress* with southern MDB water trading, the Commission found that, despite considerable effort and progress made within individual states, there had not been corresponding steps taken across states that would allow open permanent interstate trade in the southern MDB. As at January 2006 water was unable to be traded permanently between all states as required by the NWI (by June 2005). Since that time further work has been undertaken that, as of January 2007, allows permanent interstate trade between and across New South Wales, Victoria and South Australia.

Major sticking points related to issues of competitive neutrality arising from the application of exit fees for water traded out of irrigation areas and resolving technical and administrative actions necessary to allow tagged trade[5]. The Australian Competition and Consumer Commission (ACCC) was requested by the Minister for Agriculture Fisheries and Forestry on behalf of the governments of the southern MDB to develop an inter-jurisdictional framework around the use and nature of access and exit fees. New South Wales, Victoria and South Australia have since agreed on an approach to exit, access and termination fees based on the ACCC recommendations.

Despite the complexities and difficulties that needed to be addressed, there are positive signs that interstate trade is expanding as a result of this significant effort. The volume of permanent water entitlement traded from Victoria to South Australia in less than a year since July 2006 is almost as much as the total traded from Victoria to South Australia during the almost eight years of the MDB interstate trading pilot and is more than seven times the average annual volume of trade achieved during the pilot.

Continued increases in levels of trade are expected as actions are taken to address remaining barriers to trade. One of these issues is the ban on permanent trades out of MIL. This restriction was put in place in October 2006 to protect its capacity to deliver remaining seasonal allocation to its users, in a period of extreme dry conditions. Under the 2005 amendments to the *Water Management Act 2000*, New South Wales is able to compel irrigation corporations to continue to allow for permanent trade out of an irrigation district up to the four per cent annual threshold, through the application of financial penalties. New South Wales has not taken steps to formally penalise MIL. New South Wales report, however, that discussions have been held with MIL on this issue in which New South Wales has made it clear that trading will have to resume as soon as possible. New South Wales has advised that MIL will lift its trade restrictions as soon as it can supply its high priority users.

The Commission has commenced the development of a framework to monitor the impacts of interstate trade as required by the NWI clause 63 (iv).

Why this is important to the NWI

Achieving these actions is critical to the expected outcome to facilitate the operation of efficient water markets and the opportunities for trading, within and between states, where water systems are physically shared or hydrologic connections and water supply considerations will permit water trading.

Community views

Views summarised under 3.2.2.2 above are also relevant here and not repeated.

Comment

The agreement of New South Wales, Victoria and South Australia on an approach to exit, access and termination fees and agreements by the states and irrigation corporations to expand permanent interstate trade on 1 January 2007 have introduced additional steps that require ongoing development and monitoring to ensure that they remain in place and continue to enable low cost permanent interstate trade. The expansion of trade in a competitively neutral environment will depend on other parts of the NWI continuing to be implemented. In particular, the provision of a compatible register system across the MDB and the development and implementation of water accounting reporting standards, will be critical to the extent to which the market will develop. Remaining barriers to trade, such as the ban on permanent trades out of MIL, need to be actively monitored and removed as soon as possible.

5 Water tagging allows a traded water access entitlement to retain its original characteristics when traded to a new jurisdiction or trading zone.

3.2.3 Conclusions—water markets and trading

Good progress has been made by all states to ensure that they have the institutional, legislative and administrative arrangements to enable trade in water. New South Wales, Victoria and South Australia have taken steps to put in place arrangements to allow for permanent interstate trade of water access entitlements across the southern MDB and states continue to take steps to remove remaining barriers that may affect potential trade.

Significant effort has already been made to implement statutory registers to handle water access entitlements consistent with the NWI in New South Wales, Victoria, Queensland, South Australia and Tasmania.

Registers of the states in the southern MDB (where trade across borders is physically possible), are not yet compatible. There are also concerns about time delays and high transaction costs of operating in the market. The ability of the individual southern MDB registers (both state run and those of private irrigation entities) to interact in a relatively simple, smooth and timely manner when entitlements are bought and sold across irrigation area boundaries and state borders is still being established. Changes are being made to, and planned for, entitlement registers in many states over the coming year or so. Therefore compatibility will need to be sought, and tested, as this occurs.

Coming out of the 2006 water trading study (which endorsed the NWI actions, if implemented, as a sound basis for achieving effective water markets), NRM Ministers have agreed to a workplan to help ensure the ongoing implementation of NWI actions.

This assessment has found that water trading, within and between states, has been very effective in managing water in current difficult circumstances. Water trading within Victoria and in Tasmania has been at record levels in the 2006-07 season. There are also positive signs that interstate trade in the southern MDB is opening up as a result of the significant effort of states. The volume of permanent water entitlement traded from Victoria to South Australia in less than a year since July 2006 is almost as much as the total traded from Victoria to South Australia during the almost eight years of the MDB interstate trading pilot. Nevertheless, remaining barriers to trade, such as the ban on permanent trades out of MIL, need to be actively monitored and removed as soon as possible.

3.3 Best practice pricing

3.3.1 Objectives and outcomes

Objectives

No specific objectives were specified for best practice pricing in the NWI although it is fundamental to achieving the overall objective of the NWI to achieve a nationally compatible market, regulatory and planning based system of managing surface water and groundwater resources for rural and urban use.

Outcomes

The expected outcomes from the implementation of the water pricing actions of the NWI is for states to have water pricing and institutional arrangements, that:

- promote economically efficient and sustainable use of water resources, water infrastructure assets and government resources devoted to the management of water
- ensure sufficient revenue streams to allow efficient delivery of the required services
- facilitate the efficient functioning of water markets, including inter-jurisdictional water markets, and in both rural and urban settings
- give effect to the principles of user-pays and achieve pricing transparency in respect of water storage and delivery in irrigation systems and cost recovery for water planning and management
- avoid perverse or unintended pricing outcomes, and
- provide appropriate mechanisms for the release of unallocated water.

Water pricing

first biennial assessment

Key timing requirements	NWI*	2005	2006	2007	2008	2009	2010	2011	2012	2014
Complete 1994 commitments	65									
Nationally consistent reporting	76	→								
Recycled, stormwater, trade waste policies guidelines for national accounts	66	→	→							
Costs for water management and planning	67	→	→							
Move to upper bound for metropolitan	66	→	→		→					

*NWI clause reference

Relevance to the NWI

The best practice pricing element of the NWI is presented in six related parts:

1. Pricing policies for water storage and delivery include consumption-based pricing and full cost recovery and a commitment to consistent approaches across all sectors where entitlements are able to be traded, in rural and urban systems. The implementation of these policies are intended to facilitate efficient water use and trade in water access entitlements.
2. Consistent approaches to pricing and attribution of costs for water planning and management. This ensures that the costs of planning for managing water resources are properly recovered from water users.
3. Investment in new or refurbished infrastructure is assessed as economically viable and environmentally sustainable. This seeks to ensure that water will continue to be allocated and used to achieve socially and economically beneficial outcomes in a manner that is environmentally sustainable.
4. Managing the release of unallocated water so that it encourages the sustainable and efficient use of scarce water resources. Market based instruments are to be used where practicable.
5. Management of environmental externalities through regulatory and market-based means to encourage decisions about water development and use that fully take into account environmental impacts.
6. Institutional arrangements including separation of policy, regulation and service delivery functions, benchmarking and reporting on the performance of the water industry and provision of independent pricing regulation. To improve accountability arrangements as a means to help ensure the water industry functions in a way that is economically efficient and environmentally sustainable.

Timelines

The key timelines for best practice water pricing and institutional arrangements are:

- immediate completion of the water supply and storage pricing commitments made under the 1994 COAG Water Reform Framework
- development of a nationally-consistent reporting framework for the performance of water delivery agencies by 2005
- development of pricing policies for recycled water, stormwater and trade wastes together with national guidelines for water accounts by the end of 2006
- consistent approaches to attributing costs of water management and planning by the end of 2006, and
- continued movement towards upper-bound pricing for metropolitan water providers by the end of 2008.

3.3.2 Progress

3.3.2.1 Pricing policies for water storage and delivery in rural and urban systems

All states have made good progress in implementing the various aspects of NWI commitments relating to water storage and delivery pricing, although they are at different stages of implementation depending on their individual circumstances.

The first action relating to water storage and delivery pricing is to complete commitments under the 1994 COAG Water Reform Framework. This includes commitments related to consumption-based pricing and full-cost recovery for urban and rural water storage and delivery.

All states have completed their commitments under the 1994 COAG Water Reform Framework. In particular, all states have demonstrated that consumption-based pricing has been achieved in both rural and urban systems. Where it has not, as is the case for some retail urban water providers in Tasmania, it has been demonstrated that the introduction of consumption-based pricing was not cost effective.

The second action relating to water storage and delivery pricing is to demonstrate that full cost recovery has been achieved in both rural and urban systems. In the case of metropolitan water storage and delivery, it is primarily to demonstrate achievement of lower-bound pricing and continued movement towards upper-bound pricing. In the case of rural and regional water storage and delivery it is to demonstrate achievement of lower-bound pricing and continued movement towards upper-bound pricing where practicable. For both rural and urban systems, states are required to bring into effect pricing policies for water storage and delivery that facilitate consistency in pricing across states.

With the exception of the Northern Territory, where a path towards upper-bound pricing is not yet in place, states have demonstrated that they have achieved lower-bound pricing and are on a path towards the upper bound for metropolitan water storage and delivery. In Queensland, price paths for bulk water supply and

distribution in south-east Queensland are still being developed (see box on opposite page).

Victoria has demonstrated that both rural and regional water providers have achieved lower-bound pricing and are moving towards upper-bound pricing where practicable. New South Wales has demonstrated that its bulk water provider, State Water, has achieved lower-bound pricing and is moving towards the upper bound. However, it is not clear that all New South Wales' regional water providers (water utilities) and privately owned irrigation entities are achieving full cost recovery. For other states, there is still work to do to demonstrate that lower-bound pricing is being achieved, and that rural and regional water providers are moving towards upper-bound pricing where practicable.

The Steering Group on Water Charges (SGWC), which reports to the NRM Ministers' NWI Committee is progressing implementation of various parts of the best practice pricing element of the NWI. The SGWC is chaired by the Commission and consists of representatives of the NWI parties (state governments and the Australian Government) and economic regulators.

The development of consistent approaches to pricing is also being progressed through work being undertaken by the SGWC. Through this group, a major stocktake of approaches to setting charges was completed and released in March 2007 (reference at Appendix 1). Based on this work, principles for consistent approaches are being developed. It is expected that these principles will be provided to the November 2007 NRM Ministers' meeting.

Work on developing pricing policies for recycled water and stormwater is being undertaken through individual state government agencies and economic regulators and nationally by the intergovernmental SGWC.

Victoria, New South Wales and the Australian Capital Territory are in the process of developing, or already have in place, pricing policies for recycled water and stormwater. SGWC is developing nationally-consistent pricing principles for recycled water and stormwater which will go to NRM Ministers in November 2007. These principles are expected to guide states in the development of pricing policies consistent with NWI objectives.

Review and development of pricing policies for trade wastes has been completed in South Australia and is well underway in New South Wales and Victoria. Review and development of pricing policies in other states is delayed beyond the December 2006 completion date required by the NWI.

With Australian Government assistance, states have collectively met the NWI requirement to develop guidelines for customers' water accounts. Further work is needed to encourage uptake of the guidelines by water utilities. To assist in this, a national project is being undertaken to investigate the benefits of improved billing practices to water utilities.

Why this is important to the NWI

The various NWI actions relating to water storage and delivery pricing are fundamental to promoting economically viable and ecologically sustainable use of water resources and water infrastructure assets. This is intended to ensure sufficient revenue streams to allow efficient delivery of the required water services, facilitate the efficient functioning of water markets and avoid perverse or unintended pricing outcomes.

Community views

A number of submissions were received relating to pricing policies for water storage and delivery in rural and urban systems.

In relation to cost recovery in urban systems, the Water Services Association of Australia (WSAA) noted that while good progress has been made with movement to upper-bound pricing in metropolitan centres, regional centres still have a way to go before they reach the upper bound.

With regard to cost recovery in rural systems WSAA states that it is essential that rural water providers move towards full cost recovery as soon as possible, and that distortions in water markets could occur if this does not happen. The New South Wales Irrigators' Council has concerns with the application of user-pays charges and strongly opposes upper-bound pricing in rural areas. Murrumbidgee Private Irrigators Incorporated, the New South Wales Farmers' Association and the Pastoralists and Grazier's Association also oppose upper-bound pricing in rural areas. Murrumbidgee Private Irrigators Incorporated believes that funds raised through payment of a rate of return to the New South Wales Government are not being used to keep rural water assets up to date and are being absorbed in consolidated revenue. South Australian MP, Liz Penfold, states that the 'augmentation fee' being imposed on communities by SA Water is not being used for investment in future assets.

New South Wales Irrigators' Council believe that the business practices of government agencies and water authorities must be subject to competition and contestability in moving towards full cost recovery and upper-bound pricing. This view is supported by Murrumbidgee Private Irrigators Incorporated and the New South Wales Farmers' Association.

Pricing arrangements for urban water supply in south-east Queensland

New institutional and pricing arrangements are under consideration by the Queensland Government for water supplied from the south-east Queensland water grid.

South-east Queensland is currently undertaking a significant expansion of water infrastructure to respond to the worst drought on record for the region. This involves bringing forward projects previously intended for development over a much longer timeframe.

To ease the price impact of the new infrastructure on south-east Queensland water consumers, which are mostly domestic households, the Queensland Government has announced the following measures:

- transitional price paths of up to 10 years, and
- a lower rate of return on new water grid assets, i.e. a weighted average cost of capital of four per cent (real pre-tax), reflecting the government's average long-term cost of debt, rather than a fully commercial rate, which comparatively could be in the vicinity of seven per cent.

A lower rate of return, and longer transitionary price paths, are likely to extend the timeframe for achieving full cost recovery as required under the NWI. Further, a rate of return below the Weighted Average Cost of Capital is inconsistent with the NWI principle of upper-bound pricing. In addition, it is unclear where the end point for the transitional price path will be in relation to full cost recovery pricing levels (upper bound).

Pricing arrangements for recycled water in urban New South Wales

The Independent Pricing and Regulatory Tribunal (IPART) has issued guidelines for pricing recycled water that water utilities must follow when calculating prices for recycled water. Compliance with the guidelines is monitored by IPART. IPART has issued guidelines, rather than setting discrete prices for each recycled scheme. This is in recognition of the project-specific nature of recycled water costs and the relatively limited experience with recycled water schemes in Australia (which means that until a larger number of schemes have been built, there will be insufficient information on costs and demand for recycled water to allow pricing regulators to set prices).

The recycled water pricing guidelines developed by IPART provide that:

1. as a general rule, the costs of recycled water schemes should be recovered from the users of the scheme
2. prices should be set to reflect costs on a scheme-by-scheme basis
3. where a recycled water scheme results in costs being avoided or deferred elsewhere in water and sewerage systems, the value of these avoided or deferred costs can be recovered from water and sewerage customers
4. recycled water prices are to include a usage component which is not to exceed the costs of potable water without IPART's approval being obtained, and
5. if a recycled water scheme is to be topped up with potable water by more than 10 per cent of the volume used, prices are to be linked to the potable water price. Where topping up with potable water is expected to exceed 20 per cent, the recycled water price is to be set equal to the potable water price.

For recycled water schemes not 'mandated' by urban planning or other regulatory instruments, IPART has recommended that prices will best be determined by direct negotiation between the water utility and the potential recycled water user. This approach recognises that, in these instances, customers choose whether they use the recycled water or not, and access to potable water creates a price ceiling or 'backstop' price for consumers, and, hence, provides a level of consumer protection.

Consumer and local government groups have expressed concerns about the impact of full cost recovery pricing on low income households. For example, the Western Sydney Regional Organisation of Councils states that all Australians should have access to water regardless of economic status. This view is supported by the Public Interest Advocacy Centre. The Consumer Action Law Centre advocates an arrangement that allows for 'social tariffs' to assist consumers suffering from affordability problems.

A submission from Alinta on recycled water pricing expresses concern that the cost of water from the next major tranches of sustainable supply will exceed current potable water prices and will not encourage reduced consumption of potable water. They want pricing reforms agreed to under the NWI to proceed quickly and without the need for subsidies. However, the Western Sydney Regional Organisation of Councils advocates a clear price differential being maintained between recycled and potable water supply, with councils being given discounts for using recycled water for public-good services.

With regard to consistency in pricing policies, the New South Wales Irrigators' Council states that there is 'little evidence that states are moving to consistent pricing policies'. They also have concerns regarding transparency of bulk water pricing decisions by the IPART. These concerns regarding transparency of pricing decisions were also held by Engineers Australia, Murrumbidgee Private Irrigators Incorporated and Liz Penfold, MP.

Comment

All states were required to demonstrate compliance with COAG 1994 reform objectives through the 2005 NCP Assessment undertaken by the Commission. The focus in that assessment was on compliance by state-government-owned water utilities.

There appears to be a misconception in the community about the inclusion and subsequent use of funds collected from a rate of return component in 'full cost recovery'. The 1994 COAG reform cost recovery structure is quite clear about the need for governments to raise a return on capital invested. There is no requirement, and nor should there be, for funds raised through a rate of return to be redirected to the area it was collected from. A rate of return is a return to government on the funds previously invested in the water industry.

The development of principles for achieving consistency in charging approaches across states may mean a change in approaches to calculating the components of full cost recovery, as well as a change in the way these charges are passed on to water users. These changes may take time for states to implement.

The fact that Victoria is the only jurisdiction which has demonstrated that both rural and regional water providers have achieved lower-bound pricing, and are on a path towards the upper bound, indicates a lack of progress by states in meeting this commitment, or at least a lack of transparency in the pricing practices of private irrigation entities and local government water providers.

3.3.2.2 Consistent approaches to pricing and attribution of costs for water planning and management

States have made varying progress on this front, ranging from relatively well developed cost recovery arrangements in New South Wales, through emergent arrangements in Queensland, to much less developed policy positions in South Australia and Western Australia.

States are developing consistent approaches to pricing and attributing costs of water planning and management through the SGWC. Agreement on consistent approaches to pricing and attributing costs of water planning and management is delayed beyond the December 2006 finish date required by the NWI. It is anticipated that principles will be put to NRM Ministers in November 2007.

Queensland suspended the 1 January 2006 introduction of new water charges, intended to recover a portion of its water planning and management costs, noting the lack of a consistent national approach on water pricing and reintroduced previous water charges instead. More recently, Western Australia has advised that it will introduce a water licence administration fee as of 1 July 2007.

A number of states have also offered rural water users fee relief in the face of the impact of extended drought conditions.

Why this is important to the NWI

The development of consistent approaches to pricing and attributing costs of water planning and management is fundamental to promoting economically efficient and sustainable use of government resources devoted to management of water.

Community views

The Queensland Resources Council questions the faltering implementation of water planning and management charges in Queensland.

Comment

Cost recovery for water planning and management activities of governments still lags behind other NWI commitments in a number of states. There is little policy rationale for this. Such cost recovery not only brings a contribution to water planning and management activities from the water users who benefit most; it also should drive greater transparency in the costs, and efficiency, in the delivery of such activities. Fee relief during the current drought has been offered by a number of the states. This is reasonable so long as the subsidy is transparent and limited to the special circumstances for which it was initiated.

The Commission considers that water planning and management activities by governments can be identified and recovery of costs can commence prior to agreement on consistency across states.

3.3.2.3 Investment in new or refurbished infrastructure

All states have demonstrated that they have processes in place to undertake assessments of economic viability and ecological sustainability of investment in new or refurbished infrastructure prior to the investment occurring.

Why this is important to the NWI

Assessments of economic viability and ecological sustainability of investments are fundamental to promoting economically efficient and ecologically sustainable use of water resources and water infrastructure assets.

Community views

No specific community views were offered in this area.

Comment

While there are processes in place to undertake assessments of economic viability and ecological sustainability, it is important that states ensure that these processes are put into practice prior to works commencing. This commitment is all the more important as governments embark on significant investments in urban water infrastructure around Australia. It is also relevant to proposed rural infrastructure investments, including under the Australian Government's NPWS.

3.3.2.4 Managing the release of unallocated water

While Victoria and Queensland have policies in place that meet their NWI commitments in this area, other states still have further work to do.

New South Wales indicated in its NWI Implementation Plan that it would have a policy in place for release of unallocated water by December 2006. This policy is yet to be developed.

South Australia, while noting that there are few instances where there is unallocated water available, commenced development of a policy on the release of unallocated water in January 2007. This project is expected to be completed in 2008.

In most cases, Western Australia has not fully allocated its water resources and significant amounts of water are still available for allocation. Western Australia has completed a discussion paper on the reservation and release of unallocated water which reviews the first-in-first-served and merit selection approaches that are currently used in the state. The paper makes the recommendation to maintain the first-in-first-served approach in low allocation/low demand water management units and to use a market-based auction system in high allocation/high demand management units, where a threshold allocation level has been reached.

Both the Northern Territory and Australian Capital Territory have indicated through their NWI Implementation Plans that no action is necessary against this NWI commitment. In the Northern Territory, future water allocation plans will not include 'unallocated water'. In the Australian Capital Territory, unallocated water is not confined or stored and supplements are defined as environmental flows rather than 'unallocated water' available for use.

Why this is important to the NWI

The provision of appropriate mechanisms for the release of unallocated water is an expected specific outcome from implementing the NWI. This is also fundamental to promoting economically and ecologically sustainable use of water resources, water infrastructure assets and government resources devoted to management of water.

Community views

No specific community views were offered in this area.

Comment

The Commission considers that governments still need to work towards making unallocated water available using market mechanisms (for example auction or tender). Of course this will only be viable where water resources are scarce. Market mechanisms can be expected to lead to a more efficient allocation of water than non-market mechanisms.

3.3.2.5 Management of environmental externalities

All states take action to manage environmental externalities through a range of mechanisms. While New South Wales and the Australian Capital Territory have in place processes for managing environmental externalities through pricing, other states have further to go in developing pricing responses to help address externalities.

A number of states are independently examining processes for managing environmental externalities. For example, the Victorian Government is reviewing environmental contributions paid by water authorities, and Western Australia, Tasmania and the Northern Territory are reviewing relevant state water legislation.

Why this is important to the NWI

Management of environmental externalities is important in promoting economically and sustainable use of water resources and facilitating the efficient functioning of water markets. Failure to internalise the external effects of water use decisions may work counter to these and other NWI outcomes.

Community views

No specific community views were offered in this area.

Comment

The NWI acknowledges that governments will continue to use regulatory means to manage externalities (e.g. rules surrounding water use) as well as develop market-based approaches (such as externality charges). In some states, cost recovery for water planning and management is a proxy for externality pricing—noting that it is set on a very different basis to externality pricing.

A report prepared by the Productivity Commission for the COAG Water Trading Group on *Rural water use and the environment: the role of market mechanisms* (hyperlink reference at Appendix 1) examines the feasibility of establishing market mechanisms for dealing with environmental externalities. It is a useful input into investigations of regulatory measures to manage environmental externalities.

3.3.2.6 Institutional arrangements

The first action relating to institutional arrangements is to report independently, publicly, and on an annual basis, benchmarking of pricing and service quality for metropolitan, non-metropolitan and rural water delivery agencies. Such reports are to be made on the basis of a nationally-consistent framework to be developed by the parties by 2005.

Governments are collectively meeting their commitment to develop a nationally-consistent framework to facilitate reporting on the performance of metropolitan, non-metropolitan and rural water delivery agencies through the intergovernmental Benchmarking Roundtable Group. This group is chaired by the Commission and consists of representatives of the NWI parties (state governments and the Australian Government) and economic regulators. It reports to the NRM Ministers' NWI Committee.

A framework for reporting on performance of metropolitan, non-metropolitan and rural water delivery agencies was agreed by NRM Ministers at their November 2006 meeting. The first national report for benchmarking performance of metropolitan and non-metropolitan water delivery agencies using the agreed framework was released in May 2007. It is expected that the first national report for benchmarking performance of rural water delivery agencies will be released in early 2008.

The second action relating to institutional arrangements is that the parties agree to use independent bodies to set or review prices, or price setting processes, for water storage and delivery by government water service providers on a case-by-case basis. All states have established independent bodies, with varying roles and authority, for this purpose.

Why this is important to the NWI

Development of a framework for reporting on performance of metropolitan, non-metropolitan and rural water delivery agencies underpins the NWI outcome to achieve pricing transparency in respect of water storage and delivery. By providing performance comparisons over time and between water utilities, benchmarking also assists water delivery agencies to improve their performance. The greater transparency provided by benchmarking and by independent pricing bodies assists in meeting the NWI outcome to promote economically efficient and ecologically sustainable use of water resources, water infrastructure assets, and government resources devoted to the management of water.

Community views

Engineers Australia makes observations about the lack of progress in pricing under the NWI in general and considers that regulators use quasi-economic and at times impenetrable methods in their price recommendations or determinations.

Regulatory oversight of recycled water prices is supported by the Consumer Action Law Centre.

Comment

The extent to which states involve independent bodies in pricing processes differs across Australia. For example, in Victoria an independent regulator determines water charges for all water businesses; while in Queensland, water businesses set their own charges with the economic regulator providing oversight only in the instance where matters are referred by the Queensland Government. In South Australia, an independent pricing regulator reviews the price setting processes underpinning the state government's water pricing decisions.

The extent to which states involve independent bodies in pricing processes has a direct bearing on the extent to which transparency, rigour and consistency in pricing can be achieved.

Independent oversight of prices set by non-state owned water service providers would assist in achieving greater consistency in approaches to pricing across sectors and states (as required under the NWI) and would bring greater transparency and rigour to price setting processes.

The development of a framework for reporting on performance of metropolitan, non-metropolitan and rural water delivery agencies has been a collaborative effort between NWI parties. In the case of reports being produced on performance of metropolitan and non-metropolitan water delivery agencies this collaborative effort has also involved the peak industry body, WSAA.

The NWI requires compliance with water reform objectives by all entities, regardless of the nature of ownership. This includes privately owned water businesses. It is important that these privately owned businesses are included in the process of implementing water reform objectives, including reporting on performance under the national benchmarking framework. It is also important that relevant state government agencies provide privately owned water businesses and local government owned water utilities with the necessary directive to report (where their water use is large enough to be material). Assistance is being provided to smaller non-metropolitan and rural water delivery agencies through the Australian Government's Raising National Water Standards programme to assist them in developing the internal systems to facilitate performance reporting.

3.3.3 Conclusions—best practice pricing

States have made progress in implementing the various aspects of NWI commitments relating to water storage and delivery pricing. Methodologies for cost recovery are well-established. Levels of cost recovery are around the upper bound for almost all metropolitan water providers. Progress has also been made by some states (particularly New South Wales and Victoria) and nationally to develop pricing policies for recycled water and stormwater.

For rural and regional water supply, progress on cost recovery is mixed across states, with only Victoria able to demonstrate that its government-owned rural and regional water providers have achieved lower-bound pricing and are on a path towards the upper bound. The status of private irrigation entities and a multiplicity of local government water providers remains ambiguous in relation to the NWI commitments. The Commission considers that such providers should be subject to NWI principles to the extent that the amount of water they provide is material, and taking into account the amount of competition they face (e.g. with the operation of water markets between irrigation districts) and the corporate structure of the entity (e.g. the role of water users as shareholders in irrigation entities).

The first national performance monitoring report of major and non-major urban water utilities was released in May 2007, meeting the NWI commitment to make independent, public and annual reports on the performance of such utilities. A performance reporting framework for rural water utilities is being developed by governments in time to enable a first report to be provided in 2007–08.

Cost recovery for water planning and management still lags NWI commitments in a number of states (notably Queensland, with emergent arrangements, and South Australia and Western Australia with less developed policy positions). In periods of extended drought, there is a case for governments to provide some fee relief so long as it is transparent and time-limited. Nevertheless, clear arrangements for recovering costs of water planning and management are needed to ensure ongoing capacity for managing the resource.

While there is an overlap in some states between this cost recovery and charges for externalities, more work needs to be done nationally to tease out these charges and further explore the scope for market-based responses to externalities of water use.

Work on consistent approaches to pricing being undertaken by governments as a national action under the NWI has so far identified where greater consistency in pricing is needed.

The NWI pricing commitments are now even more important in the face of a significant wave of government investment in urban water supply augmentation, as well as rural investments proposed under the NPWS and by some states. The Commission considers that government contributions to urban water infrastructure should be managed to maximise NWI outcomes and minimise price distortions. For example, this may be achieved through conditions imposed to achieve NWI or other public good outcomes, or through time-limited assistance to infrastructure projects. The Commission is particularly concerned that pricing arrangements for urban water supply in south-east Queensland will not comply with NWI commitments made by the Queensland Government.

At the same time, the Commission considers that some of the major factors in achieving improved pricing outcomes derive from reforms outside of the NWI, including:

- stronger independent prices oversight in some states
- improved institutional arrangements for water services, especially addressing the lack of financial and technical resources available to small (typically local government) water providers
- institutional and market arrangements (especially in urban areas) that deliver competition and choice in water services and water products, and
- better means of responsive pricing to signal scarcity in urban areas, including smart metering of households, metering of medium and high density dwellings, and new approaches to urban tariff structures.

3.4 Integrated management of water for environmental and other public benefit outcomes

3.4.1 Objectives and outcomes

Objectives

This element of the NWI addresses the agreement's objective of making statutory provision for environmental and other public benefit outcomes and improving environmental management practices. It also contributes to those NWI objectives of recognising the connectivity between surface water and groundwater resources, managing connected systems as a single resource, and completing the return of overallocated/overused water systems to environmentally sustainable levels of extraction.

Outcomes

The expected outcomes from undertaking the agreed NWI actions are to have:

1. environmental and other public benefit outcomes for water systems identified with as much specificity as possible in water plans
2. management practices and institutional arrangements in place to achieve environmental outcomes
3. accountable environmental water managers established and equipped with necessary authority and resources to provide sufficient water at the right times and places to achieve identified outcomes, including across state/territory boundaries where relevant, and
4. cost-effective measures to provide water for environmental outcomes.

Relevance to the NWI

This element of the NWI includes two sets of commitments by governments:

- The characteristics of effective management and institutional arrangements. Ineffective, inefficient or non-existent environmental management arrangements will result in failure to achieve the health of river and groundwater systems over the medium to long term.
- Principles to follow in any recovery of water to achieve modified environmental outcomes. These principles are aimed at achieving the outcomes in the most cost effective way, but with an eye to managing socio-economic impacts.

This element of the NWI relies on how specific the environmental outcomes are identified in water plans, and how these outcomes are translated into rules governing water extraction, and into environmental water entitlements. Effective achievement of environmental outcomes also requires implementation of a number of NWI water resource accounting actions relating to registers, reporting and measurement. The principles around recovery of water for the environment are integral to addressing overallocation/overuse of water, and to meeting the community partnership and adjustment commitments in the NWI.

Timelines

The NWI agreement seeks immediate implementation of the agreed management and institutional arrangements, and ongoing application of the principles for water recovery.

3.4.2 Progress

3.4.2.1 Effective and efficient management and institutional arrangements

All states have management and institutional arrangements in place to achieve environmental outcomes. These vary—justifiably—depending on the broader nature of the water management regime in those states (e.g. regulated versus unregulated water systems; water sharing rules and environmental water entitlement; water system scale, level of risk to the resource, etcetera).

New institutional arrangements in New South Wales give responsibility for managing rules-based environmental water to the Department of Water and Energy, and delivery to the State Water Corporation, and responsibility for managing adaptive environmental water to the Department of Environment and Climate Change. The Department of Environment and Climate Change is the environmental manager responsible for management of water savings, water purchased and coordination of the catchment management authorities. New South Wales is also currently implementing a monitoring, evaluation and reporting strategy that should generate data to support adaptive management, and help evaluate progress towards the statewide natural resources targets. Progress towards these targets and towards achievement of outcomes specified in WSPs is independently assessed by the Natural Resources Commission.

In Victoria, nine regional catchment management authorities are responsible for preparing regional catchment strategies and undertaking the functions of integrated river management under the *Water Act 2000* including waterway, floodplain and regional drainage management and the management of the environmental water reserve. In the Greater Melbourne area, the same integrated river management function is provided by Melbourne Water. This arrangement integrates environmental water management with the other major river and catchment restoration activities ensuring a clear and unambiguous focus on river health outcomes. The activities of water authorities are governed by statements of obligations which, for the environment, aim to minimise the impact of their activities. Victoria has ongoing and systematic monitoring and reporting arrangements for river health using the index of stream condition. Victoria also reports and monitors river health through a range of activities including: Statewide Fish Monitoring

Programme, Regional Water Quality and Quantity Monitoring Partnerships and community monitoring programmes such as the Victorian Waterwatch Programme.

Queensland's arrangements for management of water to achieve environmental outcomes (environmental flow objectives) are built into each WRP—almost exclusively water is provided on the basis of rules for extraction. The rollout of these arrangements therefore depends on the rollout of WRPs.

South Australia has created the position of River Murray Environmental Manager (effective from 1 July 2007). That manager will be the key decision maker on delivery, allocation and management of River Murray environmental flows.

Western Australia is proposing to establish the function of environmental manager with the Minister for Water. Final arrangements will be subject to finalisation of the legislation establishing Western Australia's new water management regime, to be introduced into parliament in December 2007. In the meantime, management of environmental water is provided for by a range of policies, including the statewide policy No. 5: *Environmental Water Provisions for Western Australia.*

Tasmania is currently updating the *Water for Ecosystems Policy* to better reflect its contemporary, holistic approach to determining environmental water needs and providing statutory-based environmental water. Central to the environmental outcomes management in Tasmania is the Conservation of Freshwater Ecosystem Values programme. The programme identifies conservation value and appropriate management approaches to stream segments statewide for incorporation in planning and monitoring activities. Work is nearing completion on validation of the conservation management priorities in priority water management planning catchments.

In the Northern Territory, the Department of Natural Resources, Environment and the Arts is responsible for allocation, environmental protection and management of surface water and groundwater. Some components of these arrangements have been identified as needing formalisation through legislative reform involving both the *Water Act 2000* and the newly proposed Living Rivers Programme. These reforms will include identification and management of high conservation value rivers and public reporting of achievement of environmental outcomes and the adequacy of environmental water provisions within water plans in line with the NWI. These legislative reforms are targeted for completion in 2008.

In terms of managing for resources shared between states, the environmental management functions under the MDB Commission are the most prominent. Fundamental change to these arrangements is a centrepiece of the Australian Government proposals under the NPWS. Cross-border cooperation is also evident in other shared resources including the Great Artesian Basin, Border Rivers, Lake Eyre Basin, Gulf of Carpentaria, and shared groundwater systems between Victoria and South Australia.

Why this is important to the NWI

The statutory provision for environmental and public benefit outcomes will not be effective without adequate management and institutional arrangements being put in place.

Community views

There is little indication in the submissions of significant progress regarding this NWI element. Many suggestions are made to strengthen aspects of the NWI and extend the scrutiny provided by the Commission. In addition, the submissions advocate more incentives and sanctions to ensure the NWI is implemented in ways that secure environmentally sustainable outcomes across the nation.

Many submissions refer to the deteriorating condition of specific water resources and environmental assets and attribute this to poor water planning, management and monitoring of changes in environmental conditions.

On a broader scale, some submissions consider that the current management of water and aquatic ecosystems in Australia is ecologically unsustainable.

The submissions comment on and advocate measures for resolving issues in environmental allocations, extraction levels and environmental flows; improving integrated water planning and management, the special attention that is required for northern Australian rivers and the need for institutional integration of natural resource management and water programmes (e.g. the National Action Plan for Salinity and Water Quality, the National Heritage Trust and the NWI) and the rationalisation of water agencies and resource managers (in some cases, having a single authority for regions or catchments, e.g. the MDB).

Comment

As indicated above, relevant expected outcomes from this NWI element are:

- to identify environmental and other public benefit outcomes for water systems with as much specificity as possible in water plans, and
- to have accountable environmental water managers established and equipped with necessary authority and resources to provide sufficient water at the right times and places to achieve identified outcomes, including across state boundaries where relevant.

To achieve these outcomes in the NWI, governments have committed to implement six characteristics for effective and efficient management arrangements to achieve environmental outcomes:

- management entities that are accountable for achieving the environmental outcomes
- joint management arrangements where resources are shared between states
- common management arrangements where surface water and groundwater systems are significantly interconnected
- periodic independent audit, review and public reporting of whether environmental outcomes are being achieved, and the adequacy of water provided (through water sharing rules and/or water entitlement) to achieve those outcomes
- ability of environmental managers to temporarily trade environmental water entitlement when it is not needed to achieve environmental outcomes, and
- any special requirements to sustain high conservation value freshwater systems.

Generally, states have established entities that are responsible for achieving environmental outcomes. These range from water departments (New South Wales, Queensland, Western Australia, Tasmania, Northern Territory, and the Australian Capital Territory), catchment bodies (New South Wales, Victoria, and South Australia), water authorities (New South Wales and Victoria), through to dedicated environmental managers (South Australia).

The complex interaction of multiple entities in some states means that it can be difficult, at the delivery end, to identify who is responsible for what part of which environmental or public benefit outcome specified in a water plan. The clear accountability of these entities to deliver environmental outcomes, as envisaged by the NWI, is not yet being achieved. The mix of institutions involved in managing environmental water places a very high premium on good governance, clarity of roles, a high degree of specificity of environmental outcomes sought in water plans, and close coordination between entities in practice.

The Commission is concerned that the desired NWI outcomes are not being achieved in the way envisaged. This view is arrived at for two reasons.

The first is related to the specificity of the environmental outcomes being sought. In some cases 'as much specificity as possible' is not very specific at all. This is generally due to the shortcomings in the water planning processes and in particular the adequacy of the science underpinning the water plans. The inability, in the first instance, to provide a high degree of specificity in environmental outcomes sought will lead to broad brush management regimes, difficulty in monitoring outcomes and consequent low levels of accountability.

The second is related to whether established environmental managers are equipped with the necessary authority and resources envisaged by the NWI. 'Authority' is taken either in a statutory sense, or in the sense of whether the community understands, accepts, and has confidence in the authority given to an environmental manager. 'Resources' is taken in the sense of the financial capacity as well as the technical skills to undertake its tasks.

There is some transparency and reporting against environmental outcomes in a number of states (e.g. *Victorian river health programme report card* and the *State Water report 2003-04: a statement of Victorian water resources*). However, the independent audit of outcomes in most states does not meet NWI commitments. For example, with the exception of New South Wales (which has the Natural Resources Commission), no state has an independent audit function for environmental outcomes for water[6].

Importantly, adaptive environmental management as characterised in the NWI will only be as good as the specificity of environmental outcomes being sought and the monitoring for those outcomes. As noted in section 3.1.2.4, a major challenge facing water planning in Australia is to improve the science underpinning the setting of these outcomes and the water required for their achievement. In addition—without exception—the quality of monitoring for environmental outcomes needs to improve (in line with the risk to the water resource). The majority of states are only commencing the establishment of systematic statewide efforts to measure ongoing river health. Data from Tasmania and Victoria has been used to undertake trials of the

6 Victoria has a limited function through State of the Environment reporting.

framework for assessing river and wetland health, by the Commission, and it is anticipated that trials in other states are likely in the near future. Integration of river health monitoring and incorporation of that information in the adaptive management frameworks is a significant area requiring improvement nationally.

Managing environmental outcomes for connected surface water and groundwater resources suffers from the fact that more sophisticated management of connectivity is still developing in Australia. This issue is addressed in other parts of this report.

Where relevant, the ability of environmental water managers to temporarily trade water appears to be established in principle (e.g. New South Wales and South Australia), even if the practice is still in its infancy.

As noted above, some states have in place formal provision for high conservation value freshwater areas (e.g. Queensland's *Wild Rivers Act 2005*). The work currently being done on this issue under NRM Ministers should address whether more specific arrangements to manage for high conservation values need to be in place in some states and nationally.

3.4.2.2 Recovery of water to achieve modified environmental and public benefit outcomes

States have various arrangements in place for water recovery to the extent that they have identified that they do/may need to recover water in order to meet environmental outcomes.

New South Wales uses a range of mechanisms to recover water to meet environmental outcomes, including investment in water use efficiencies and direct purchase of water entitlements. These mechanisms are used in five water recovery programmes currently involving New South Wales: The Living Murray initiative; Water for Rivers Programme (Snowy and Murray Rivers); New South Wales RiverBank; New South Wales Wetlands Recovery Project; and Pipeline New South Wales (water efficiency investments).

The Environmental Water Reserve in Victoria was initially set based on existing consumptive use. This means that in some systems where there is a high level of use, rivers may still be stressed. Victoria has committed to water recovery programmes to provide additional water for 16 stressed rivers (*Victorian river health programme report card 2005*). In addition to these cases, further consideration is given to recovering water and improving flow regimes in the regional sustainable water strategies process. Victoria also participates in the Water for Rivers programme and the Living Murray Initiative.

South Australia's primary water recovery activity is through The Living Murray Initiative. It is worth noting that, under this initiative, South Australia has invested outside its borders (e.g. $12 million in Victoria's Goulburn-Murray Water Recovery Package). The new River Murray Environmental Manager may also accept permanent or temporary water donations for use on environmental watering projects. In 2005–06, donations made possible a number of projects including a Bookpurnong floodplain watering trial.

Western Australia has a number of formal and informal practices in place to recover water, including negotiated reductions in consumptive use. These measures may not be formalised under statutory water management plans prior to 2009.

Relevance to outcomes

Failure to apply the NWI principles for recovery of water to achieve environmental outcomes are likely to result in more costly water recovery. It may also compromise other objectives of the NWI, especially in relation to taking account of socio-economic impacts of recovery options.

Community views

See community views for 3.4.2.1.

Comment

The MDB has been a major focus of water recovery measures. Water recovery projects so far under the Living Murray Initiative include the Goulburn-Murray Water Recovery Project, the Darling Anabranch, Edwards River and Poon Boon Lakes Water Recovery Projects in New South Wales. In addition, water is being recovered under the Joint Government Enterprise for the Snowy and Murray Rivers. Projects funded under the Water for Rivers programme also feature in this context.

The Australian Government is a major funding participant in both of the above programmes, and in the New South Wales RiverBank and Wetlands Recovery Programmes. In 2006, it also initiated the water efficiency tender.

A comparative evaluation of the cost effectiveness of various water recovery mechanisms in the MDB would be timely in the next year when a little more hard data is available from these various programmes.

The Australian Government proposals under the NPWS offer significant investment in recovery of water under both the modernising irrigation component, and the addressing overallocation component. Principles for investment in both of these components should be based on those in the NWI.

Beyond the MDB, however, there is a need for states to develop and/or keep under review arrangements for current or potential water recovery to ensure they are consistent with NWI commitments.

3.4.3 Conclusions—integrated management of water for environmental and other public benefit outcomes

All governments have management and institutional arrangements in place to achieve environmental outcomes. These vary depending on the broader nature of the water management regime in those states.

Several states have established management arrangements which rely on complex interactions between multiple entities. The clear accountability of these entities to deliver environmental outcomes, as envisaged by the NWI, is therefore not being achieved.

The Commission is concerned that the desired NWI outcomes are not being achieved in the way envisaged. This is thought to be due to:

1. the difficulty in specifying environmental outcomes to a degree that will assist the design of suitable water management regimes, and
2. whether established environmental managers are equipped with the necessary authority (either in a statutory sense or in the sense of whether the community understands and accepts the range of the authority) and resources (in the sense of the financial capacity as well as the technical skills to undertake its tasks) envisaged by the NWI.

In addition, the independent audit of outcomes in all states bar New South Wales does not meet NWI commitments.

Adaptive environmental management as envisaged in the NWI will only be as good as the:

1. specificity of environmental outcomes being sought and
2. monitoring for those outcomes.

A major challenge facing water planning in Australia is to improve the science underpinning the setting of environmental outcomes and the water required for their achievement. In addition, the establishment of systematic statewide efforts to measure ongoing river health is only just commencing. Improved river health monitoring and incorporation of that information in the adaptive management of water resources is a significant challenge which is starting to receive attention in many states, and will require further effort nationally.

The work currently being done (under NRM Ministers) on formal provision for high conservation value freshwater areas, should address whether more specific arrangements to manage for high conservation values need to be in place in some states and nationally.

States have various arrangements in place for water recovery to the extent that they have identified that they recover, or may need to recover, water in order to meet environmental outcomes. The MDB has been a major focus of water recovery measures to date. A comparative evaluation of the cost effectiveness of various water recovery mechanisms in the MDB is required in the next year. Beyond the MDB, there is a need for states to develop and/or keep under review arrangements for current or potential water recovery to ensure they are consistent with NWI commitments.

3.5 Water resource accounting

Water resource accounting is the application of a consistent and structured approach to identifying, measuring, recording, aggregating and reporting water information including its occurrence, extraction, diversion, storage, trade, use, loss and discharge.

3.5.1 Objectives and outcomes

Objectives

Water accounting which is able to meet the information needs of different water systems in respect to planning, monitoring, trading, environmental management and on-farm management.

Outcomes

1. Adequate measurement, monitoring and reporting systems are in place in all states.
2. Public and investor confidence in the amounts of water being traded, extracted for consumptive use, and recovered and managed for environmental and other public benefit outcomes.

Relevance to the NWI

Water resource accounting is a cross-cutting element that fundamentally supports the need to provide public confidence in the NWI water management elements. The NWI recognises that accounting systems and measurement practices between and within states can vary widely and make it difficult to provide a consistent picture of water resources across Australia.

Implementation of the actions under the water resource accounting element, which include measurement, reporting and information exchange, is particularly important to the outcomes of the following elements of the NWI:

- water access entitlement and planning frameworks—through providing confidence in the reporting of water resource availability, allocation and use and by protecting the integrity of the entitlement system
- water markets and trading—by providing market confidence in the actual volumes of water available under water access entitlements when bought and sold
- water pricing—by providing accurate measurement for charging on the basis of volume used, and
- integrated management of water for environmental purposes—by providing accurate information on water allocated and used for environmental and public benefit outcomes.

The NWI framework for achieving its expected water resource accounting outcomes is presented in six inter-dependent parts:

1. Benchmarking of water accounting systems to establish existing practice and provide a basis to move to best practice. Work on this action has resulted in governments agreeing to a major water accounting project that will guide them in implementing actions relating to consolidated water accounts (see point 2 below), provide for environmental water accounting (see point 3 below) and result in national guidelines for reporting of water use, trade, environmental water and water access entitlement allocation availability (see point 6 below).
2. The ability to provide consolidated water accounts able to produce a national water balance through the development and adoption of standards for accounting systems and reports, including systems to integrate the accounting of surface water and groundwater.
3. Providing environmental water accounting that ensures environmental water (in whatever form) can be consolidated and reported on in a nationally-consistent way.
4. Sharing information through improved coordination of data collection and management systems, partnerships in data collection and storage and adoption of best practice in data management.
5. Providing consistent metering and measuring of all water access entitlements with the development and adoption of national metering specifications and standards.
6. National guidelines for reporting of water use, trade, environmental water and water access entitlement availability.

Timelines

The NWI sets timelines for delivering nationally-consistent water accounting that recognised the lead times required to develop and implement the proposed actions.

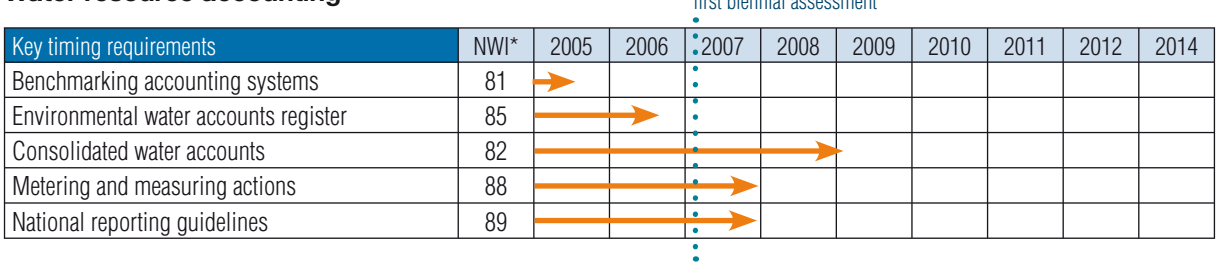
The majority of actions were expected to be completed by the end of 2006 with the more difficult actions such as implementing metering and measurement and applying national guidelines on water reporting to be completed by the end of 2007.

States were required to agree by the end of 2005 situations where close interaction between groundwater aquifers and streamflow exist. Implementing systems to integrate the accounting of surface water and groundwater is required to be completed by the end of 2008.

While states are ultimately required to implement agreed guidelines and standards for accounting and measurement, the development of the guidelines and standards requires a nationally coordinated approach. This is being undertaken through the NRM Ministers' Workplan. Implementation of these guidelines and standards by states then, have some reliance on the progress on the nationally coordinated work.

The NPWS also includes a range of activities to support and progress the water accounting outcomes of the NWI.

Water resource accounting



*NWI clause reference

3.5.2 Progress

3.5.2.1 Benchmarking of water accounting systems

This nationally coordinated action has been completed.

The NRM Ministers' NWI Committee agreed, as part of its workplan, to engage Sinclair Knight Merz (SKM) to undertake a stocktake of states' current water accounting and data systems in order to address the requirements of this action. SKM were also required to analyse the collected stocktake information to identify best practice, information gaps and areas for improvement, and make recommendations for development of water accounting standards and guidelines for reporting and information. Parties to the NWI contributed to the development of this work through information provision, facilitating stakeholders contributions, and contributing to analysis.

This work was completed in October 2006 and as a result, states, through the NRM Ministers, agreed to undertake a major $10 million project that will provide a National Water Accounting Model, including the building blocks for water accounting standards and reporting (see section 3.5.2.2).

Why this is important to the NWI

The benchmarking and stocktake exercise is essential to guiding the development of national water accounting practices which is central to the NWI outcomes. Benchmarking ensures that best practice methods of water accounting are considered and promoted when developing national standards. A failure to develop national standards and implement accounting systems consistent with these standards will impact on the ability to meet outcomes of adequacy of measurement, monitoring and reporting and impact on public and investor confidence in the amount of water traded, extracted for consumptive use and recovered and managed for environmental and other public benefit outcomes.

Community views

There is strong support for accurate and timely accounting of Australia's water resources at scales appropriate to regional, state and national decision making. Many submissions expressed dissatisfaction about the extent to which various states have adopted such accounting practices.

Comment

The stocktake is a substantive and comprehensive piece of work. SKM made some 60 findings which demonstrated overall that, while showing signs of some good practice, water accounting in Australia is at an immature phase and being developed in an ad hoc fashion.

A disciplinary approach, similar to financial accounting, was recognised as the most appropriate way forward and the most likely to achieve a nationally-consistent result to maximise the benefits from the considerable investment and effort required.

NRM Ministers accepted this view and agreed to establish an independent, expert based, Water Accounting Development Committee (WADC) to undertake the development of the National Water Accounting Model.

3.5.2.2 Consolidated water accounts

States have developed accounting systems that in many instances represent good practice. However, there is much work to be done to develop standard and systematic water accounting required by the NWI.

Following completion of the water accounting stocktake and analysis, the development of water accounting standards is being progressed at a coordinated national level by the WADC, working to the NRM Ministers' NWI Committee. The National Water Accounting Model will:

- define the information requirements of users of water accounting information
- develop a conceptual framework for water accounting
- develop a national common chart of water accounts
- develop a range of water accounting standards and guidelines for water market accounting, water resource accounting, environmental water accounting, and
- recommend reporting requirements, obligations and assurance mechanisms for water accounting.

The project will directly involve states and utilise a series of pilot projects to iteratively develop other project outputs. The pilot projects may evolve into demonstration systems.

The WADC Workplan was endorsed by NRM Ministers at its 19 April 2007 meeting (see appendix 1 for reference). The workplan indicates that work on developing a national water accounting system is expected to be completed by early 2010.

When completed, the project will provide useful guidance to states in implementing actions relating to consolidated water accounts (clause 82), environmental water accounting (clauses 84, 85) and reporting (clause 89).

Progress has also been made, or is being initiated, in a number of states on water information systems and registers that will assist in implementing water resource accounting.

Why this is important to the NWI

Adopting a consistent approach to the collection and assembly of data allows for aggregation of information to produce meaningful, reliable reports at regional, jurisdictional and national level. This will lead to the desired NWI outcome of providing public and investor confidence in the amounts of water being traded, extracted for consumptive use, and recovered and managed for environmental and other public benefit outcomes.

Water accounting will provide the discipline required to measure and report on water transactions within water systems, market systems, and in delivering water for the environment. Sound accounting practice will allow comparison between areas and remove the risk of double counting water resources.

Community views

As for 3.5.2.1.

Comment

When adopted, the National Water Accounting Model will provide a sound basis for each jurisdiction to produce state water reports that provide reliable, comparable information across the jurisdiction and allow for aggregation with other states' accounts to produce a national water balance.

It is generally recognised that the scope of the National Water Accounting Model involves a theoretical basis that now goes beyond what was conceived in the development of the NWI. This has lead to an extended timeframe for the development and implementation of water accounting standards.

There is strong national support for this additional rigour, which will mean the standards as implemented by states will have a sound basis. The Commission considers that the additional value that this development work will bring outweighs any potential concerns about an extended timeframe. The piloting and trials of standards will be important to establishing industry and community confidence in water accounting.

The national standards to be developed by the WADC will be essential to the rigour and consistency required. The implementation of the standards will be an important next step in the process to ensure the outcomes of the NWI are achieved.

3.5.2.3 Environmental water accounting

Limited progress has been made on environmental water accounting within individual states. Volumetric environmental water entitlements are being incorporated into water entitlements registers.

Consideration of standards for accounting for environmental water, particularly rules-based allocations and how to report the activation of the rules, comes within the national project to develop the Water Accounting Model set for completion in 2010.

Why this is important to the NWI

The NWI requires that water to meet environmental and other public benefit outcomes is (clause 35(i)) to:

> … be given statutory recognition and have at least the same degree of security as water access entitlements for consumptive use and be fully accounted for.

A failure to provide adequate accounting and reporting systems for both volumetric and rules based environmental water will make it difficult to determine whether in fact environmental water does have the same degree of security as consumptive water.

Accounting for environmental water directly supports the outcome to provide:

> ...public and investor confidence in the amount of water being traded, extracted for consumptive use, and recovered and managed for environmental and other public benefit outcomes.

Community views

Northern Victorian irrigators, expressed concern that there is no information available anywhere where the community can find out what is happening with environmental water.

The New South Wales irrigators' Council and Murrumbidgee Private Irrigators Incorporated, believe that there needs to be open and transparent management and accountability of all environmental water resources and propose that environmental water entitlements should also be subject to the same standards of public reporting requirements that apply to all other licensed entitlements.

Comment

Consultation and reporting on the entitlements, allocations, and use of water for environmental purposes is being made through a range of processes including water plans, annual reports, and water reports (including in Victoria). Environmental entitlements and allocations that are volume and share based can, in the future, be dealt with in registers in a similar manner to consumptive water access entitlements in regulated systems.

A significant proportion of environmental water is allocated through water plan rules. Whilst it will be challenging, setting principles and, where necessary, developing standards to account for water allocated and delivered through management regimes established by environmental water rules, will require further nationally coordinated work. The parameters of environmental water accounting will need to be considered, including the relationship with monitoring ecological outcomes of environmental flows.

3.5.2.4 Sharing of information

Work on this set of actions is proceeding through jurisdictional cooperation at the national level. A Water Data Infrastructure Project that sets data exchange protocols and standards is being undertaken by the NRM Ministers' Executive Steering Committee on Australian Water Resources Information (ESCAWRI). In 2006 the Commission and ESCAWRI convened the Australian Water Data Sharing summit which led to the endorsement, by NRM Ministers in November 2006, of the principle of open and efficient sharing of water data information.

Consideration is now being given nationally towards alternative data sharing approaches including Creative Commons as a legal licensing framework. ESCAWRI will be administering a pilot project to test the Creative Commons approach.

Why this is important to the NWI

The coordination, efficient collection and open sharing of information supports the key water accounting outcomes. Making water resource information accessible widely supports improved confidence of water users, managers, and the community in water availability and use across Australia. It also supports research and study into water resources, therefore the ability to address knowledge gaps.

Community views

There is strong community support for having good access to information.

Comment

While progress in this area has been historically difficult, parties to the NWI have shown strong support for the principle of data sharing.

The sharing of data that is collected or maintained by private entities, and may be considered to have commercial or privacy sensitivities has arisen as an important aspect to work through. Additionally, the historical process of data licensing has proven to be a barrier to open sharing of data.

The endorsement by NRM Ministers of the principle of open and efficient water data sharing is a positive step in establishing a shared vision for water data sharing. The Australian Government NPWS, which proposes to enhance the capacity of BoM to collect water data and disseminate water information on a national basis, will be able to build on this work and help to achieve the desired NWI outcomes.

3.5.2.5 Consistent metering and measurement

States have been implementing their own metering and measuring policies to meet the requirements of the NWI. In order to achieve nationally-consistent standards for metering across all types of measurement in each jurisdiction, work to assist implementation of this set of actions has been coordinated through the NRM Ministers' NWI Committee. Measurement and metering addresses flow in pipes, open channels—including off-takes and returns—and surface water and groundwater extractions.

Supported by funding from the Australian Government's Raising National Water Standards programme, work has been progressing mainly through the National Measurement Institute to develop pattern approval standards for the accuracy of meters used in measurement, both in laboratory and installed in field, and to develop standards for ancillary measurement. The ability to undertake in-situ verification of meters is also being investigated.

The development of standards for measurement of bulk off-takes has also been made a priority by NRM Ministers at its November 2006 meeting. As a result, the National Measurement Institute and Standards Australia have expanded the meter pattern approval and product specification to include bulk off-take meters. States are contributing expertise, experience and research to this process.

Why this is important to the NWI

The NWI requires not only that metering should be undertaken on a consistent basis but also that adequate measurement, monitoring and reporting systems are in place.

Successful markets in water require an agreed and achievable level of rigour in water metering to ensure that purchasers and sellers can be confident about the amount of water being traded. Continuing with meters that measure to an accuracy of plus or minus 20 per cent will not lead to an outcome of public and investor confidence in the amount of water being traded and extracted for use.

Community views

Engineers Australia welcome the national work to cover the gaps in water meter installation in rural areas, to improve in-field verification of rural metering accuracy and the development of national meter standards as important contributions to improving water data.

MIL notes that while metering accuracy is important, the lack of measurement in a range of areas is of greater significance. All states need to make more rapid progress in the measurement and accounting of water diverted from rivers, water stored in farm dams, river transmission losses and groundwater, and the installation of meters for users who are currently not metered.

Comment

Australia has no national standard for non-urban water meters or their associated ancillary data collection systems. Within each state there are meter standards, and in-situ meter accuracies that vary by as much as plus or minus 20 per cent. Pattern approval standards will not only lead to more cost effective manufacturing and provision of meters but also to significant costs in replacing existing meters that do not meet the standards.

The in-principle agreement by NRM Ministers to adopt a standard accuracy band of 2.5 per cent in the laboratory and 5 per cent in the field raises a number of issues in its implementation. Victoria, New South Wales and Queensland have large numbers (up to 28 000) of existing Dethridge Meters that cannot meet the standard. Improved standards including maintenance and compliance regimes will also require consideration in implementation.

Transition strategies for implementation are also being developed for all states.

3.5.2.6 National guidelines for reporting

States currently undertake their own state-based water resources reporting. National guidelines for reporting were to have been developed by mid-2005 and applied by the end of 2007. Work on this action is being coordinated through the NRM Ministers' NWI Committee which expected to prepare the required guidelines by mid-2006. The extent to which the proposed work on national reporting guidelines will be picked up by the National Water Accounting Model (which will ultimately provide standards/guidelines on reporting obligations to support a national set of water accounts) will need to be further developed and clarified. The Australian Government NPWS will also be relevant.

Why this is important to the NWI

National guidelines will allow consistent open reporting of metered water use, trade outcomes, environmental water releases and management actions and availability of water under water access entitlements. Consistent reporting is essential to providing public and investor confidence in the amount of water being traded, extracted for consumptive use, and recovered and managed for environmental and other public benefit outcomes.

Community views

There is strong community support for having good access to information.

Comment

With the SKM stocktake of water accounting practices proposing the development of standards for accounting, including reporting, NRM Ministers agreed to the development of a water accounting model that will provide national standards and guidelines. The National Water Accounting Model is expected to be completed in 2010.

The NPWS proposes that BoM collect and make available water information on a national basis. This is intended to greatly improve access to water information. The expansion of BoM's role to deal with water data should assist in delivering the level of open nationally-consistent reporting required by the NWI.

3.5.3 Conclusions—water resource accounting

There is strong national progress for the delivery of water accounting objectives under the NWI. A major benchmark of states' water accounting practices was completed in 2006, in accordance with NWI requirements. This study found that, while showing signs of some good practice, water accounting in

Australia is at an immature phase and being developed in an ad hoc fashion. NRM Ministers agreed to develop a National Water Accounting Model based on a disciplinary approach—similar to financial accounting.

The National Water Accounting Model goes beyond the actions required by the NWI, but is an approach that is likely to achieve a nationally-consistent result as envisaged in the NWI.

The work on developing a national water accounting system, expected to be completed in 2010, includes the development of national standards for water market accounting, resource accounting and environmental water accounting as well as standards for water accounting information systems.

Work on sharing information is proceeding steadily through jurisdictional cooperation at the national level. The endorsement by NRM Ministers of the principle of open and efficient water data sharing is a positive step in establishing a shared vision for water data sharing. The proposed enhanced capacity of BoM (under the NPWS) to collect water data and disseminate water information on a national basis will be able to build on this work and help to achieve the desired NWI outcomes.

There is currently no Australian standard for water meters or ancillary data collection systems. Good progress has been made on the development of standards for meters used in measurement through the National Measurement Institute. Based on this work that seeks to adopt a meter standard accuracy band of 2.5 per cent, it is apparent that there are currently a large number of meters in operation that are unlikely to meet this standard of accuracy.

All governments will need to remain closely engaged in the development of accounting and metering standards, and the onground implementation of these if the NWI outcomes are to be achieved.

3.6 Urban water reform

3.6.1 Objectives and outcomes

Objectives

Policy settings which facilitate water use efficiency and innovation in urban areas.

Outcomes

1. provide healthy, safe and reliable water supplies
2. increase water use efficiency in domestic and commercial settings
3. encourage reuse and recycling of wastewater where cost effective
4. facilitate water trading between and within the urban and rural sectors
5. encourage innovation in water supply sourcing, treatment, storage and discharge, and
6. achieve improved pricing for metropolitan water.

Relevance to the NWI

The NWI framework of actions aimed at achieving urban water reform is presented in two parts:

1. demand management actions (NWI, para 91), aimed at increasing urban water use efficiency, and
2. actions that encourage innovation and build capacity to create water sensitive urban cities (NWI, para 92).

While there are a set of specific urban actions in the NWI, achieving the desired outcomes for urban reform will depend on implementation of the NWI as a whole. Successful urban water reform depends, in particular, on successful implementation of the water

Urban water reform

first biennial assessment

Key timing requirements	NWI*	2005	2006	2007	2008	2009	2010	2011	2012	2014
Demand management measures										
Water efficiency labelling scheme	91(i)	→								
Smart water mark	91(ii)	→	→							
Effectiveness of water restrictions	91(iii)	→	→							
Responses to system leakage	91(iv)	→	→							
Innovation in urban water use										
Guidelines for recycled and stormwater	92(i)	→	→							
Evaluate options for water sensitive urban design	92(ii)	→								
Evaluate existing water sensitive urban design icons	92(iii)	→	→							
Review institutional and registered models	92(iv)	→	→							
Review incentives for innovation	92(v)	→	→							

*NWI clause reference

planning framework, opening up water markets and implementing best practice water pricing and institutional arrangements.

Many states are implementing a wide range of additional measures relating to urban water reform that go well beyond the currently limited scope of the urban water reform actions in the NWI. Urban water reform has become increasingly imperative since the 2004 signing of the NWI, with the emergence of declining urban water security a significant issue.

Timelines

All urban actions were required to be completed by the end of 2006.

Many of the actions in the urban reform area involve nationally coordinated work. The NRM Ministers have developed a workplan for national urban NWI actions, some of which are coordinated by a Joint Steering Committee on Water Sensitive Cities (JSCWSC). The JSCWSC was formed by NRM Ministers and the Environment Protection and Heritage Ministers to assist the parties to the NWI to meet their obligations under clause 92 (ii to v) of the NWI.

3.6.2 Progress

3.6.2.1 Demand management actions

Water Efficiency Labelling Scheme—91(i)

The Commonwealth *Water Efficiency Labelling and Standards Act 2005* came into effect on 1 July 2005. All states have now enacted corresponding legislation in order to ensure that the scheme applies consistently across Australia and to confer regulatory powers on the Australian Government. Planning is underway for an expansion of the scheme. In November 2006, Environment Protection and Heritage Ministers agreed to a long-term programme of work to examine the possible introduction of minimum performance standards for existing Water Efficiency Labelling and Standards (WELS) products, and to expand the WELS scheme to include additional products.

Smart Approved Water Mark—91(ii)

The Smart Approved Water Mark (SAWM) is the national accreditation symbol for products and services which save water outdoors. It is moving into a new phase following an injection of funding from the Australian Government's Water Smart Australia programme. A new business website for the SAWM (www.smartwatermark.info) and a marketing campaign to get business onside were launched in December 2006 in readiness for a major consumer launch in 2007. It is expected that a range of new products and services will be assessed in 2007 for their suitability to carry the SAWM label.

Review of temporary water restrictions and associated public education strategies—91(iii)

While reviewing temporary water restrictions and associated public education strategies is a responsibility of the states under the NWI, the Commission has undertaken (with the support of NWI parties) to coordinate an initial national review focusing on larger urban centres (those with over 50 000 connections). This will enable better sharing and comparison of experiences in different states and inform consideration of any further action. An initial review project contributing to this action is expected to be completed by mid-2007.

Implementation of cost effective management responses to supply and discharge system losses—91(iv)

The implementation of cost effective management responses to supply and discharge system losses (including leakage, excess pressure, overflows and other maintenance needs) is an ongoing action and is largely being implemented by the urban water industry. Leakage is reported on an annual basis in the National Performance Reports for major and non-major urban utilities using the Infrastructure Leakage Index. The National Performance Report also reports against two indicators of water losses.

State governments are also implementing management responses to supply and discharge system losses. In New South Wales metropolitan areas, for example, $400 million will be invested in leakage reduction programmes expected to deliver water savings of 33.5 GL each year by 2015. Savings of up to 17 GL have already been achieved. South Australia's Water Proofing Adelaide initiative is expected to deliver water savings of 37 GL per year.

Why this is important to the NWI

The various policy and management initiatives addressed by the NWI and implemented to date by states under clause 91 of the NWI will contribute to increased water use efficiency and innovation in urban water supply in metropolitan and regional areas. While some outcomes relevant to urban water reform are being addressed under other NWI elements, the implementation of demand management commitments are an important contributor to increased water use efficiency in households and commercial settings.

Community views

Only a small percentage of submissions address this demand management element directly, although some rural-focused submissions make comparisons between urban and rural implementation of NWI elements and the pace of reform across both sectors. The largest single group of respondents represent industry organisations followed by water utilities or service organisations, local government associations and consumer and environmental law advocates. Most of the criticism directed towards the pace of urban water reform is not directly in relation to the NWI framework, but rather towards specific state governments or local councils.

Comment

There has been significant progress to date in relation to these actions, supported through national coordination. Significant work remains to be undertaken in the area of water restrictions policy, especially in the context of the very deep restrictions which have been required in many urban centres under protracted drought conditions.

The potential effectiveness of more sophisticated demand management approaches, for example incorporating improved urban metering technology, innovative entitlement frameworks, new urban water products or innovative pricing frameworks, warrants further examination but is not fully captured by the NWI actions.

3.6.2.2 Innovation and capacity building to create water sensitive Australian cities

The range of actions of clause 92 of the NWI relate to enhancing innovation and capacity building for the creation of water sensitive cities, with a focus on integrated urban water supply planning and management, water sensitive urban design and water sensitive urban developments.

There has been variable progress to date in relation to the commitments under clause 92 of the NWI which are being coordinated through the JSCWSC. The JSCWSC is led by the Australian Government and is comprised of representatives from each state, the Australian Government, the Commission (secretariat) and the WELS Advisory Group and the Local Government and Planning Ministers' Council.

Australian guidelines for water recycling—managing health and environmental risks—92(i)

Environment Protection and Heritage Ministers, NRM Ministers and the Australian Health Ministers Conference endorsed phase one of guideline development (reuse of sewage effluent and grey water) in November 2006. Phase two of the national water quality and management strategy Australian guidelines for water recycling—*managing health and environmental risks*—will include 'recycled water for drinking' (expected completion November 2007), 'stormwater reuse' (expected completion November 2007) and 'managed aquifer recharge' (expected completion April 2008).

Guidelines for evaluating options for water sensitive urban developments—92(ii)

The JSCWSC is coordinating the development of guidelines for evaluating options for water sensitive urban developments, both in new urban sub-divisions and high-rise buildings, on behalf of NRM Ministers and Environment Protection and Heritage Ministers. Guidelines are expected to be finalised by June 2007.

Evaluation of 'icon water sensitive urban developments'—92(iii)

As an initial step towards evaluation of 'icon water sensitive urban developments', all governments provided initial case studies of icon water sensitive urban developments in their states. This led to the next phase of work which is focusing on water sensitive urban design principles and will document key lessons learnt in supporting the development of icon water sensitive urban developments. It is anticipated that this will be completed by end-2007.

Integrated urban water cycle planning and management—92(iv)

Given the broad nature of clause 92(iv) relating to integrated urban water cycle planning and management, an issues paper was developed by the Commission in consultation with states through the JSCWSC. This paper (available at www.nwc.gov.au/publications/docs/iwcmissuespaper.pdf) helps identify the priority areas that should be progressed under this action.

Consequently, the JSCWSC is overseeing a detailed institutional and regulatory review and analysis of priority issues focused on the following areas:

- enhancing the coordination of water resource and urban planning at a whole-of-government level

- assisting water agencies to undertake integrated water supply and demand planning and regional supply strategies
- reviewing and clarifying entitlements to new sources of water (e.g. recycled water, stormwater, desalination water), and
- examining issues relating to intra-urban trading and trading between urban and rural sectors.

It is anticipated that initial work on entitlements for new sources of urban water will be completed by end-2007.

Review of incentives to stimulate innovation—92(v)

Clause 92(v) of the NWI requires a review of incentives to stimulate innovation in urban water supply and water use efficiency. In consultation with the JSCWSC, the Commission has secured funding under the Australian Government's Raising National Water Standards programme for the development of an issues paper to look at incentives to stimulate innovation. It is anticipated that this will be completed by end-2007.

Why this is important to the NWI

The various policy and management initiatives addressed by the NWI and implemented to date by states under clause 92 of the NWI are meant to contribute to:

- increased water use efficiency and innovation in urban water supply planning in metropolitan and regional areas
- encourage reuse and recycling of wastewater where cost effective, and
- encourage innovation in water supply sourcing, treatment, storage and discharge.

Recognising that some outcomes relevant to urban water reform are being addressed under other NWI elements (especially water pricing), the implementation of integrated water supply planning and management, including water sensitive urban design principles and encouraging innovation, is a fundamental piece of the urban water puzzle.

Community views

A point of focus for many submissions by individuals, as well as those from industry and other organisations, is a call to hasten the level of recycling of water for industry, environmental and domestic use. Many submissions reflected the view that the availability of updated national guidelines on water recycling are likely to contribute greatly towards better water management

and noted that development of such guidelines is an important deliverable under clause 92(i) of the NWI. A small number of submissions from individuals, while supporting the use of recycled water for public parks and gardens, agriculture, manufacturing and mining, are opposed to recycled sewerage water being used for drinking.

The Western Sydney Regional Organisation of Councils states in its submission that governments should reaffirm their commitment to strategies aimed at significantly increasing the amount of recycled water provided through new large scale recycling schemes to new homes, industry, open space and rivers. It also states that more must be done in the commercial, industrial and agricultural sectors to ensure practices that reduce pollutant and nutrient loads in waterways.

State governments are criticised in a number of submissions for under-investment in the infrastructure required to support large-scale recycling of water in urban environments. Similarly, all levels of government, including local government, are criticised for the perceived lack of adequate incentives for households to install water tanks and a range of water-use efficient technologies.

Many submissions indicate there is a need to create incentives to encourage large scale recycling and to open up the recycling market to free competition. The Western Sydney Regional Organisation of Councils' submission expresses the view that governments should consider more sustainable alternatives to desalination including recycling and stormwater capture.

The Municipal Association of Victoria believes that clearer direction should be provided in the building regulations on how to achieve water conservation at the time of new or re-developments. The Municipal Association of Victoria also states that further information should be made available on the costs and benefits of introducing rainwater tanks in the residential sector, both as a retrofit option and for new developments.

Many submissions are highly critical of the lack of forward planning and water sensitive design across many urban constituencies. Peri-urban environments are included by inference in a range of submissions. The Business Council of Australia states in its submission that an essential element of reform is the introduction of effective and coordinated planning that recognises the relative benefits and costs of different supply and demand solutions. The Queensland Resources Council states that urban water reform would benefit from the introduction of realistic price mechanisms rather than seeking to impose voluntary and mandatory demand restrictions.

The Western Sydney Regional Organisation of Councils states in its submission that every effort should be made to promote the strategic integration of water cycle management with urban planning, including demand management, supply, and improving water quality, for example by incorporating water sensitive urban design into the planning process.

A number of submissions draw attention to water allocation and trading between rural and urban areas, lending varying degrees of support to the linking of rural and urban water supply systems—physically, legally and through appropriate and consistent pricing mechanisms to facilitate water trading.

The New South Wales Irrigators' Council is concerned about developments in the management of urban water reform. The council supports the exhaustion of all alternative options before the purchase of additional water from irrigation sources.

Submissions such as those from the New South Wales Irrigators' Council and the Lower Hawkesbury Nepean Water Users' Association highlight conflicting water demands for consumptive purposes between rural and urban industries as well as between the rural and urban populations in general. In other cases such as with the Tree Plantations Australia submission, the response welcomes the opportunity to participate in trading between the rural and urban sectors.

Comment

The greater issue under this section of the NWI is not the pace of implementation, although this has been patchy, but whether the NWI actions are sufficient to achieve the outcomes desired for urban water reform. Integrated urban water supply planning and management, including the full consideration of all supply options, less rainfall-dependent water sources and climate change scenarios, remains a priority area. The completion of the National Water Quality and Management Strategy Australian Guidelines for Water Recycling—Managing Health and Environmental Risks is recognised as a priority product under this section of the NWI.

The NWI urban commitments have been overtaken to some degree by the range of actions being taken by states in response to urban water scarcity. These actions, however, are understandably often in the nature of an emergency response and vary in their strategic focus and reform nature. The future water security of our major urban centres in the face of climate variability and growing population warrants the coherent national policy framework that an extension of the NWI in the urban water area would provide.

3.6.3 Conclusions

Reasonable progress is being made against NWI urban actions (albeit slow in some areas—due in part to the effort required to more effectively organise/coordinate the NWI urban actions). While these actions are worthwhile, and are being implemented by governments in such a way as to address some of the broader urban issues, they have been overshadowed by the scale of water challenges facing Australia's major cities. With the exception of Perth, these challenges were not presenting themselves when the NWI was agreed by COAG in June 2004. In addition, current NWI actions do not capture the extent of work currently being undertaken by individual states to address these challenges.

Despite reforms in the urban water sector since the 1994 COAG Water Reform Framework, structural reform in the sector has generally not kept pace with that in similar sectors such as gas, electricity or transport. Challenging climatic conditions have led to severe and protracted water restrictions—both in our major cites and regional centres—testing the NWI outcome of reliable urban water supplies.

Overall, the Commission considers that the NWI outcomes for urban water reform still hold, including to provide healthy, safe and reliable water supplies, increase water use efficiency, encourage innovation in water supply sourcing, treatment, storage and discharge, and to achieve improved pricing.

In the face of current challenges, however, the Commission considers that the NWI actions should be enhanced to better achieve these outcomes and to improve urban water supply security across Australia. Such an agenda would draw on the reforms already being pursued in some states, and help to guide action by governments into the future.

Elements of an enhanced urban water reform agenda should cover improved:

- urban water planning, including to ensure:
  - better integration of water supply and demand scenarios and options
  - consideration of all supply options (including recycled water, desalination, rural-to-urban water trade, and cross-border and inter-basin water transfers where economically viable and environmentally sustainable)
  - best practice climate change scenario planning, and strategies to introduce non-climate dependent water supply options when required to secure water supplies, and
  - clearer articulation of supply risk and security in plans, including exploring the feasibility of a national minimum reliability benchmark for water supply for major centres (in regard to expected frequency and severity of water restrictions) developed in consultation with the community
- institutional and market arrangements, including to enable:
  - new urban water supply products that offer consumers choice in reliability of water, supported by advances in metering technology which provide better information to all water users (including users in medium and high density dwellings in some states who are not currently exposed to volumetric pricing)
  - clearer specification of entitlements for new water sources such as recycled water and stormwater
  - allocation of tradable entitlements to major urban water users in the first instance
  - strong and independent pricing oversight in each state, and pricing regulation that encourages more flexible or market-driven pricing approaches to emerge in response to water scarcity
  - structural reform of the water sector in order to create competitive pressure for water supply and delivery, and greater private sector investment and innovation, and
  - safe, reliable and cost effective delivery of water services in smaller centres where current small scale providers may lack technical and financial resources
- onground delivery of water supply and demand management options, including through measures to ensure:
  - a full assessment of the relative cost effectiveness of various water supply options gives consideration to environmental externalities, including a full assessment of greenhouse gas impacts
  - transparent and consistent setting of water restrictions levels and of the arrangements for introducing restrictions
  - closer integration between urban planning and development and water supply planning
  - adoption of the nationally-agreed recycled water guidelines in practice, and
  - greater clarity about the role of developer charges in promoting water sensitive urban design and decentralised urban water management.

APPENDICES

Appendix 1—Report references

Kiri-ganai Report on the public submissions, *www.nwc.gov.au*

Kiri-ganai Accompanying Report: Summary of Comments and Recommendations of Public Submissions, *www.nwc.gov.au*

Kiri-ganai Accompanying Report on the Survey Responses, *www.nwc.gov.au*

Australian Water Resources 2005, *www.water.gov.au*

ANU Report on Interception and Land Use (forthcoming—National Water Commission Waterlines report))

Stocktake of approaches to charging, *www.nwc.gov.au/nwi/consistency_in_water_charging.cfm#sac*

Sinclair Knight Merz (2006), *Stocktake and Analysis of Australia's Water Accounting Practice,* Final report to Department of Agriculture, Fisheries and Forestry, *www.thelivingmurray.mdbc.gov.au/-data/page/1563/wr-nsw-colembally-1of4.pdf*

PricewaterhouseCoopers National Water Initiative Trading Study, *www.pmc.gov.au/water_reform/docs/nwi_wts_full_report.pdf*

Productivity Commission Research Report, *Rural water use and the environment: the role of market mechanisms*, *www.pc.gov.au/study/waterstudy/finalreport/index.html*

Cost recovery for water planning and management in Australia www.nwc.gov.au/nwi/docs/WaterPlanningManagementStocktake_Feb%2021.pdf

Appendix 2—List of public submissions received

Organisations

Name	Company	State
Warwick Tudehope	Alinta	NSW
Terry Dwyer	Australian National University Visiting Fellow, Crawford School of Econs & Govn	ACT
Vaughan Beck	ATSE	VIC
	Australian Conservation Council	ACT
Catie Wood JP	Aust Federation of Civil Celebrants Inc	WA
John Pritchard	Aust Local Government Association	ACT
Stephen Carroll	Australian Bankers' Assoc Incorporated	NSW
Maria Tarrant	Business Council of Australia	VIC
Trevor White	Cheltenham Park Residents Group	SA
John Edwards, Secretary	Clarence Environment Centre	NSW
Gerard Brody	Consumer Action law Centre	VIC
Sandra Hardiman, Sec	Croydon Conservation Society	VIC
Heather Lucke	East End Mine Action Group Inc	QLD
Andre Kaspura	Engineers Australia	ACT
Brendon Sydes	Environment Defenders Office	VIC
Rachel Walmsley	Environmental Defender's Office	NSW
Neil Fisher, CEO	Forest Industry Water Policy Group	ACT
Robert Hicks, CEO	Goldfields Esperance Devel Corp	WA
Stuart McCallum	Grassy Woodland Ecology	VIC
Bruce Manning, CEO	Great Southern Develop Corp	WA
Steve Meadows	Hunter Region Landcare Network	NSW
Alan Hoppe, Regional Director	ICM Agribusiness	NSW
Stephen Royall	Illawarra Newspaper Holdings	NSW
Gerard Flood	Isaacs & Hotham Fed Electorate Group	VIC
Dr Michael Robinson	Land & Water Australia	ACT
Dr D E Leaman	Leaman Geophysics	TAS
Renee Barbaro	LGA of NSW and Shires Association of NSW	NSW
Mark King, Chair	Lower Murray Darling Catchment Management Authority	NSW
Paul Rasmussen	Lower Nepean Hawkesbury Water Users Association	NSW
Liz Penfold	Member for Flinders	SA
Prof P S Lake and Dr N Bond	Monash University School of Biological Sciences	VIC
Nina Rogers	Municipal Assoc of Victoria	VIC

Catherine Norwood/George Warne	Murray Irrigation Limited	NSW
Lee Furness CEO	Murrumbidgee Private Irrigators Inc	VIC
	National Farmers' Federation	ACT
Adrian Watkins	Natural Habitats	SA
Garry Duke	Northern Victorian Irrigators Incorporated	No address
Jock Laurie, President	NSW Farmers' Association	NSW
Doug Miell, CE	New South Wales Irrigators' Council	NSW
Robert Prince	Nursery & Garden Industry, Australia	NSW
Ben Thunder	Pastoralists & Graziers Association of Western Australia	WA
Matt Williams, Chairman	Plains Water Limited	VIC
Elissa Freeman	Public Interest Advocacy Centre	NSW
Beatrix Brice	Queensland Resources Council	QLD
Barbara Dunnet	Scott River Growers Group	WA
Graham McDonald	Soaring Eagles Ministries	VIC
Pam Green, Chair	Southern Rivers Catchment Management Authority	NSW
Ashley Bastock	Tasmanian Farmers and Graziers Association	TAS
Geoff Calder, Vice President	The Bondi Group	WA
Glenn Walker	The Wilderness Society	QLD
Assoc Prof Lee Godden	University of Melbourne	VIC
Graham Doran	Vin Con Viticulture Consultants Pty Limited	NSW
David Williams	Water Industry Alliance	SA
John McCarthy	Water our Garden City Incorporated	ACT
Ross Young	Water Services Assoc of Australia	VIC
Maureen Campbell, President	Waterbird Conservation Group Incorporated	WA
Haikai Tane	Watershed Systems	New Zealand
Ryan Pascoe	Western Sydney Regional Organisations of Councils Limited	NSW
Peter Stockings	Yorke Regional Development Board	SA

Individuals

Name	State
Acacia Rose	NSW
Adrian Le Gay Brereton	NSW
Alan Hill	WA
Alan Mowbray	WA
Anonymous	VIC
Barbara Day	No address
Bill Mobbs	NSW
Bill Symonds	No address
Brian Stevens	SA
C L Spowart	VIC
Coral Talbot	NSW
Daniel Endicott	NSW
David Mortimer	SA
David Tannahill	VIC
David Williamson	NSW
Deborah Williams	NSW
Don Spice	WA
Gary Verri	NSW
Ian Thomas	NSW
J G Waters	WA
James Child	NSW
James Nisbet	QLD
Jim Collier	TAS
Jim Faggotter	QLD
John Clayfield	SA
John Coe	WA
John Daniels	
L T Goode	WA
Lance W Cooper	QLD
Llewellyn Jones	QLD
Maria and Doug Tidd	SA
Max Talbot	NSW
Mrs Roslyn Healey	NSW

Individuals - cont

Name	State
Mrs V D Burnett	QLD
Manu Saunders	No address
Ninian Struthers	NSW
Peter Gately	ACT
Peter Glover	WA
R W Clay	NSW
Ray Hill	SA
Richard (Stretch) Devine	QLD
Richard Edwards	WA
Ron & Sylvia Draper	QLD
Ron Fenwick	NSW
Stephen Thornton	WA
Tim Creeper	SA
Trish Hurst	WA
W H Holmes	SA
Wendy Bunce	NSW

Five confidential submissions were also received.

Appendix 3—National coordination of NWI implementation

ALGA–Australian Local Government Association.

Attachment 1—Summary progress on implementing NWI actions

Abbreviations for attachment 1

Abbreviation	Meaning
ACT	Australian Captial Territory
ACTEW	ACTEW Corporation Limited—ACT
ANCID	Australian National Committee on Irrigation and Drainage
CFEV	Conservation of Freshwater Ecosystem Values
COAG	Council of Australian Governments
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DNR	Department of Natural Resources CSIRO Commonwealth Scientific Industrial Research Organisation
DSE	Department of Sustainability and Environment
EPHC	Environment Protection and Heritage Council
ERA	Economic Regulation Authority
ESC	Essential Services Commission
ESCAWRI	Executive Steering Committee for Australian Water Resources Information
ESCOSA	Essential Services Commission of South Australia
GPOC	Government Prices Oversight Commission
HCVAE	high conservation value aquatic ecosystems
ICRC	Independent Competition and Regulatory Commission
IPART	Independent Pricing and Regulatory Tribunal—NSW
JSCHEG	Joint Steering Committee on Health and Environmental Guidelines
JSCWSC	Joint Steering Committee for Water Sensitive Cities
NCP	National Competition Policy
NRMMC	Natural Resource Managers Ministerial Council
MDB	Murray-Darling Basin
NSW	New South Wales
NT	Northern Territory
NWI	National Water Initiative
QCA	Queensland Competition Authority
QLD	Queensland
RNWS	Raising National Water Standards
ROP	Regional Operating Plan
SA	South Australia
SEQ	south-east Queensland
SGWC	Steering Group on Water Charging
WA	Western Australia
WAPs	water allocation plans
WAR	water allocations register
WMP	water management plan
WRF	Water Reform Framework
WRP	water resource plan
WSP	water sharing plan
WSUD	water sensitive urban design

Element: water access entitlements and planning

3.1.2.1a action: implementation of framework—substantial completion of plans to address any existing overallocation for all river systems and groundwater resources in accordance with commitments under the 1994 COAG WRF (26(i))

Relevance: part of prescribed approach

NWI date: by end-2005—report section 3.1.2.1

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	There were 31 plans in place in 2004—remainder expected to commence from 2006-07.		•			Five groundwater plans commenced late 2006—the last plan to commence mid-2007.
Victoria	No commitment outstanding.	•				
Queensland	Master plan indicates completion from 2005-06 to 2008-09.		•			Seventeen out of 22 plans identified in 1999 implemented to WRP stage, 10 completed to ROP stage. Largely on track with 2005 NCP assessment planning schedule.
South Australia	No commitment outstanding.		•			Fifteen plans for systems covered by COAG 1994 commitments completed. All plans now being reviewed.
Western Australia	No time commitment given.			•		Timetable now set for completion of plans identified in 1999—four groundwater and one surface priority water plan implemented.
Tasmania	No time commitment given.		•			Five of 16 plans identified in 1999 as requiring plans have been completed. Tasmania has modified its planning approach on the basis of risk.
Northern Territory	No commitment outstanding.	•				No overallocated systems. Annual audit of allocations from July 2007.
Australian Capital Territory	No commitment outstanding.	•				No overallocated systems.
Commonwealth	Not applicable.					
NRMMC Workplan	Not applicable.					

Element: water access entitlements and planning

3.1.2.1b action: implementation of framework—legislative and administrative regimes amended to incorporate the elements of the entitlements and allocation framework in this agreement

Relevance: part of prescribed approach

NWI date: by end-2006—report section 3.1.2.1

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Legislation in place by 1 July 2004.	•				
Victoria	Legislation in place by July 2004.		•			Progressive incorporation of legislation into administrative arrangements—northern Victoria by July 2007.
Queensland	Legislative framework complete. Administrative system merged by 2006.	•				
South Australia	*Natural Resources Management Act 2004* covers.		•			Bill introduced to parliament to separate access entitlements from regulatory approvals.
Western Australia	Current system under review. Streamlined legislation by 2009.			•		Review of existing system commenced end-2006. Substantial consultation required before legislation process can commence.
Tasmania	Review of *Water Management Act* and related legislation commenced mid-2005.		•			Minor legislative amendments as required to be considered by parliament in late 2007.
Northern Territory	Review current legislation and make recommendations by December 2006.			•		Review of legislation broadened and delayed. Consideration by cabinet expected after April 2008.
Australian Capital Territory	Review of *Water Resources Act* in 2006.		•			Substantially in progress.
Commonwealth	Not applicable.					
NRMMC Workplan	Not applicable.					

Element: water access entitlements and planning

3.1.2.2 action: water access entitlements to be defined and implemented

Relevance: part 1—essential to security, certainty and tradability of entitlements

NWI date: immediate—report section 3.1.2.2

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	All commenced. Stressed systems (Group A) complete by June 2007. Final group by June 2009.		•			80 per cent of NSW's water resources covered by Group A, additional 10 per cent by five groundwater plans.
Victoria	Defined and implemented in northern Victoria by July 2007 and in southern Victoria by July 2008. Groundwater yet to be scheduled.		•			Northern Victoria covers 80–90 per cent of use.
Queensland	Subject to WRP/ROP Master Plan last date for completion 2008-09.			•		NWI-compliant entitlements established in 10 plan areas covering 50 per cent of the state, including some 7500 tradable entitlements in seven plan areas.
South Australia	Delivered through implementation of *Water Resources Act 1997* and *Natural Resources Management Act 2004*.		•			Bill to separate entitlements from water use regulation as required under NWI introduced to parliament.
Western Australia	Review completed by December 2008.			•		Unbundling to be completed as statutory water management plans are rolled out.
Tasmania	All current entitlements converted. Future subject to further development of water management plans.		•			
Northern Territory	Convert existing licences to NWI September 2006 to March 2007.				•	Due to delays, licence conversion will not commence until after April 2008.
Australian Capital Territory	Completed.	•				
Commonwealth	Not applicable.					
NRMMC Workplan	Not applicable.					

Element: water access entitlements and planning

3.1.2.3 action: water to meet environmental and other public benefit outcomes identified in water plans to be defined, provided and managed (35)

Relevance: part 2—essential to meet environmental outcomes

NWI date: immediate—report section 3.1.2.3

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	All commenced—complete for Group A (2004), Group B plans commenced 2006—expect all complete by 1 July 2008.		•			Eighty per cent of NSW's water resources covered by Group A; additional 10 per cent by Group B (commenced 2006).
Victoria	Commenced 2004 all completed except for Goulburn system expected July 2007.		•			Environmental water reserves provide statutory recognition.
Queensland	Statutory provision exists through *Water Act 2000*. Provision of environmental water subject to planning master plan.		•			Ninety per cent of QLD is covered by WRPs. Seventeen out of 22 plan areas already have environmental flow objectives specified.
South Australia	All statutory level, environmental and consumptive uses are on an equal footing.		•			Applies to currently prescribed areas.
Western Australia	Review and implement from December 2008.			•		
Tasmania	Statutory provision exists.			•		Work to enhance capability for delivering holistic environmental outcomes commenced—expected completion December 2008.
Northern Territory	Required under existing planning and policy frameworks. Adjustments made to existing legislation by September 2006.		•			Legislation amendments in 2008 may identify environmental and other public benefit outcomes and their management requirements more explicitly.
Australian Capital Territory	Completed.	•				
Commonwealth	Not applicable.					
NRMMC Workplan	Not applicable.					

Element: water access entitlements and planning

3.1.2.4 action: prepare water plans consistent with NWI

Relevance: part 3—essential to sustainability of resource base and ability to adapt to change

NWI date: systems fully allocated by end-2007, all others by end-2009—report section 3.1.2.4

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Group A plans commenced in July 2004. Five Group A Ground Water Plans commenced in late 2006. Last Group B plan complete by June 2007. Final group by June 2009.		•			Consistent with the NWI.
Victoria	Scheduled for completion as per NWI requirements.		•			Water plans in most systems. Improvements to water plans progressing through the rollout of sustainable water strategies.
Queensland	Scheduled in accordance with master plan consistent with NWI requirements. Planning will be completed by 2009.		•			Master plan has identified priority for planning of those systems under greatest pressure. No systems for which planning has been completed are at fully allocated levels.
South Australia	Consistent with NWI requirements.		•			
Western Australia	Review and implement from December 2008.			•		
Tasmania	Consistent with NWI requirements.			•		Tasmania is implementing a risk-based approach to adopting formal plans accompanied by a comprehensive management framework for all water systems.
Northern Territory	Consistent with NWI requirements.		•			Existing policy delivers NWI-compliant plans. All plans are to be reviewed against NWI Schedule E and revised as required.
Australian Capital Territory	Complete.	•				
Commonwealth	Not applicable.					
NRMMC Workplan	Not applicable.					

Element: water access entitlements and planning						
3.1.2.5 action: substantial progress toward adjusting all overallocated and/or overused systems						
Relevance: part 4—ensures resource base sustainability and that entitlement security is not undermined NWI date: 2010—report section 3.1.2.5						
Jurisdiction	**Implementation plan commitment**	**Progress**				**Remarks**
		Completed	Substantially completed	Started	Not started	
New South Wales	Overallocated systems dealt with through agreed plans.			•		Timing of plans consistent with NWI. Entitlement reduction has occurred in groundwater plans, and long-term extraction limits set in all 31 WSPs.
Victoria	Plans for dealing with overallocated systems consistent with NWI.			•		Specific plans for adjusting overallocation through water recovery indicated.
Queensland	No systems identified as overallocated.			•		Groundwater still to be considered as part of planning activities.
South Australia	Review of WAPs for overallocation underway consistent with NWI requirements.			•		WAPs in place or in development for significant water resources. Five resources prescribed in addition to 1999 commitments. WAPs for two potentially overallocated resources under review.
Western Australia	Under review.			•		
Tasmania	Overuse addressed through water use sustainability project and enhancements to the regulatory framework for management of groundwater.		•			
Northern Territory	No system identified as overallocated.	•				Licences specify upper limit on extractions and pumping restrictions to maintain environmental outcomes.
Australian Capital Territory	No system identified as overallocated.	•				
Commonwealth	Not applicable.					
NRMMC Workplan	Not applicable.					

Element: water access entitlements and planning

3.1.2.6 action: risk assignment framework implemented

Relevance: part 5—provides greater certainty, security and equity for adjustment

NWI date: immediate—report section 3.1.2.6

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Risk assignment framework applied pre-2014. Post-2014 amendments by end-2006.		•			*Water Management Act 2000* adopted post 2014 risk assignment provisions in its 2005 amendment. Operational framework to be developed.
Victoria	Risks assigned by negotiation with parties. Risk sharing framework enshrined in *Water (Resource Management) Act 2005*.	•				
Queensland	Pre-2014 consistent. Post-2014 adjustments to legislation authorised by August 2007.			•		
South Australia	All plans to be reviewed. Risk assignment framework to be reviewed in 2010.			•		
Western Australia	System under review. Legislation scheduled for 2008.			•		Administrative arrangements to be implemented as plans are developed.
Tasmania	Current system complies pre-2014. Post-2014 scheduled for 2013.			•		
Northern Territory	Risk currently assigned. Need for change reviewed.			•		Risk is currently assigned to licence holders through upper limits on extractions. Risk assignment will be addressed in the *Water Act* review in 2008.
Australian Capital Territory	Need for risk assignment under review.			•		
Commonwealth	Develop process for addressing any outstanding policy issues.			•		
NRMMC Workplan	Not applicable.					

Element: water access entitlements and planning

3.1.2.7 action: plans to address Indigenous water issues

Relevance: part 6—ensuring that Indigenous interests are taken into account

NWI date: immediate—report section 3.1.2.7

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Indigenous water issues consistent with NWI requirements.		•			*Water Manatement Act* and WSPs provide Aboriginal cultural and commercial entitlements.
Victoria	Indigenous water issues consistent with NWI requirements.	•				Processes for addressing Indigenous issues have been incorporated into the water planning framework.
Queensland	Indigenous water issues consistent with NWI requirements.		•			
South Australia	Indigenous issues will be taken into account in review of WAPs.			•		Statewide Aboriginal Advisory Committee established.
Western Australia	Indigenous water issues currently taken into account and will be addressed as part of the current review.			•		
Tasmania	Process in place to review by end-2006 requirements for Indigenous access.			•		Relevant legislation currently being reviewed. NWI implementation will need to be consistent with this review.
Northern Territory	Indigenous water issues consistent with NWI requirements. Legal views on native title to be sought.		•			Existing planning accommodates Indigenous water issues. Legal advice regarding native title will be sought mid-2008.
Australian Capital Territory	Indigenous views sought in planning process—no issues to address.	•				
Commonwealth	Provide legal advice on native entitlement.			•		
NRMMC Workplan	Not applicable.					

Element: water access entitlements and planning

3.1.2.8 action: implement measures to address interception from land use change

Relevance: part 7—ensure entitlements issued are not undermined

NWI date: no later than 2011—report section 3.1.2.1

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Process to deal with interception through floodplain harvesting, farm dams and large scale plantation forestry has started.			•		Farm dams policy to limit overland flow on individual properties to 10% of the long-term average runoff.
Victoria	Process to deal with interception through storage and large scale plantation forestry has commenced.			•		
Queensland	Processes to deal with interception of overland flows are in place.		•			Moratoriums in place for areas of identified risk of increased take of overland flows. Licencing of overland flows in the Lower Balonne area.
South Australia	*Natural Resources Management Act 2004* provides basis to deal with interception.		•			Further processes in place to deal with potential need to investigate interception with respect to forestry and land use.
Western Australia	Process in place as part of the planning work underway.			•		
Tasmania	Process in place to gain better understanding and develop risk management strategy.			•		Work in progress to model impact of land use changes on water availability at the catchment level.
Northern Territory	Measures in place to deal with interception.			•		Process underway to determine interception threshold levels of the Katherine/Daly region.
Australian Capital Territory	Measures in place to deal with interception.	•				
Commonwealth	Not applicable.					Commonwealth to take lead and in coordination with CSIRO work on interception via large scale plantation forestry.
NRMMC Workplan	Review in 2006, to determine if there is scope for NRMMC to assist in coordination.				•	

Element: water markets and trading

3.2.2.1 action: publicly accessible, compatible, water access entitlement and trading registers

Relevance: efficient water markets, transaction costs of trades minimised

NWI date: full implementation by end-2006—report section 3.2.2.1

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Group A entitlements on register by June 2006. All others by June 2010.		•			Register complies with national characteristics. Licences will be uploaded when WSPs are completed and licences issued. Outstanding issues around characteristics of registers inside irrigation corporations.
Victoria	Establish single web-based nationally compatible register system by July 2007.		•			New register will comply with national characteristics—will go live on 1 July 2007 for northern Victoria.
Queensland	QLD WAR established for all allocations issued for completed plans.		•			WAR complies with national characteristics.
South Australia	Steps to achieve compatibility incorporated into plan July 2006. Implementation of compatible register ongoing.		•			Register complies with national characteristics. Outstanding issues around characteristics of registers inside irrigation trusts.
Western Australia	National characteristics will be incorporated into plan for implementation by end-2008.			•		
Tasmania	Existing Water Information Management System register reviewed and actions to achieve consistency implemented by December 2007.		•			Register will comply with national characteristics.
Northern Territory	Establish new registry system 12 months after endorsement of guidelines.			•		Drafting instructions to establish registry prepared. *Water Act* amendments expected in 2008.
Australian Capital Territory	Steps taken to ensure that register will comply with agreed national characteristic.		•			
Commonwealth						
NRMMC Workplan	Establish Registers Working Group to develop characteristics of compatible registers.	•				Endorsed by NRMMC November 2005. Work ongoing.

Element: water markets and trading						
3.2.2.2 action: compatible institutional and regulatory arrangements to facilitate trade						
Relevance: facilitate the operation of efficient water markets and the opportunities for trading NWI date: compatible arrangements by end-2007—immediate removal of barriers to temporary and permanent trade—report section 3.2.2.2						
Jurisdiction	**Implementation plan commitment**	**Progress**				**Remarks**
		Completed	Substantially completed	Started	Not started	
New South Wales	Trading consistent with Schedule G, barriers to temporary trade removed, removal of barriers to border rivers temporary trade and irrigation corps permanent trade by July 2006		•			Ongoing cross-border compatibility issues. Interim interstate trading commenced permanent trading on 1 July 2007. Irrigation companies will have access and termination fees in place by 1 July 2007.
Victoria	Participate in COAG Water Trading Group to develop compatible arrangements. Remove limits on trade to four per cent July 2006.		•			Further refinement required to improve the efficiency of the market. Southern MDB market now functional.
Queensland	Finalise Border Rivers ROP 2006. Trading arrangements consistent with Schedule G in basins with completed ROP's.		•			Introduction of permanent trading staged with finalisation of planning processes for a basin. Participation in COAG Interstate Trading Group.
South Australia	Relevant institutional and regulatory arrangements in place end-2007.		•			Ongoing cross-border compatibility issues.
Western Australia	Development of a compatible water trading system to be developed from 2008.			•		Being addressed through legislative reforms, to be introduced to state parliament in 2007.
Tasmania	Review existing arrangements for compatibility with Schedule G by September 2006.		•			Existing arrangements are considered compliant with Schedule G.
Northern Territory	Incorporate review Schedule G into review of *Water Act* and regulations September 2006.			•		Trade only applicable to one declared area. Informal policies considered compliant with Schedule G.
Australian Capital Territory	WAR permits permanent and temporary trade. There has been no demand for trade.		•			Cooperation in development of compatible institutional and regulatory arrangements.
Commonwealth	Chair the COAG Interstate Trading Group.		•			
NRMMC Workplan	Not directly applicable.					

Element: water markets and trading

3.2.2.3 action: complete water trading studies and consider recommendations

Relevance: facilitate the operation of efficient water markets and the opportunities for trading

NWI date: June 2005—report section 3.2.2.3

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	Whilst the consideration of the recommendations of studies has been completed by states and territories, the implementation of recommentations may still be in progress.
New South Wales	Work with NWI Committee to consider recommendations and develop a workplan of actions.	•				
Victoria	Participate in activities of COAG Water Trading Group to manage studies—consider outcomes.	•				
Queensland	Review water studies and prepare appropriate actions in light of recommendations.	•				
South Australia	Work with NWI Committee to consider recommendations and develop a workplan of actions.	•				
Western Australia	Consideration given to outcome of studies.	•				The majority of recommendations relevant to WA addressed through new legislation.
Tasmania	Outcomes considered where they are applicable to Tasmania.	•				
Northern Territory	Review outcomes of studies for relevance to NT.	•				NT has responded to recommendations arising from water trading studies through COAG Water Trading Group.
Australian Capital Territory	Support activities of COAG Water Trading Group to manage studies.	•				
Commonwealth	Lead group to undertake studies and develop workplan for implementation of actions to facilitate trade.	•				
NRMMC Workplan	Undertake studies consider recommendations develop workplan for NRMMC approval by end-2006.	•				Studies completed.

Element: water markets and trading

3.2.2.4 action: undertake a range of actions to facilitate trade within and between southern MDB states

Relevance: facilitate the operation of efficient water markets and the opportunities for trading in the MDB

NWI date: June 2005—report section 3.2.2.4

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Legislation to permit tagging, irrigation companies to open trade to four per cent by end-2005.	•				Active participant in COAG Interstate Trading Group and MDB Interstate Trade Board to resolve issues relating to facilitating interstate trade. Interim interstate trading commenced. Permanent trading from 1 January 2007. Irrigation companies will have access and termination fees in place by 1 July 2007.
Victoria	Legislation and full implementation of interstate trade by July 2007. Four per cent limit raised by July 2006.	•				Active participant in COAG Interstate Trading Group and MDB Interstate Trade Board to resolve issues relating to facilitating interstate trade. Interim interstate trading commenced. Permanent trading from 1 January 2007.
South Australia	Consult with trusts on opening trade to four per cent by June 2005. Review legislation December 2006. Investigate tagged trading by 2007.	•				Active participant in COAG Interstate Trading Group and MDB Interstate Trade Board to resolve issues relating to facilitating interstate trade. Compliant with four per cent interim threshold. Introduced Bill to enable participation in interstate tagged trading from 1 July 2007, signatory to three bilateral agreements relating to interim interstate tagged and exchange rate trading. Permanent trading from 1 January 2007.
Commonwealth	Work with states. Coordinate review and monitoring processes.					Convenor of COAG Interstate Trading Group and participant in MDB Interstate Trade Board to resolve issues relating to facilitating interstate trade.

Element: best practice water pricing and institutional arrangements						
3.3.2.1a action: pricing policies for water storage and delivery in rural and urban systems—complete commitments under the 1994 COAG WRF						
Relevance: facilitate efficient water use and efficient functioning water markets NWI date: full implementation by end-2004—report section 3.3.2.1						
Jurisdiction	**Implementation plan commitment**	**Progress**				**Remarks**
		Completed	Substantially completed	Started	Not started	
New South Wales	Completed end-2004.	•				
Victoria	"	•				
Queensland	"	•				
South Australia	"	•				
Western Australia	"	•				
Tasmania	"	•				
Northern Territory	"	•				
Australian Capital Territory	"	•				
Commonwealth	Not applicable.					
NRMMC Workplan	Not applicable.					

Element: best practice water pricing and institutional arrangements						
3.3.2.1b action: pricing policies for water storage and delivery in rural and urban systems—metropolitan—continued movement towards upper-bound pricing						
Relevance: facilitate efficient water use NWI date: end-2008—report section 3.3.2.1						
Jurisdiction	**Implementation plan commitment**	**Progress**				**Remarks**
		Completed	Substantially completed	Started	Not started	
New South Wales	Completed movement towards upper-bound pricing.	•				
Victoria	"	•				
Queensland	Will complete movement towards upper-bound pricing by 2008.		•			
South Australia	"		•			In-principle revenue direction for five years to June 2012 that will move towards upper revenue bounds.
Western Australia	Ongoing.		•			Major metropolitan providers are pricing at the upper bound.
Tasmania	Will complete movement towards upper-bound pricing by 2008.		•			
Northern Territory	Ongoing.			•		A path towards achieving upper-bound pricing is not yet in place.
Australian Capital Territory	Completed movement towards upper-bound pricing.	•				
Commonwealth	Not applicable.					
NRMMC Workplan	Not applicable.					

Element: best practice water pricing and institutional arrangements						
3.3.2.1c action: pricing policies for water storage and delivery in rural and urban systems—development of pricing policies for recycled water and stormwater						
Relevance: facilitate efficient water use NWI date: end-2006—report section 3.3.2.1						
Jurisdiction	**Implementation plan commitment**	**Progress**				**Remarks**
		Completed	Substantially completed	Started	Not started	
New South Wales	Pricing policies for recycled water and stormwater to be developed by DNR by December 2005.		•			Completed for recycled water pricing (IPART has developed pricing principles for recycled water and sewer mining). The IPART principles could also be applied to stormwater.
Victoria	Pricing policies for recycled water and alternative supplies have been developed by DSE and ESC.		•			Completed for recycled water pricing (the ESC has developed a broad set of pricing principles for recycled water). No pricing policies for stormwater identified.
Queensland	Stormwater management is being examined as part of the overall state water reform agenda. A review of recycling is being carried out through the QLD Water Recycling Strategy. Both due end-2006.			•		This is due to be considered as part of proposed recycling legislation by end of 2007 which will include health and continuity of supply matters.
South Australia	The government intends to review its recycled wastewater pricing policies. Completion of review dependent on timing of development of principles for pricing potable water by the SGWC.			•		Current practices are consistent with the report prepared for the SGWC.
Western Australia	Review and development of pricing policies due mid-2007.			•		Will consider pricing policies for recycled water and stormwater developed by the SGWC.
Tasmania	Not completed—was due end-2006.			•		Tasmania currently has a taskforce reviewing ways of achieving major long-term improvements in water and sewerage services. The development of pricing policies for recycled water and stormwater will await the outcome of the taskforce's investigations.
Northern Territory	Not completed—was due end-2006.			•		No formal pricing framework applies for recycled water or stormwater.
Australian Capital Territory	Completed.		•			The ICRC sets prices for recycled water.
Commonwealth	Not applicable.					
NRMMC Workplan	Not applicable.					

Element: best practice water pricing and institutional arrangements						
3.3.2.1d action: pricing policies for water storage and delivery in rural and urban systems—review and development of pricing policies for trade wastes						
Relevance: facilitate efficient water use NWI date: end-2006—report section 3.3.2.1						
Jurisdiction	**Implementation plan commitment**	**Progress**				**Remarks**
		Completed	Substantially completed	Started	Not started	
New South Wales	DNR to develop principles by the end of December 2005.	•				NSW has comprehensive policies in place for the pricing of non-residential sewerage and trade waste. These are documented in the Water Supply, Sewerage and Trade Waste Pricing Guidelines 2005 and the Liquid Trade Waste Management Guidelines 2005.
Victoria	DSE has undertaken a review of the trade waste management framework.		•			Review has made recommendations on principles for pricing of trade waste and other aspects of trade waste management. These are currently under consideration.
Queensland	Guidelines for councils have been issued. Development of further trade waste pricing options has commenced—due end-2006.			•		This activity has been deferred for consideration with full package of pricing.
South Australia	Completed review and development of pricing policies for trade wastes.	•				
Western Australia	Water Corporation has a formal pricing structure for trade wastes. Review and development of pricing policies for trade waste by mid-2007. Will consider these together with any policies developed by the SGWC by July 2007.			•		Policy intended to be cost reflective of the treatment of wastes, is scheduled for review by the Economic Regulatory Authority (WA).
Tasmania	The major metropolitan councils providing trade waste services have pricing structures in place, or are planning to introduce them. A formal review of trade waste guidelines will take place in 2008.			•		
Northern Territory	Not completed—was due end-2006.				•	A trade waste management regime is currently in place and was due to be reviewed in 2006, however, not clear as to whether a formal pricing framework applies.
Australian Capital Territory	Not completed—was due end-2006.				•	
Commonwealth	Not applicable.					
NRMMC Workplan	Not applicable.					

Element: best practice water pricing and institutional arrangements						
3.3.2.1e action: pricing policies for water storage and delivery in rural and urban systems—development of national guidelines for customers' water accounts						
Relevance: facilitate efficient water use and achieve pricing transparency NWI date: end-2006—report section 3.3.2.1						
Jurisdiction	**Implementation plan commitment**	**Progress**				**Remarks**
		Completed	Substantially completed	Started	Not started	
New South Wales	Participate in national NRMMC NWI Working Group process.		•			Further research to investigate the benefits of improved billing practices to water utilities.
Victoria	"		•			"
Queensland	"		•			"
South Australia	"		•			"
Western Australia	"		•			"
Tasmania	"		•			"
Northern Territory	"		•			"
Australian Capital Territory	"		•			"
Commonwealth	Not applicable.					
NRMMC Workplan	Not applicable.					EPHC approved guidelines November 2006.

Element: best practice water pricing and institutional arrangements						
3.3.2.1f action:	**pricing policies for water storage and delivery in rural and urban systems—rural and regional—achievement of lower-bound pricing and movement towards upper-bound pricing where practicable**					
Relevance: facilitate efficient water use and trade in water access entitlements NWI date: ongoing—report section 3.3.2.1						
Jurisdiction	**Implementation plan commitment**	**Progress**				**Remarks**
		Completed	Substantially completed	Started	Not started	
New South Wales	Ongoing.		•			Most rural and regional water providers have implemented lower-bound pricing and, are moving towards upper-bound pricing where practicable.
Victoria	Ongoing.	•				Both rural and regional water providers in Victoria are at the lower bound, and are on a path towards the upper bound.
Queensland	Ongoing.		•			Majority of SunWater schemes achieving lower-bound pricing, or are on a path to achieving lower-bound pricing. Regional water providers are being encouraged to move towards upper-bound pricing.
South Australia	Ongoing.		•			Performance of regional water businesses is not reported separately. However, SA notes that regional urban pricing conforms to movement towards the upper revenue bound.
Western Australia	Ongoing.			•		There is still some work to achieve lower-bound pricing in rural water systems. Water Corporation is phasing in lower-bound pricing for rural customers. Regional (non-major urban) water providers are at the lower bound.
Tasmania	Ongoing.		•			Still some work to do for at least one irrigation scheme, and for a number of local councils to move them towards the lower bound.
Northern Territory	Not commenced for regional. Not applicable for rural.				•	Cost recovery for regional water providers except Alice Springs is below the lower bound. No significant public or private rural water providers.
Australian Capital Territory	Not applicable.					
Commonwealth						
NRMMC Workplan						

Element: best practice water pricing and institutional arrangements

3.3.2.2a action: consistent approaches to pricing

Relevance: facilitate efficient water use and efficient functioning of water markets

NWI date: April 2006—report section 3.3.2.2

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Participate in national NRMMC NWI Working Group process.			•		Dependent on timing for development of principles through the SGWC. Expected to go to NRMMC November 2007. Consistent pricing requirements have been met to date.
Victoria	"			•		"
Queensland	"			•		"
South Australia	"			•		"
Western Australia	"			•		"
Tasmania	"			•		"
Northern Territory	"			•		"
Australian Capital Territory	"			•		"
Commonwealth	"			•		
NRMMC Workplan	April 2006.			•		

Element: best practice water pricing and institutional arrangements						
3.3.2.2b action: consistent approaches to pricing and attributing—costs for water planning and management						
Relevance: ensures that costs of undertaking water planning and management activities are appropriately attributed to water users to facilitate efficient water use and efficient functioning water markets NWI date: end-2006—report section 3.3.2.1						
Jurisdiction	**Implementation plan commitment**	**Progress**				**Remarks**
		Completed	Substantially completed	Started	Not started	
New South Wales	Dependent on timing for development of principles through the SGWC.			•		NSW to date has effectively met all proposed consistent pricing requirements.
Victoria	"			•		Completed in Victoria. Consistency across states still progressing through National Water Commission intergovernmental forums.
Queensland	"			•		Progressing implementation. Charges were to be introduced on 1 January 2006. Suspended pending development of nationally-consistent approaches.
South Australia	"			•		The Department of Water, Land and Biodiversity Conservation has commenced an evaluation of cost recovery for water planning and management costs.
Western Australia	"			•		The Department of Water has commenced development of a process whereby water administration fees will be passed on to water users.
Tasmania	"			•		Continued implementation of consistent approaches to pricing for planning and management through ongoing review of water licence fees.
Northern Territory	"			•		
Australian Capital Territory	"			•		
Commonwealth	Not applicable.					
NRMMC Workplan	Not applicable.					

Element: best practice water pricing and institutional arrangements						
3.3.2.3 action: investment in new or refurbished infrastructure						
Relevance: to promote economically efficient and sustainable use of water resources NWI date: ongoing—report section 3.3.2.3						
Jurisdiction	**Implementation plan commitment**	**Progress**				**Remarks**
		Completed	Substantially completed	Started	Not started	
New South Wales	Ongoing.	•				
Victoria	Ongoing.	•				
Queensland	Ongoing.	•				
South Australia	Ongoing.		•			SA has reviewed the Guidelines for the Evaluation of Public Sector Initiatives. SA Water reviews its risk assessment framework on a regular basis. The risk assessment framework includes tools to assess the potential impacts arising from economic, environmental and social sustainability risks identified during the risk assessments conducted for capital works and other initiatives. The government is reliant on private sector commercial practices for economic sustainability.
Western Australia	Ongoing.	•				
Tasmania	Ongoing.	•				
Northern Territory	Ongoing.	•				
Australian Capital Territory	Ongoing.	•				
Commonwealth	Not applicable.					
NRMMC Workplan	Not applicable.					

Element: best practice water pricing and institutional arrangements

3.3.2.4 action: managing the release of unallocated water

Relevance: provide appropriate mechanisms for release of unallocated water to promote economically efficient and sustainable use of water resources

NWI date: ongoing—report section 3.3.2.4

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Completed—December 2006.		•			Indication in implementation plan that a policy for release of unallocated water will be implemented by December 2006. Early drafting has commenced.
Victoria	Ongoing.	•				
Queensland	Ongoing.	•				
South Australia	Ongoing.			•		Plans must specify criteria for allocating water from the relevant resource. SA has commenced a project to ensure that any releases are consistent with the NWI requirement.
Western Australia	Ongoing.			•		Still some work to do in this area. It is noted that allocation policies are being reviewed over the next six months.
Tasmania	Ongoing.		•			A review of guidelines to assess applications for new water allocations from watercourses during winter is due for completion in 2009.
Northern Territory	Not applicable.	•				No action is seen as necessary against this NWI item in the NT as future plans will not have 'unallocated water'.
Australian Capital Territory	Not applicable.	•				Considered to be 'not applicable' to the ACT given that unallocated water is released as environmental flows.
Commonwealth	Not applicable.					
NRMMC Workplan	Not applicable.					

Element: best practice water pricing and institutional arrangements

3.3.2.5 action: management of environmental externalities

Relevance: promote economically efficient and sustainable use of water resources.

NWI date: ongoing—report section 3.3.2.5

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Ongoing.		•			To date has met requirements for environmental externalities as defined by SGWC.
Victoria	Have introduced requirement for authorities to pay an environmental contribution. Other work is ongoing.		•			Further work to be done to demonstrate relationship between the environmental contribution and environmental externalities. Reviewing environmental contributions paid by water authorities—due mid-2008.
Queensland	Ongoing.		•			Externalities will continue to be addressed through regulatory planning instruments.
South Australia	Ongoing.			•		Further work to be done in a number of areas.
Western Australia	Ongoing.			•		Methods developed by the SGWC for managing externalities considered in developing region specific rules for management of externalities to be included in statutory management plans.
Tasmania	Implement findings of the State Policy on Water Quality Management by end-2008. Ongoing.		•			Review of the State Policy on Water Quality Management, and review of the *Water Management Act 1999*, along with findings of the SGWC in relation to managing externalities, will be used as a basis for determining the most effective and practical approach for managing externalities.
Northern Territory	Ongoing.			•		Active on SGWC which will consider environmental externalities. Subject to findings of steering group, will build *Water Act* amendments in during 2008 review.
Australian Capital Territory	Completed.	•				Managed through a water abstraction charge.
Commonwealth	Not applicable.					
NRMMC Workplan	Not applicable.					

Element: best practice water pricing and institutional arrangements

3.3.2.6a action: institutional arrangements—benchmarking efficient performance

Relevance: improve accountability and transparency to encourage economically efficient and sustainable use of water resources and water infrastructure assets

NWI date: develop nationally-consistent framework by 2005, annual performance reporting ongoing—report section 3.3.2.6

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	National Performance Report for Urban Water Utilities released in May 2007.
New South Wales	Contribute to the development of a nationally-consistent report framework. Ongoing commitment to report on performance of metropolitan, non-metropolitan and rural water delivery agencies.		•			The Department of Water and Energy will also independently report on the performance of all urban water utilities in NSW. State Water has mandatory reporting. Irrigation companies currently report voluntarily to IPART (State Water) and to ANCID. NSW will consider making requirement of irrigation company licence only if voluntary approach does not work.
Victoria		•				ESC will also independently report on the performance of Victorian urban and rural water businesses.
Queensland			•			Non-metropolitan water providers will need to be provided with the necessary directive to report by the QLD Government.
South Australia			•			SA needs to direct irrigation trusts to report. Further work is also required to allow for reporting on the performance of the non-metropolitan component of SA Water's operations.
Western Australia			•			WA indicated that rural water delivery agencies may need to be provided with the necessary directive to report by government.
Tasmania			•			Non-metropolitan water providers will need to be provided with the necessary directive to report by the Tasmanian Government.
Northern Territory			•			
Australian Capital Territory						
Commonwealth			•			
NRMMC Workplan	Reporting framework by April 2006.		•			

Element: best practice water pricing and institutional arrangements

3.3.2.6b action: institutional arrangements—independent pricing regulator

Relevance: achieve pricing transparency and ensure sufficient revenue streams to allow efficient delivery of the required services

NWI date: ongoing—report section 3.3.2.6

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Completed—IPART carries out for major metropolitan providers.	•				Comprehensive regulatory framework and guidelines are in place for pricing of water services by the non-metropolitan urban water utilities.
Victoria	Completed—ESC carries out for all providers.	•				
Queensland	Completed—QCA carries out for all providers.	•				QCA investigates water prices when matters are referred by the premier and treasurer.
South Australia	Completed—ESCOSA carries out for SA Water.	•				ESCOSA reviews the process of setting prices for SA Water by the South Australian Cabinet.
Western Australia	Completed—ERA undertakes this role for the three major metropolitan providers in WA.	•				ERA reviews the charges set by Water Corporation, Busselton Water and Aqwest (previously Bunbury Water Board).
Tasmania	Completed—GPOC carries out for bulk water suppliers and local councils.	•				GPOC reviews prices charged by bulk water suppliers and local councils.
Northern Territory	Completed—the Utilities Commission carries out this function.	•				The regulatory minister may seek independent advice from the Utilities Commission in setting prices.
Australian Capital Territory	Completed—the ICRC sets prices for ACTEW.	•				
Commonwealth	Not applicable.					
NRMMC Workplan	Not applicable.					

Element: integrated management of environmental water

3.4.2.1 action: effective and efficient management and institutional arrangements

Relevance: implement management and institutional arrangements that will achieve environmental and public benefit outcomes sought

NWI date: immediate—report section 3.4.2.1

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Institutional arrangements are in place.	•				Arrangements are in place with performance monitoring.
Victoria	Institutional arrangements in place.	•				Addressed through statements of obligations for water authorities and catchment management areas.
Queensland	Institutional arrangements linked to WRP/ROP development.		•			Full implementation linked to finalisation of ROPs, so progress / timing of plan rollout requires monitoring.
South Australia	Institutional arrangements linked to WAP development. Progressing development of arrangements.		•			
Western Australia	Policies being developed. Implementation post legislation amendments in December 2008. Linked to WMP development.			•		Review process will be included.
Tasmania	Much progress on CFEV and the holistic environmental flow methodology. Linked to WMP development.		•			Currently updating the Water for Ecosystems Policy to better reflect its contemporary, holistic approach to determining environmental water needs and providing statutory-based environmental water.
Northern Territory	Institutional arrangements linked to WAP development.		•			NT working with QLD and SA to achieve cross border outcomes for Great Artesian Basin, Lake Eyre Basin and Gulf of Carpentaria, and developing policies and legislative elements for Living Rivers Programme.
Australian Capital Territory	Institutional arrangements specified in the existing plan—Think Water Act Water.	•				The one plan governs all management plans in the ACT.
Commonwealth	Involved in the Living Murray First Step and lead on the HCVAE Task Group.	•				Provides advice on RNWS projects when required.
NRMMC Workplan	Not applicable.					

Element: integrated management of environmental water

3.4.2.2 action: principles for recovery of water to achieve environmental outcomes

Relevance: recovery of water in a manner that is consistent with NWI objectives

NWI date: ongoing—report section 3.4.2.2

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Linked to identifying environmental water in WSPs and water recovery programmes.		•			Many highly developed systems with competition for water.
Victoria	Environmental Water Reserve in all systems. Cap on diversions in stressed systems.		•			Strategies detailing environmental water to be completed by 2009.
Queensland	Linked to the flow rules developed in WRPs, as opposed to specific entitlements.		•			No overallocation identified in QLD. Rollout of plans delays specification of environmental flows.
South Australia	Provided through entitlement regulation in WAPs.		•			Supports and utilises market options to recover water.
Western Australia	Overallocation dealt with in WMPs with plan development prioritised. Audit of groundwater licences.			•		Legislation changes in December 2008 will provide secure arrangements.
Tasmania	Linked to identifying environmental water in WMPs and the CFEV process.		•			Progressing development of procedures. Validation of conservation management priorities under CFEV is progressing.
Northern Territory	Linked to identifying environmental water in WAPs.		•			NT indicates there is not a requirement to formally recognise 'principles for recovery of water to achieve environmental outcomes' in the NT.
Australian Capital Territory	There is no identified overallocation in the ACT, and it is not likely in the future so no methods for recovery developed.	•				Surface water and groundwater managed in conjunction.
Commonwealth	Contributed funding to a number of water recovery programmes.	•				Programmes contributed to are all within the Murray-Darling Basin.
NRMMC Workplan	Not applicable.					

Element: water resource accounting						
3.5.2.1. action: benchmarking of water accounting systems						
Relevance: essential pre-cursor to adoption of best practice NWI date: mid-2005—report section 3.5.2.1						
Jurisdiction	**Implementation plan commitment**	**Progress**				**Remarks**
		Completed	Substantially completed	Started	Not started	This benchmarking activity of the NWI has been completed. Development and implementation of standards are expected to lead to the continual improvement sought by the NWI.
New South Wales	Participate in NWI Working Group to undertake benchmarking and stocktake.	•				Agreement through NRMMC to participate in next phase of development of national water accounting standards.
Victoria	"	•				"
Queensland	"	•				"
South Australia	"	•				"
Western Australia	"	•				"
Tasmania	"	•				"
Northern Territory	"	•				"
Australian Capital Territory	"	•				"
Commonwealth	Manage national project.	•				Five million dollars RNWS funding for standards development phase.
NRMMC Workplan	Stocktake and benchmarking completed October 2005. Draft accounting system template to NRMMC by October 2006. States to implement by October 2007.	•				Stocktake and benchmarking completed mid-2006. NRMMC agreed to adopt Chart of Accounts and workplan to define information requirements and develop a conceptual framework for water accounting and national water accounting standards by June 2009.

Element: water resource accounting

3.5.2.2 action: consolidated water accounts

Relevance: robust consolidated water accounts protect integrity of water access entitlement system

NWI date: implementation by 2006—report section 3.5.2.2

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Accounting for all surface water and groundwater sources by 2006. Integrate surface water and groundwater by 2008.		•			Participation in NRMMC NWI Working Group. Commitment to NRMMC November 2006 decision to develop a national water accounting system for completion in 2009.
Victoria	Develop chart of water accounts and standardised reports 2006. Review groundwater interactions 2007.		•			"
Queensland	Implement Water Management System for single point of truth for all water information.		•			"
South Australia	Water Information and Licence Management Application system implemented 2004.		•			"
Western Australia	Implement integrated surface water and groundwater accounts by 2008.			•		
Tasmania	Implement a water accounting and reporting framework December 2008. Develop surface water and groundwater models January 2008.			•		"
Northern Territory	Participation in NRMMC NWI Working Group.			•		"
Australian Capital Territory	Integrated surface water and groundwater accounting complete. Participation in NRMMC NWI Working Group.		•			"
Commonwealth	Manage national project.		•			Commitment to NRMMC decision. Five million dollars provided through RNWS programme.
NRMMC Workplan	Draft accounting system template to NRMMC by October 2006. States to implement by October 2007.					NRMMC November 2006 decision to work on developing a national water accounting system for completion in 2009.

Element: water resource accounting

3.5.2.3 action: environmental water accounting

Relevance: support for environmental access entitlements and requirement for integrated management of environmental water

NWI date: develop annual reporting arrangements mid-2005 environmental water registers by mid-2006—report section 3.5.2.3

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Environmental water register late 2007.			•		Participate in NRMMC NWI Working Group. Commitment to NRMMC decision to develop a national water accounting system for completion in 2009.
Victoria	Environmental accounting requirements in water register August 2007.			•		"
Queensland	Subject to work of NRMMC NWI Working Group. Develop environmental reporting arrangements specifically for rules based approaches.			•		"
South Australia	Subject to work of NRMMC NWI Working Group. Complete development of net based public register of entitlements including environmental by December 2007.			•		"
Western Australia	Subject to work of NRMMC NWI Working Group apply environmental water register as required.			•		"
Tasmania	Subject to work of NRMMC NWI Working Group. Apply environmental water register where necessary. Predominantly rules based.			•		"
Northern Territory	Participation in NRMMC NWI Working Group. Apply environmental accounting as proposed.			•		"
Australian Capital Territory	Participation in NRMMC NWI Working Group. Apply environmental accounting as proposed.			•		"
Commonwealth	Manage national project.			•		Committment to NRMMC descsion $5 million provided through RNWS programme.
NRMMC Workplan	Consider in context of work on stocktake, benchmarking and consolidated water accounts.					NRMMC November 2006 decision to work on developing a national water accounting system, including environmental water accounting for completion in 2009.

Element: water resource accounting

3.5.2.4 action: sharing of information

Relevance: improved access to information—improved efficiency of collection—ability to manage data at a national level

NWI date: ongoing—report section 3.5.2.4

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Participate in NRMMC NWI Working Group. Work through the ESCAWRI. Implement nationally agreed measures.			•		NRMMC November 2006 agreed to the principle of sharing data on the Internet. ESCAWRI proposes to pilot a creative commons legal licensing framework.
Victoria	"			•		
Queensland	"			•		
South Australia	"			•		
Western Australia	"			•		
Tasmania	"			•		
Northern Territory	"			•		
Australian Capital Territory	"			•		
Commonwealth	Establish Australian Water Data Infrastructure Project database. ESCAWRI provides initial report on implementation to NRMMC NWI Committee end-2006.			•		The National Water Commission undertook baseline assessment of Australian Water Resources 2005 Level 1 report September 2006. Level 2 assessment due mid-2007.
NRMMC Workplan	NRMMC NWI Working Group requests ESCAWRI to take action under this item—March 2006.					

Element: water resource accounting

3.5.2.5 action: consistent metering and measurement

Relevance: essential requirement—protects integrity of water access entitlement system

NWI date: actions implemented by end-2007—report section 3.5.2.5

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Develop and implement NSW extraction monitoring policy by June 2008.			•		Participating in NRMMC NWI Working Group on metering.
Victoria	Install meters for >90% of extracted water August 2007.			•		"
Queensland	Implement a metering framework consistent with NWI by end-2004. Participate in NRMMC NWI Working Group on metering.			•		"
South Australia	Volumetric conversion and meters in south-east July 2007.			•		"
Western Australia	Gnangara Pilot October 2007. Rollout statewide metering programme tied to water management planning programme in 2008.			•		"
Tasmania	Policy for meters on all existing and planned allocation take exists.			•		"
Northern Territory	All licences in NT require metering of extraction.			•		"
Australian Capital Territory	All authorised extraction required to be metered and reported.			•		"
Commonwealth	Coordinate work of metering expert advisory Committee. National measurement institute develops standards. RNWS funding investment in standards.			•		"
NRMMC Workplan	NRMMC NWI Committee establishes metering group. Standards finalised December 2006. Implement meter standard December 2007.					Standards developed by National Measurement Institute of Australia. NRMMC November 2006 agrees to introduce a mandatory standard for metering of +-five per cent for in-field accuracy.

Element: water resource accounting

3.5.2.6 action: national guidelines for reporting

Relevance: protects integrity of water access entitlement system

NWI date: apply guidelines by end-2007—report section 3.5.2.6

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Prepare state-based reports. Participate in national process through NRMMC NWI Working Group.			•		Agreement through NRMMC to participate in next phase of development of national water accounting standards including national guidelines for reporting. Complete 2009.
Victoria	"			•		
Queensland	"			•		
South Australia	Participate in national process through NRMMC NWI Working Group.			•		
Western Australia	"			•		
Tasmania	Prepare state-based reports. Participate in national process through NRMMC NWI Working Group.			•		
Northern Territory	Participate in national process through NRMMC NWI Working Group.			•		
Australian Capital Territory	"			•		
Commonwealth	"			•		
NRMMC Workplan	NRMMC NWI Committe prepare national guidelines for reporting April 2006.					Superseded by stocktake of accounting practice and proposal agreed by NRMMC for development of national water accounting standards.

Element: urban water reform

3.6.2.1a action: undertake a range of actions to manage demand for water (paragraph 91)—water efficiency labelling

Relevance: increase water use efficiency in domestic and commercial settings; encourage reuse and recycling of wastewater where cost effective

NWI date: December 2006—report section 3.6.2.1

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Corresponding legislation in force. Study to identify water efficiency labelling and standards products suitable for minimum standards.	•				*Water Efficiency Labelling and Standards (NSW) Act 2005* declared 9 August 2005.
Victoria	Corresponding legislation in force.	•				*Water Efficiency Labelling and Standards Act 2005* declared 9 August 2005.
Queensland	"	•				*Water Efficiency Labelling and Standards Act 2005* declared 9 August 2005.
South Australia	"	•				*Water Efficiency Labelling and Standards Act 2006* declared 13 September 2006.
Western Australia	"	•				*Water Efficiency Labelling and Standards Act 2006* declared 16 May 2007.
Tasmania	"	•				*Water Efficiency Labelling and Standards Act 2005* declared 16 December 2006.
Northern Territory	"	•				*Water Efficiency Labelling and Standards Act 2006* declared 16 May 2007.
Australian Capital Territory	"	•				*Water Efficiency Labelling and Standards Act 2005* declared 9 August 2005.
Commonwealth	"	•				The *Commonwealth Water Efficiency Labelling and Standards Act 2005* came into effect on 1 July 2005.
NRMMC Workplan	Nationally coordinated action. States to provide progress reports to NRMMC.	•				

Element: urban water reform

3.6.2.1b action: undertake a range of actions to manage demand for water (paragraph 91)—Smart Water Mark

Relevance: increase water use efficiency in domestic and commercial settings; encourage reuse and recycling of wastewater where cost effective

NWI date: December 2006—report section 3.6.2.1

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Participate in the activities of the EPHC Working Group. Guidelines for water efficient gardens and plant selection tool on Sydney Water Corporation website.		•			
Victoria	Participate in the activities of the EPHC Working Group.		•			
Queensland	Participate in the activities of the EPHC Working Group.		•			
South Australia	Participate in the activities of the EPHC Working Group.		•			
Western Australia	Participate in the activities of the EPHC Working Group.		•			
Tasmania	Participate in the activities of the EPHC Working Group.		•			
Northern Territory	Participate in the activities of the EPHC Working Group.		•			
Australian Capital Territory	Participate in the activities of the EPHC Working Group.		•			
Commonwealth	Participate in the activities of the EPHC Working Group.		•			

Element: urban water reform

3.6.2.1c action: undertake a range of actions to manage demand for water (paragraph 91)—review of water restrictions

Relevance: increase water use efficiency in domestic and commercial settings; encourage reuse and recycling of wastewater where cost effective

NWI date: December 2006—report section 3.6.2.1

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	Nationally coordinated action at the request of the NRMMC, overseen by the NWI Committee.
New South Wales	Review Water For Life Plan. Establish and administer water savings fund.			•		Participate in the national review of the effectiveness of temporary water restrictions.
Victoria	Introduce permanent water conservation measures for Melbourne. All regional urban Victorian water authorities to develop permanent water saving plans.			•		"
Queensland	Research effectiveness of permanent water restrictions on exterior water use. Develop and release QLD best practice guidelines for permanent low-level restrictions.			•		"
South Australia	Review of impact of water conservation measures on water use trends. Implement permanent water conservation measures. Mandatory rainwater tanks for new dwellings and extensions.			•		"
Western Australia	Regular reviews of water restriction effectiveness and community attitudes.			•		"
Tasmania	Demand management projects funded through Living Environment Programme.			•		"
Northern Territory	Review water restriction policies and associated public education strategies—ongoing.			•		"
Australian Capital Territory	Trial of permanent water savings measures.			•		"
Commonwealth						Work undertaken by the National Water Commission in consultation with states at the request of the NRMMC NWI Committee.
NRMMC Workplan	Not on workplan.					

Element: urban water reform

3.6.2.1d action: undertake a range of actions to manage demand for water (paragraph 91)—management responses to system losses

Relevance: increase water use efficiency in domestic and commercial settings; encourage reuse and recycling of wastewater where cost effective

NWI date: December 2006—report section 3.6.2.1

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Prioritise and implement management responses to system losses. Increase expenditure on detection, renewal, and repair.		•			
Victoria	Water authorities implement leakage reduction programmes.		•			
Queensland	Water service providers to submit System Leakage Management Plan to regulator for approval based on regulatory guidelines.		•			
South Australia	Implement leakage reduction programme—ongoing.		•			
Western Australia	Trial in pressure management to start March 2007.			•		
Tasmania	Demand management covered through key performance indicators on water restrictions, system breaks, system losses and consumption.		•			
Northern Territory	Incorporate leakage performance indicators into water access entitlements for public utilities.		•			
Australian Capital Territory	No specific action indicated for this ongoing commitment.			•		
Commonwealth	Not applicable.					
NRMMC Workplan	Not applicable.					

Element: urban water reform

3.6.2.2a action: undertake a range of actions in regard to innovation for the creation of water sensitive cities (paragraph 92)—develop guidelines for priority elements—recycled and stormwater

Relevance: increase water use efficiency in domestic and commercial settings; encourage reuse and recycling of wastewater where cost effective

NWI date: December 2006—report section 3.6.2.2

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Revise NSW single residential greywater guidelines.		•			NSW chairs the national working group on stormwater reuse.
Victoria	Participate in activities to develop national guidelines.		•			
Queensland	Participate in activities to develop national guidelines.		•			Release of QLD Water Recycling Guidelines. Amendment to QLD Urban Drainage Manual.
South Australia	Participate in activities to develop national guidelines.		•			SA chairs the national working group on recycled water for drinking.
Western Australia	Participate in activities to develop national guidelines.		•			WA chairs the national working group on managed aquifer recharge.
Tasmania	Participate in activities to develop national guidelines.		•			
Northern Territory	Participate in activities to develop national guidelines.		•			
Australian Capital Territory	Participate in activities to develop national guidelines.		•			
Commonwealth	Support national actions.					
NRMMC Workplan	Development of guidelines overseen by the JSCHEG.					NRMMC and EPHC endorsed phase 1 of guideline development (reuse of sewage effluent and grey water) November 2006. Phase 2 to include 'Recycled Water for Drinking (November 2007)', 'Stormwater Reuse' (November 2007) and 'Managed Aquifer Recharge' (April 2008).

Element: urban water reform

3.6.2.2b action: Undertake a range of actions in regard to innovation for the creation of water sensitive cities (paragraph 92)—for assessing options for water sensitive urban development

Relevance: increase water use efficiency in domestic and commercial settings; encourage reuse and recycling of wastewater where cost effective

NWI date: December 2006—report section 3.6.2.2

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	Nationally coordinated action.
New South Wales	Participate in JSCWSC process for developing national guidelines.			•		
Victoria	Participate in JSCWSC process for developing national guidelines.			•		
Queensland	Participate in JSCWSC process for developing national guidelines. Completion of a strategy for water sensitive urban design in SEQ.			•		QLD is chairing the technical working established by the JSCWSC to progress the development of these guidelines.
South Australia	Participate in JSCWSC process for developing national guidelines.			•		
Western Australia	Participate in JSCWSC process for developing national guidelines.			•		
Tasmania	Participate in JSCWSC process for developing national guidelines. Tasmanian WSUD manual extended statewide by December 2006.			•		
Northern Territory	Participate in JSCWSC process for developing national guidelines. Complete Guidelines for Hot Arid Residential Developments—December 2007.			•		
Australian Capital Territory	Participate in JSCWSC process for developing national guidelines.			•		
Commonwealth	Chair JSCWSC.					
NRMMC Workplan	Coordinated by the JSCWSC and reporting to NRMMC and EPHC.					Working group under the JSCWSC is progressing the development of national guidelines for evaluating options for water sensitive urban developments. Expected completion June 2007.

Element: urban water reform						
3.6.2.2 c action: undertake a range of actions in regard to innovation for the creation of water sensitive cities (paragraph 92)—evaluate 'icon water sensitive urban developments' (92iii)						
Relevance: increase water use efficiency in domestic and commercial settings; encourage reuse and recycling of wastewater where cost effective NWI date: December 2006—report section 3.6.2.2						
Jurisdiction	**Implementation plan commitment**	**Progress**				**Remarks**
		Completed	Substantially completed	Started	Not started	
New South Wales	Participate in the JSCWSC process for evaluating water sensitive urban developments.			•		NSW is developing guidelines for Managing Urban Stormwater, including for WSUD was due to be published by 2006.
Victoria	".			•		
Queensland	".			•		Several iconic projects are currently being evaluated in QLD.
South Australia	".			•		
Western Australia	"			•		
Tasmania	".			•		
Northern Territory	".			•		
Australian Capital Territory	"			•		Finalisation of guidelines for the implementation of WSUD.
Commonwealth	"			•		Led by the National Water Commission at the request of the NRMMC, overseen by the JSCWSC and reporting to NRMMC.
NRMMC Workplan	Not applicable.					

Element: urban water reform

3.6.2.2d action: undertake a range of actions in regard to innovation for the creation of water sensitive cities (paragraph 92)—review of institutional and regulatory models for integrated water cycle planning and management (92iv)

Relevance: increase water use efficiency in domestic and commercial settings; encourage reuse and recycling of wastewater where cost effective

NWI date: December 2006–report section 3.6.2.2

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	Nationally coordinated action.
New South Wales	Participate in JSCWSC process. Integrated water cycle management planning as best practice requirement.			•		
Victoria	Participate in JSCWSC process. Extension of the 'Pathways to Sustainability' programme to other industrial water users within the metropolitan area.			•		Metropolitan retail water authorities and Melbourne Water are developing a coordinated metropolitan water supply demand strategy, to be completed by late 2006.
Queensland	Participate in JSCWSC process.			•		A number of QLD activities relate to this issue, including SEQ Regional Plan and Programme, SEQ Regional Water Supply Strategy, Central QLD Regional Water Supply Study, Northern QLD Regional Water Supply Study.
South Australia	Participate in JSCWSC process.			•		
Western Australia	Participate in JSCWSC process.			•		Implementation, monitoring and evaluation of urban drainage reform, including the Urban Drainage Initiative, Stormwater Management Manual.
Tasmania	Participate in JSCWSC process.			•		
Northern Territory	Participate in JSCWSC process.			•		
Australian Capital Territory	Participate in JSCWSC process.			•		
Commonwealth	Participate in JSCWSC process.			•		
NRMMC Workplan	Led by the National Water Commission, overseen by the JSCWSC and reporting to NRMMC.			•		

Element: urban water reform

3.6.2.2e action: undertake a range of actions in regard to innovation for the creation of water sensitive cities (paragraph 92)—review of incentives to stimulate innovation (92v)

Relevance: increase water use efficiency in domestic and commercial settings; encourage reuse and recycling of wastewater where cost effective

NWI date: December 2006—report section 3.6.2.2

Jurisdiction	Implementation plan commitment	Progress				Remarks
		Completed	Substantially completed	Started	Not started	
New South Wales	Participate in JSCWSC process to review incentives to stimulate innovation. Development of recycled water projects arising out of the Metropolitan Water Plan.			•		
Victoria	Participate in JSCWSC process.			•		
Queensland	Participate in the JSCWSC process. Regular review of new programmes established after the 2005 review of major subsidies schemes for water infrastructure.			•		
South Australia	Participate in the JSCWSC process.			•		
Western Australia	Participate in the JSCWSC process.			•		
Tasmania	Participate in the JSCWC process. Projects targeting the adoption of WSUD.			•		
Northern Territory	Participate in the JSCWSC process. Continue demand management, WSUD and wastewater reuse initiatives in Alice Springs as pilots for extension to other regions.					
Australian Capital Territory	Participate in the JSCWSC process. Investigate feasibility of establishing a fund to encourage innovation in water management. Review of incentives to stimulate innovation.					
Commonwealth	Led by the National Water Commission at the request of the JCWSC, overseen by JSCWSC and reporting to NRMMC.			•		
NRMMC Workplan	Not applicable.					