Department of Natural Resources

30 September 2005

Mr Jim Cox
Chief Executive Officer
Independent Pricing and Regulatory Tribunal
Level 2, 44 Market Street
SYDNEY NSW 2000

Y05/3424

Dear Mr Cox

Submission to IPART to set Water Resource Management Charges from 1 July 2006

Please find attached the Department of Natural Resources (DNR's) pricing submission for the Tribunal to set water resource management (WRM) charges to apply from 1 July 2006.

In order to provide a submission based on objective financial and other information, the Department engaged independent consultants, The Allen Consulting Group and Danuconsult Ltd. The consultants were given full access to DNR's records, resources and information.

The submission includes responses to issues raised by the Tribunal in its 2004 Issues Paper and August 2005 Determination on bulk water charges.

The information contained in this submission represents a summary of the detailed costing prepared by the Consultants. The Department welcomes the Tribunal's further examination of the data and analyses.

Also, the Department looks forward to providing any additional assistance which the Tribunal may require during the determination process.

Attached is a copy of the NSW National Water Initiative (NWI) Implementation Plan recently submitted by the Premier to the National Water Commission. The Plan provides details of mandatory actions required to implement key elements of the NWI. These elements, together with implementation of the provisions under the *Water Management Act 2000*, underpin the framework of DNR's water management function during the next few years, and provide the foundation supporting the WRM costing projections contained in the submission.

The Plan, which is provided to you on confidential basis, is expected to be accredited in early October 2005. Accordingly, specific details contained in the Plan were not able to be published with DNR's submission.

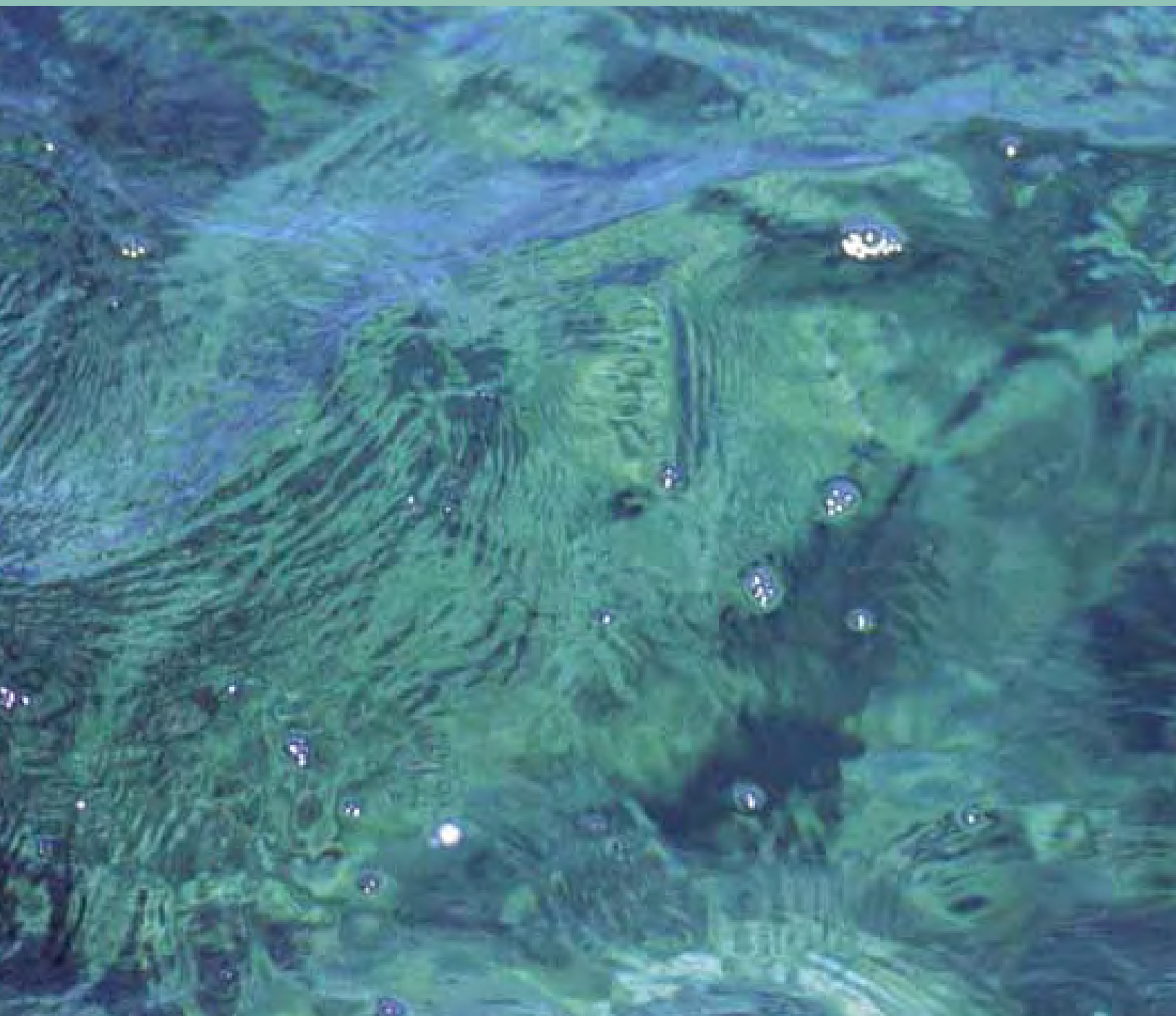
If you require further information on the submission, please contact Peter Sutherland, Deputy Director General on 9228 6324 or Rick Rundle, Principal Policy Analyst on 9895 7445.

Yours sincerely

RICHARD SHELDRAKE
ACTING DIRECTOR GENERAL

NSW Government
DEPARTMENT OF NATURAL RESOURCES

Submission to IPART to set Water Resource Management Charges from 1 July 2006



Acknowledgments

The Department of Natural Resources acknowledges the assistance of The Allen Consulting Group in preparing this submission.
The Allen Consulting Group provided specialist economic advice to the Department and helped with assembling the document.

NSW Department of Natural Resources
www.naturalresources.nsw.gov.au
Published September 2005
Publication number DNR 05_087
ISBN 0-7347-5641-0

Submission to IPART to Set Bulk Water Resource Management Charges from 1 July 2006

September 2005

NSW Department of Natural Resources

Table of Contents

List of Figures

List of Tables

Executive summary

The Independent Pricing and Regulatory Tribunal (IPART) determines the maximum prices that may be charged for bulk water services in NSW. Bulk water services include both the water resource management (WRM) services and regulatory activities that are undertaken by the Department of Natural Resources (DNR) on behalf of the Water Administration Ministerial Corporation (WAMC), and the water delivery services provided by the State Water Corporation (SWC).

DNR and SWC are discrete and separate entities. Each is required to make separate submissions to IPART, identifying their efficient costs that are attributable to water users. The IPART (Water Services) Order 2004 establishes the terms of reference for IPART's inquiry process for determining the maximum charges for these services.

Under the National Water Initiative (NWI) and its predecessor – the 1994 Council of Australian Governments (CoAG) Strategic Water Reforms – NSW is required to move to full cost recovery for provision of bulk water services.

IPART's current pricing determination applies to 2005–06. In the determinations, maximum prices for DNR's WRM services were established on the basis of DNR's cost base as submitted to IPART in 2001, adjusted for inflation to 2005–06. As a consequence of the substantial water reforms that have taken place in NSW over the last five years, it was not possible for DNR to make accurate cost projections over the period 2001–02 to 2004–05. More recently, the NWI has continued the reform process. With these reforms now in the implementation phase, DNR is in a better position to estimate its future WRM costs for purposes of setting charges for its WRM services.

IPART is commencing a pricing review to set WRM charges from 1 July 2006. This pricing submission forms an input to the review process.

Key features of the submission

Historical WRM costs

- In real terms, costs over the period 2001–02 to 2004–05 have remained relatively stable, within the range of $40m to $45m a year.
- Historical WRM costs are $5m to $10m less than the cost base assumed by IPART in its 2005–06 determination, which was based on 2001 forecast costs inflated by CPI. The 2004–05 costs were unusually low, owing to the impact of internal restructuring, which constrained the deployment of resources to DNR's water management function, in conjunction with a movement of resources from general WRM activities to processing consent transactions. (The latter activities are not, by convention, included in WRM operating costs, but are accounted for separately.) The within-year shift in resources to consent processing reflected the relatively intense effort associated with the introduction of the new licensing provisions under the *Water Management Act 2000* (WMA) on 1 July 2004.

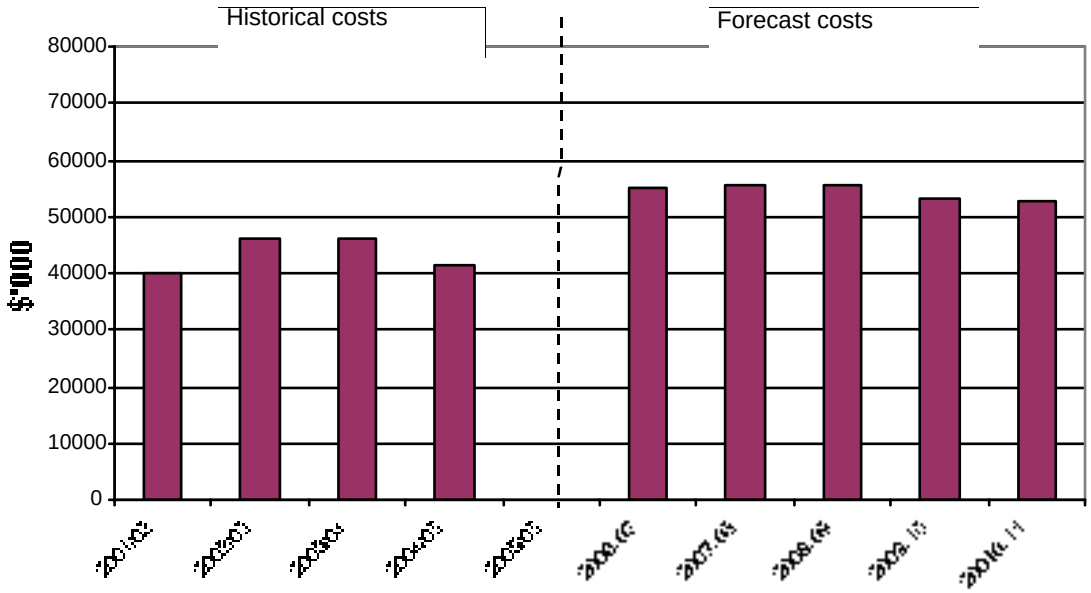
Future WRM costs

- WRM costs are forecast to fall within the range of $54m to $56m during the period 2006–07 to 2010–11. The WRM cost base has been predicated within a framework of (a) the full implementation of provisions under the WMA, particularly those relating to the water sharing plans (WSPs), and (b) new commitments under the NWI. Most of the increase in WRM costs is associated with redirecting 71 equivalent full-time positions within DNR to its WRM function based on 2004–05 levels, or 48 positions based on 2003–04 levels. The higher level of resourcing represents six additional staff per region. It reflects the need for DNR to prioritise its efforts to meet these mandatory commitments. Further information on the WMA and NWI

commitments and other factors contributing to the higher level of WRM costs is provided in Parts A and B and Appendix 2.

- Increased WRM activity is necessary for DNR to formally manage all water sources to the requirements of statutory WSPs. Before the plans existed, water rights were not secured. They were simply a 'pumping authority', which could be removed at any time by action of the Minister. Water rights only exist and can only be secured on the Water Access Register following the gazettal of a WSP. Thus, the plans mandate a degree of formal management that did not exist before. DNR is bound by the plans to do certain things which it did not have to do before, and, in the case of groundwater and unregulated rivers, did not do. The implementation of these plans underpins the integrity of these very valuable and tradeable water rights, and this activity accounts for most of the increases in WRM costs.
- As indicated in Figure ES1, there has been a generally increasing level of WRM costs over recent years. With the exception of 2004–05, the increase in costs for the three-year period 2003–04 to 2006–07 is under 20%, equivalent to an increase of 6.5% a year. As WRM costs are forecast to be relatively stable over the ensuing years, annual increases over the price path measured against the historical cost base are somewhat less than this level.
- DNR's forecast costs for the five years to 2010–11 are shown in Figure ES1, together with the trajectory of historical costs.

Figure ES1: Total WRM costs – historical and five-year forecast (2005 dollars)



Revised cost sharing arrangements

- To assist IPART in establishing an appropriate basis for cost recovery, DNR has developed a proposal for revised cost sharing arrangements. Since 2001, circumstances have changed sufficiently to warrant a revision to the cost shares. DNR also believes that the existing cost sharing methodology needs to be simplified and clarified to make the process of allocating WRM costs more transparent.
- The proposed changes, if adopted by IPART, will result in some increases in the share of WRM costs allocated to water users from the current levels. The revised cost shares are based on a robust cost sharing framework, as detailed in this submission.

Tariffs and tariff structures

- DNR believes there is a need to simplify the various tariff structures that are currently applied and to improve consistency across the different customer groups.
- It is proposed that WRM costs be recovered solely through an access charge on megalitres of entitlement (or per unit share of the consumptive pool).
- An analysis of historical cost data indicates that there is also scope for simplifying the range of tariffs. A uniform tariff could be applied across some valleys, based on regional groupings of valleys with similar unit costs of service provision. The revolving nature of DNR's WRM activities means that over a period of years, the cross-subsidisation from application of uniform tariffs would be minimal.

Security premiums

- It is proposed that the WRM tariff structure to apply from 1 July 2006 exclude security premiums. Provision of different levels of security (or water supply reliability) is a function of SWC water delivery infrastructure and operations. Consequently, the premiums should be built into SWC charges only – to reflect the cost of providing higher reliability supply – and removed from DNR's WRM tariff system.

Wholesale discounts

- Under current arrangements, irrigation corporations and districts (ICDs) receive a wholesale discount on their bulk water tariff. DNR believes that environmental management activities performed by ICDs do not materially offset its WRM costs. Given the arbitrary nature of the current discounts, and the fact that they are based on water delivery activities that are no longer performed by DNR, it is proposed that the discounts be removed.

Transaction fees on WMA consents

- Bulk water service provision in NSW is regulated through DNR's water management consents regime, comprising licences, permits and approvals. IPART in turn regulates fees for transactions on these consents. The costs attributable to these transactions are not included in WRM costs, but are accounted for as separately identified activities for cost recovery purposes.
- A new water management consents regime was introduced with the implementation of WSPs under the WMA, a process that began on 1 July 2004. Conversion to the new system involves replacing *Water Act 1912* (WA) entitlements with WMA water access licences (WALs) and approvals.
- This submission proposes a framework for setting fees for transactions on WMA consents. DNR believes that all consent transaction costs should be subject to full cost recovery.

Part A: WRM services and cost base

Introduction

Bulk water services are broadly defined to include water resource management (WRM), regulatory activities and water delivery services. Users of bulk water services include irrigators, industry, metropolitan and town water utilities, and rural householders.

DNR has responsibility for WRM and undertakes these activities on behalf of the WAMC. The WMA is the basis for DNR's provision of WRM services. The principal object of the WMA is to provide for the sustainable and integrated management of the State's water resources for the benefit of both present and future generations. The Act introduces measures which:

- provide for improved environmental health of the resource through water sharing provisions, which require water to be provided for the environment as the highest priority, and allow for the regulation of activities that threaten waters and their dependent ecosystems
- provide for shared government and community responsibility for water management, through the establishment of a comprehensive community-based planning framework
- provide greater economic benefits for individuals and communities by clarifying and strengthening access rights to water and water markets and introducing improved tools to ensure compliance.

Regulatory activities associated with water allocation, licensing and enforcement are an integral component of WRM.

Water delivery services are the responsibility of SWC. These services relate only to river and storage operations on regulated rivers.

As DNR and SWC are discrete and separate entities, each entity makes separate pricing submissions to IPART to recover their respective costs attributable to water users. The IPART (Water Services) Order 2004 establishes terms of reference for IPART's inquiry process for determining the maximum charges for these services. This submission relates only to DNR's WRM services and its regulatory activities.

At a conceptual level, WRM services include:

- activities to promote the long-term sustainability of the resource, to allow continued water extraction and to maintain the health of the natural ecosystem
- activities that are necessary to manage the impacts of past, current and future patterns of extractive water use
- activities that are concerned directly with the hydrology of the NSW surface and groundwater systems (as opposed to wider catchment management activities, although there are close linkages)
- activities that protect the integrity of the entitlement system and the security of users' authorised access to water.

DNR believes that this conceptual definition is more accurate than the definition contained in IPART's 2005–06 pricing determination, which was carried over from its 2001 determination. In particular, it is no longer accurate to define WRM activities as '*those where the benefits to extractive users are insufficient on their own to justify the costs of the activities'*.[1] Since 2001, NSW has undergone substantial water reforms, which have led to the conversion of water licences to tradeable entitlements and improved security of access to users. These rights are now a valuable asset that can be bought and sold and used as security to obtain finance. The value of these

[1] IPART Bulk Water Prices for 2005-06, State Water Corporation and Water Administration Ministerial Corporation, Page 7.

entitlements is largely dependent on the integrity of the regulatory framework that underpins the trading system and the monitoring and enforcement activities undertaken by DNR to protect users' security of access.

Thus, many WRM activities are of direct commercial benefit to water users. If DNR did not provide these services, there would be a commercial incentive for water users to seek the services from another provider in order to protect the value of their entitlement. The recasting of DNR's WRM activities to include services that are principally of benefit to users has implications for cost recovery and user shares, as discussed in Part C.

WRM in the context of water reforms

In 1994, the Council of Australian Governments (CoAG) agreed to a Strategic Framework on Water Reform, and in 1995, performance under that agreement was linked to the National Competition Policy. The 1994 framework covered five broad areas: cost recovery and pricing; institutional reform; allocation and trading of water entitlements; environment and water quality; and public consultation. During that time, the Murray–Darling Basin Ministerial Council (MDBMC) agreed to a cap on water extraction in the basin. Over the past ten years, NSW has progressively implemented water reforms in accordance with the CoAG framework and the MDBMC agreement.

Implementation has proceeded in three phases.

The first phase of the NSW water reform process culminated in the passage of the WMA. The WMA established the building blocks for water management in NSW, such as the separation of water access entitlements, water management works approvals and water use approvals, and the establishment of transparent systems for setting rules for allocating water to the environment and to extractive uses.

The second phase saw the passage of the *Water Management Amendment Act 2004 (WMAA).* The WMAA enabled water sharing plans (WSPs) to be developed for 31 water sources and allowed relevant licensing provisions of the WMA to commence from 1 July 2004. WSP development is scheduled for completion in 2008, and new licensing arrangements will be in place by June 2009.

NSW is embarking on a third phase, being the implementation of the 2004 NWI, which is a Federal Government initiative to which NSW is a signatory. The NWI both refreshes and extends the 1994 CoAG framework, and is consistent with the NSW water reforms. The NWI will affect the DNR's future portfolio of WRM activities and its cost base, as outlined in Part B. A detailed NSW implementation plan for the NWI has been submitted to the National Water Commission (NWC) for accreditation. Subject to the implementation plan's being accredited, it is expected that the plan will be available on the NWC's website by the end of October 2005 (www.nwc.gov.au). This third phase of reforms will also coincide with implementation of completed WSPs and commencement of a range of new activities consistent with the WMAA (detailed in Part B).

DNR's new WRM activity profile

In previous submissions, DNR reported its WRM costs on the basis of products and subproducts. As DNR's role has changed in response to the water reform process, the product codes have become outdated and increasingly difficult to apply. In 2005, DNR developed a new system of classifying and reporting its WRM costs, which is based on activities (primarily inputs) rather than products (nominally outputs). By measuring activities, the new system more closely matches the various elements of WRM to the costs concerned than was possible under the product costing system. It also better reflects the current and future profile of DNR's WRM services.

In the preparation of this submission, historical cost data have been classified by subproduct codes to facilitate comparison with the forecast costs provided in the 2001 submission. However, WRM cost projections to 2010–11 are reported using the new activity-based system.

The new system contains 60 individual activities within the following activity groups:

- surface water information provision
- groundwater information provision
- coastal and estuary information provision

- surface water and groundwater analysis
- water modelling and impact assessment
- WSP implementation
- WRM planning
- river management works
- water consents administration
- water consents transactions
- business administration
- Water Management Monitoring and Information System (WMMIS) capital program.

Appendix 1 contains a detailed description of the individual WRM activities undertaken within each of these activity groups. Also provided is a matching of the product codes to each new activity. Some activities represent new services, which have not been provided by DNR in the past or have not been classified in the WRM profile and thus do not have a matching product code. Examples of these activities include WSP implementation, some activities under WRM planning, and WRM business development (which is categorised under Business Administration).

WRM business development includes financial systems development, cost analysis and business planning for improved customer focus. The objective of this new activity within DNR is to provide more focused and efficient WRM services, including periodic reporting to water users and stakeholders and facilitation of WRM as a delineated business operation within DNR. Water consents transactions are included in the WRM activity list above, although for pricing purposes, this activity is treated separately from other WRM services. Various transactions on consents are administered by DNR under the WA and WMA (for access licences and works or use approvals). Because transactions are initiated by licence holders, transaction costs are charged directly to licence holders as a 'fee for service' arrangement, as opposed to WRM service provision, which is spread over a large number of individual water users. Further information on the cost of consent transactions and a proposed fee structure for recovering these costs is provided in Part E.

Service level agreements

With the institutional separation of SWC from DNR, bulk-water-related service level agreements (SLAs) between the two entities have been developed for two services:

- **Hydrometric services.** These are provided by DNR as a service to SWC. DNR operates and maintains some 800 river gauging stations, including 300 on regulated and 500 on unregulated rivers throughout NSW. Gauging stations provide streamflow (hydrometric) data that is required for WRM and water delivery functions. DNR receives payment from SWC for the hydrometric data that SWC purchases for its operational activities. These payments are offset against DNR's WRM operating costs, and SWC includes recovery of the cost of hydrometric data provision through its water delivery charge.
- **Metering and billing services.** Under this agreement, SWC undertakes to meter and bill DNR's unregulated river and groundwater users to agreed standards (where meters are installed). The fee for service, to be paid by DNR, is negotiated between DNR and SWC. Metering and billing costs are included in DNR's WRM operating costs.

DNR is currently reviewing these SLA arrangements in consultation with SWC.

Further details of these SLAs are provided in Appendix 8.

WRM historical costs

Accounting process

The process used to develop the costing information is shown in Figure A1. DNR operates a job costing system (using the SAP accounting system) whereby staff allocate their time on a particular activity to a job code, together with any cash costs related directly to that activity. A job is defined at a regional or divisional level. Under the old job costing system, upon which the historical cost data has been assembled, each job is assigned a subproduct code. A 'source of funds' attribute is also assigned to each job, identifying whether the job is of a capital nature or has been funded by other than recurrent funds.

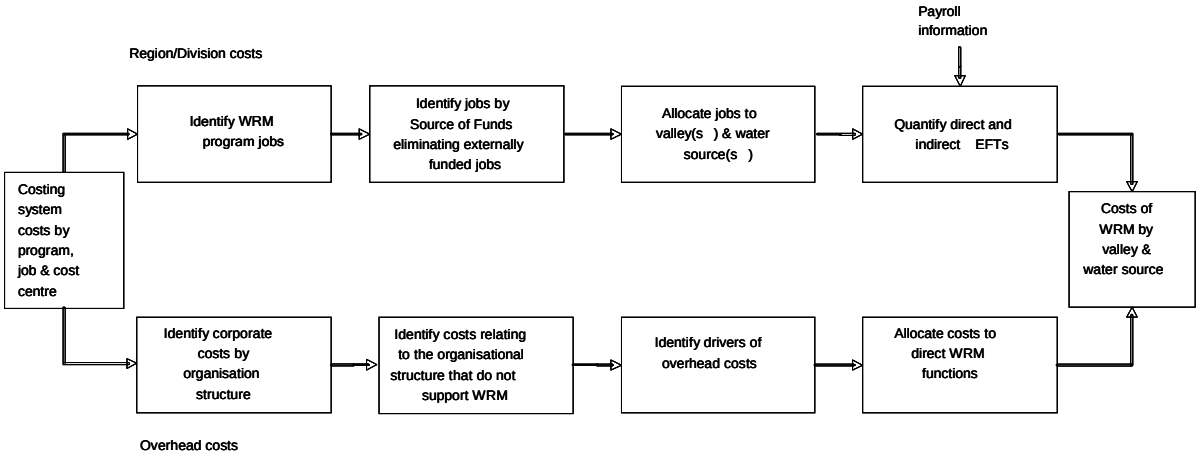
Each WRM job has been allocated to a valley and water source on the basis of staff knowledge of the nature of the activity. The level of DNR's staffing resources (equivalent full-time staff – EFT) attributed to WRM is also identified. The number of direct labour hours attributed to jobs (via time sheets) is identified from the payroll system. The number of indirect hours for the job is calculated from the value of indirect salary, which is recorded separately in the financial system, and from the average direct cost of labour. An estimate of indirect EFTs was calculated for 2004–05, as the job cost system did not separately record indirect salaries.

Time and costs not attributed directly to a job (indirect costs) are allocated against a cost centre. Such costs incurred at a regional or divisional level are fully allocated by the costing system at the end of each accounting period (monthly) to the jobs in the ratio of the direct labour costs for the period concerned. An exception to this rule applied in 2004–05, when DNR introduced a standard costing system whereby the indirect costs were allocated to jobs at a rate of $20 per directly charged hour.

Overhead costs incurred by the shared services sections of DNR are not distributed by the costing system to jobs. For pricing purposes, overhead costs have been attributed to each job on the basis of the methodology adopted in the 2001 submission, namely 36.75% of direct salary costs.

Income received by DNR (primarily for the provision of hydrometric services) is recorded against recurrent jobs and offset against operating expenses.

Figure A1: Overview of accounting process



Operating costs

DNR's WRM operating costs over the last four years (2001–02 to 2004–05) are summarised in Table A1. In real terms, costs have ranged between $40m and $46m a year.

WRM costs in 2004–05 fell by about $4m from the previous year, and are $5m to $10m a year lower than the cost base assumed by IPART in its 2005–06 determination (which was based on 2001 forecast costs inflated by CPI). This reflects a combination of:

- internal restructuring constraining deployment of resources on WRM activities in 2004–05, resulting in lower than forecast staffing levels
- the transfer of resources from WRM activities to processing licence transactions, the latter not being included in WRM operating costs but accounted for separately, and partly recovered through transaction fees (see Part E).

Primarily for these reasons, any comparison of WRM costs in earlier years (as well as in future years) with 2004–05 cost levels is misleading.

WRM expenditure associated with unregulated rivers is also lower than forecast, in part because the planned installation of meters in some valleys did not proceed. Instead, a greater focus has been given to the management of regulated rivers over the last four years.

The costs in Table A1 include NSW's share of WRM costs incurred by the Murray Darling Basin Commission (MDBC) and the Dumaresq-Barwon Border River Commission (DBBRC). In 2004–05, these costs were approximately $6m. Additional costing information is provided in Appendix 2 (Tables A2.5 and A2.6). Part D provides an overview of the activities responsible for generating MDBC WRM costs and an explanation of how these costs are allocated across valleys.

The operating costs shown in Table A1 include:

- direct costs, being those costs directly incurred in undertaking WRM activities, including ongoing water consents administration (but not consent transaction costs, which are reported in Part E)
- indirect costs, being those costs incurred at a regional level in supporting and managing the direct activities
- corporate overheads or costs of shared services, being those head office administrative costs required to support and manage direct and indirect activities
- depreciation on assets used for WRM.

The principal aspects of water consents administration are management and development of the systems and registers for water licences and approvals, and regional policing for unauthorised extraction of water. These are fundamental for ongoing WRM and for the protection of the rights of entitlement holders. In 2004–05, total water consents administration costs were $6.92m.

Human resources account for approximately half of the WRM cost base (54%), with smaller components in overheads (17%) and other operating costs (25%). In 2004–05, DNR employed 240 EFTs in WRM activities. Figure A2 depicts the WRM cost components.

Table A1: WRM historical operating costs – real values[a]

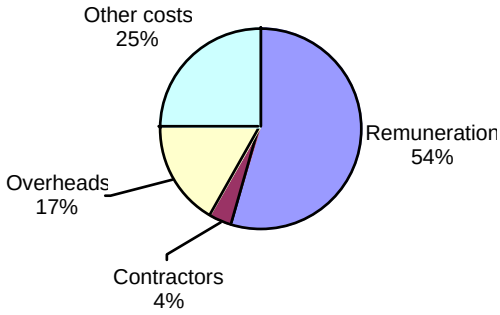
Water source	2001–02 $'000	2002–03 $'000	2003–04 $'000	2004–05 $'000	2005–06 determination[b] $'000
Regulated rivers	18,770	22,976	22,188	21,072	21,439
Unregulated rivers	13,350	14,062	14,043	12,211	18,861
Groundwater – highly managed	6,813	8,247	8,796	7,360	10,597
Groundwater – other	1,191	872	890	715	
Total	**40,125**	**46,157**	**45,917**	**41,358**	**50,897**

[a] 30 June 2005 dollars

[b] DNR's 2001–02 costs inflated by CPI to real 2005 values. The 2001–02 costs are reported in Tables A10.1, A10.2 and A10.3 of the 2001 IPART Bulk Water Price Determination. Regulated river costs include only WRM costs (Table A10.2). Unregulated river costs include WRM and operating costs (operating costs are reported in Table A10.1). Groundwater costs include WRM, operating costs and depreciation (depreciation is reported in Table A10.3).

Included in the 2001 determination are product codes related to licensing transactions with a total cost of $3m (2005 dollars).

Figure A2: WRM cost components 2004–05



Capital costs

Most of DNR's WRM cost base comprises operating expenses. However, some of DNR's activities are supported by a range of assets necessary for WRM, including:

- approximately 800 hydrometric stations. DNR provides SWC and some other organisations with hydrometric data under an SLA, as outlined in Part A. Historically, DNR has adopted a policy of expensing rather than capitalising hydrometric station assets
- an extensive network of groundwater monitoring bores. For regulatory purposes, groundwater monitoring bores have historically been revalued to their estimated replacement value and depreciated over their lives. The depreciation forms part of operating expenditures in Table A1. Depreciation costs are apportioned to each valley in line with the spatial distribution of bores
- salt interception infrastructure at Mallee Cliffs. This asset is recorded in DNR's asset register at historical written-down value (approximately $10m) and depreciated over its life
- a range of other assets that form part of DNR's operating overheads, the cost of which are assigned to the shared services divisions
- various unregulated river structures, such as weirs, which are now owned by SWC.

Assets specifically allocated to regions are treated as indirect costs of those regions, and the depreciation is therefore accounted for in accordance with DNR's rules associated with indirect costs. Historically, DNR has not sought a return on assets, and thus this cost has not been included in the historical data in Table A1.

Part B: WRM cost projections

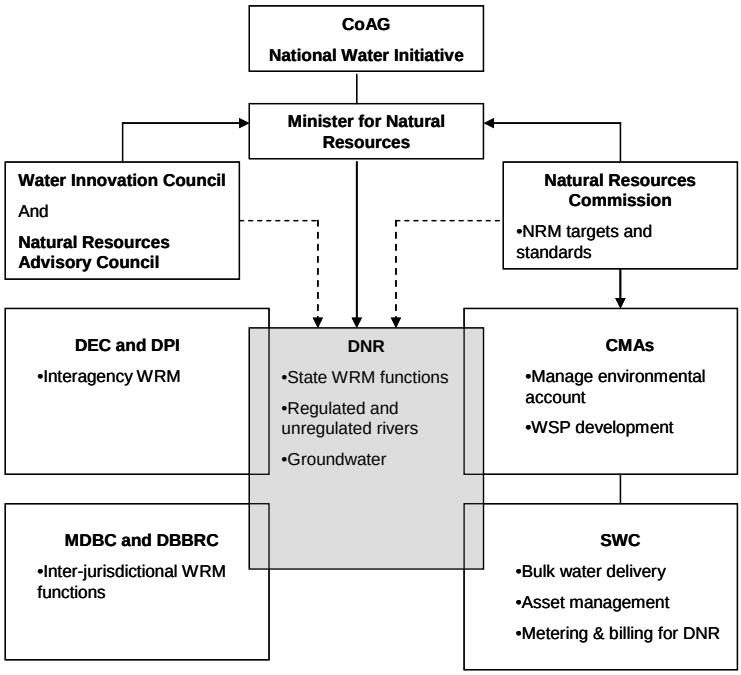
Introduction

In developing the WRM cost projections for the next five years, DNR has been cognisant of the need to include an assessment of the impact of the various regulatory and institutional reforms on the way water resources are to be managed in the future. These reforms are expected to change both the level and mix of WRM activities.

Institutional changes in WRM provision

DNR has restructured its service delivery functions and devolved various responsibilities to catchment management authorities (CMAs), the Natural Resources Commission (NRC) and the Natural Resources Advisory Council. Figure B1 summarises the organisational linkages. This institutional restructure should yield efficiency gains over the medium term, as these entities become fully operational.

Figure B1: Organisations responsible for WRM in NSW



Thirteen CMAs with accountable boards have recently been established across NSW. The objectives of the CMAs include the sustainable management of natural resources in the social, economic and environmental interests of the State. The CMAs will be the primary vehicle for the delivery of incentive programs funded by the State and Commonwealth Governments to land managers to restore and improve the State's natural resources.

Only a relatively small subset of CMA responsibilities are WRM related. CMA water management functions include:

- assisting with the development of WSPs, including macro WSPs
- monitoring the impacts of WSPs
- management of adaptive environmental water.

Where required, DNR will assist CMAs in carrying out these functions by providing data and analysis, technical advice, monitoring and reporting, analysis of options, and legal and planning expertise. The costs incurred by

CMAs are currently funded by the National Action Plan for Salinity Water Quality, the Natural Heritage Trust and the NSW Government through funding allocations for native vegetation reform and through DNR's budget appropriation. In the longer term, CMA costs related to the purchase of WRM services from DNR may be recoverable through bulk water tariffs, consistent with the NWI.

Further information on the CMAs is available at http://www.dipnr.nsw.gov.au/nvrig/cma.html.

Impact of NWI and water management planning

Regulatory and legislative changes, particularly the WMA and NWI to which NSW is a signatory, have resulted in a number of changes to WRM activities. These changes will continue to evolve over the next five years. The changes will primarily be effected through WSP implementation.

NSW introduced fundamental reforms to its water management framework by way of the WMA. Further reforms that implemented all but two elements of the NWI framework were achieved by way of the WMAA. Under these reforms, NSW has gazetted and initiated WSPs – consistent with the requirements of the NWI – that regulate approximately 80% of water use in NSW. Under these plans, fully tradeable water access licences, separate from land title and water works and use approvals, and consistent with NWI requirements, are being created and registered. Water access licences provide holders with a unit share in the consumptive pool (water available for extraction).

Many NWI actions have already progressed significantly in NSW. Outstanding activities still to be undertaken by DNR include:

- completion of the water planning and licence conversion process across NSW for the remaining 20% of water use (which involves a large number of licence holders)
- implementing indefeasibility of water title
- regulating floodplain harvesting
- further development of the water title register
- steps to facilitate increased water trading
- further development of the water accounting framework
- knowledge and capacity building efforts.

WSPs set the rules for providing water for the environment and direct how the water available for extraction is to be shared between users. The 2004 amendments to the WMA and amendments to the individual plans gazetted on 1 July 2004 ensure that WSPs and the new water licensing system are consistent with the NWI and operate within its ambit. At present, 31 WSPs have commenced operation. A further six plans are scheduled to commence by July 2006. These plans cover major inland groundwater sources that have been gazetted, and will complete the State's remaining commitments on over-allocated systems under the 1994 CoAG water reform framework. A further 60 WSPs are currently under development and are scheduled to commence by 2009.

The new WSP framework for WRM requires DNR to both modify the type of activities it undertakes and increase its level of WRM service provision for activities such as:

- implementation of the WSPs already finalised
- finalisation of the WSPs currently under development
- establishment of WSPs for the balance of NSW
- ongoing conversion of WA licences to WMA entitlements
- collection of additional data for monitoring outcomes from the WSPs
- annual reviews of the WSPs
- provision of information and advice in relation to environmental flow reference groups that advise the Minister

- provision of information and advice to compliance advisory committees
- increased water trading activity
- provision of information to the NRC and CMAs
- increased policing for unauthorised water extraction.

Some of these tasks will be resourced by redirecting DNR staff from existing WRM activities into the new WRM activities. Some new positions will also be required, and will be achieved largely through internal restructuring (from vegetation management and other natural resource management areas to WRM activities). In total, it is estimated that an additional 71 EFTs will be required.

WRM forecast costs

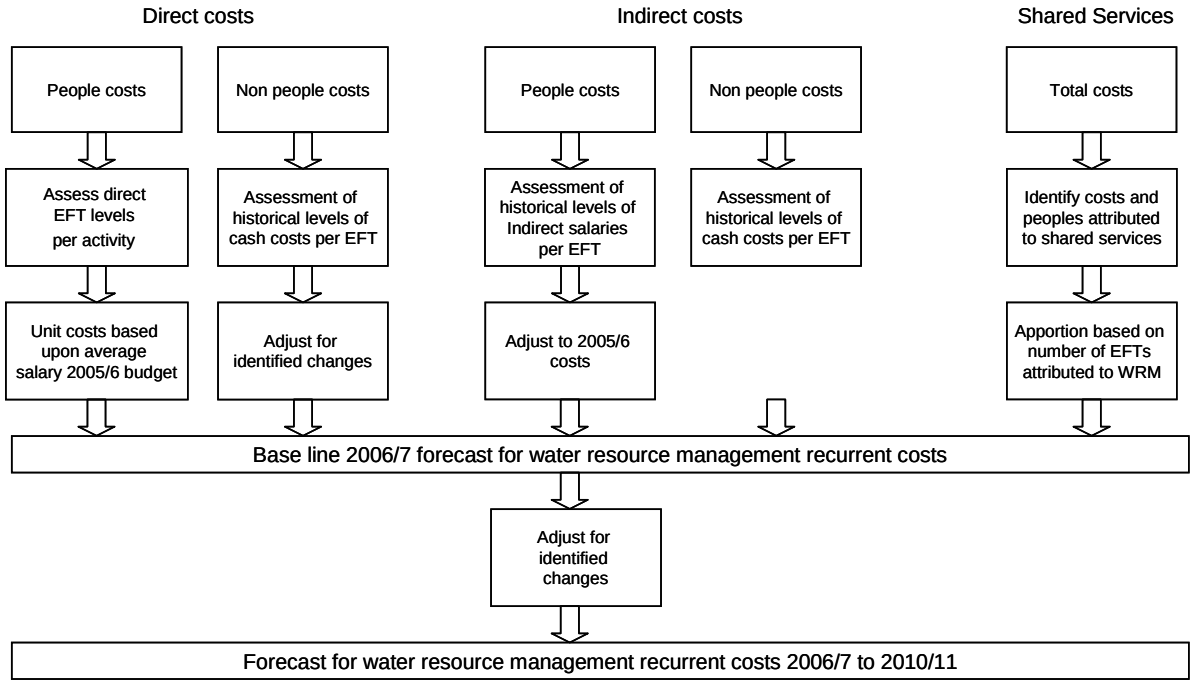
Accounting process

DNR's forecast WRM costs reflect its obligations to implement the NWI and WSPs, including the activities identified above. DNR has developed forecasts within the framework of overall funding constraints. Given uncertainties about future climatic conditions, the forecasts will inevitably be subject to some degree of variation.

As noted in Part A, DNR has introduced a new WRM activity profile to manage and report on its WRM business. This profile has been structured largely around the WSP activities, replacing the previous product codes and better reflecting DNR's evolving water management responsibilities.

The methodology used to establish the WRM forecast costs is summarised in Figure B2. Resource requirements have been assessed for the next five years for each of the 60 WRM activities listed in Appendix 1. The resultant costs have been supplemented by cash costs and indirect costs based on historical costing information after adjustment for the estimated impacts of WSP development and implementation. Details are provided below.

Figure B2: Overview of WRM cost forecasting process



Direct costs

EFT inputs to each activity were estimated for each DNR region and division. In establishing these estimates, consideration was given to:

- existing resources
- changes to WRM activities imposed by the WSPs
- the high priority the NSW Government places on WRM
- funding constraints.

The forecast direct EFTs for the 2006–07 year are as follows:

Regulated rivers	133
Unregulated rivers	103
Groundwater – highly managed	50
Groundwater – other	25
Total	311

The historical cost analysis highlighted the result that, on the basis of water source, non-salary costs (both direct and indirect) comprise between 20% and 25% of WRM expenditures, and that these costs (with the exception of MDBC costs) are directly proportional to EFTs. This relationship has been used to forecast the base level non-salary costs included in the forecasts.

In addition to base level costs established using the methodology outlined above, each region and division advised specific costs of a material value that are to be incurred during the forecast period. These additional costs relate primarily to WSP development.

The other type of direct costs relates to capital expenditure (capex) programs (detailed below). These programs are primarily associated with installation of additional monitoring equipment. In addition to the DNR-funded capex, there is a $4m capital program, ending in 2008–09 and funded through the Australian Water Fund, for the installation of additional hydrometric stations. These programs require additional resources for their ongoing monitoring and management, and the associated resources have been included in the forecasts.

Indirect costs

Indirect costs, being the regional- and divisional-based costs of management and administration, comprise both staffing and other costs. Historical cost analysis indicates that indirect costs can be adequately assessed as a share of direct costs for the WRM activity concerned. This relationship at the level of water source, valley and WRM activity has been adopted for quantifying the forecast indirect costs of WRM.

Shared services

These overhead costs are for services such as finance, corporate services (e.g. information technology, human resources), legal services and corporate governance. The organisational structure for providing shared services to the two new agencies (DNR and the Department of Planning) has yet to be fully implemented. In the circumstances, the cost forecasts included in the submission have been based on the budgeted 2005–06 costs for the relevant sections of the former Department of Infrastructure Planning and Natural Resources (DIPNR). The forecast costs have been attributed across DIPNR's organisational structure on an EFT basis. The shared services costs attributed to WRM have then been included in the forecast costs in this submission.

Service level agreement income and expenses

DNR receives sundry external income for some of its services. As is currently the case, the majority of income is expected to come from SWC for DNR's provision of hydrometric data. Income from this source is forecast to be $4.1m in 2006–07. This income is offset against WRM costs at the water source and valley level.

SWC provides billing and metering services to DNR. The cost to DNR for these services is forecast to be $0.2m a year for billing and $0.9m a year for metering.

MDBC and DBBRC costs

MDBC has prepared a range of budget scenarios for the period to 2010–11; however, DNR has been advised that MDBC has yet to approve one of the budgets. For the purpose of this submission, DNR has included in its forecast costs a middle-range cost scenario. However, actual costs cannot be finally established until the Commission approves the budget. The MDBC mid-cost scenario would result in DNR paying $4.4m in 2006–07 for Murray–Darling Basin-related WRM. DBBRC costs are forecast to be $0.4m in 2006–07. Further details are provided in Appendix 2.

Capital costs

The proposed regulatory asset base for DNR comprises:

- hydrometric gauging stations and capex for extending the groundwater monitoring network since 1 July 1997
- groundwater monitoring bore assets
- a proportion of capex since 1997 attributed to regions and divisions
- a proportion of capex since 1997 attributed to shared services.

With the exception of groundwater monitoring bore assets, DNR's regulatory asset base comprises short-lived assets. The historical value of these assets has been adopted as the market value. Bore assets have been internally revalued to replacement cost and depreciated over their anticipated economic lives.

DNR has two material WRM capex programs either current or proposed:

- Metering and data systems. This is a $6.1m program extending to 2008–09. The program will ensure that by June 2008, about two thirds of unregulated and groundwater volume extracted is actively measured.
- Groundwater monitoring network. This is a $2.6m program which is planned to commence in 2006–07 and finish in 2008–09. The monitoring equipment to be purchased includes data loggers and salinity probes. This program is an integral part of WSPs and is required for the management of water levels and water quality.

Further details of these programs are contained in Appendix 5.

A summary of DNR's capex program for the next five years is provided in Table B1.

Table B1: DNR's capex program over the next five years

WRM capex	2006–07 $'000	2007–08 $'000	2008–09 $'000	2009–10 $'000	2010–11 $'000
Metering and data systems	3 073	3 075	–	–	–
Groundwater monitoring network	1 097	730	730	–	–
Total	4 170	3 805	730	–	–

As shown in Table B2, the total regulatory asset base for DNR's WRM services is estimated to be $35.3m in 2006–07, but this figure requires validation. A weighted-average cost of capital of 7% (real) has been used to calculate an indicative return on assets of $2.3m, as advised by NSW Treasury. The return on assets has not, at this stage, been included in DNR's total WRM costs.

Table B2: DNR's regulatory asset base over the next five years and the associated return on assets

WRM assets	2006–07 $'000	2007–08 $'000	2008–09 $'000	2009–10 $'000	2010–11 $'000
Regulatory asset base					
Assets acquired since 1 July 1997	6 966	6 421	6 033	5 669	5 404
Monitoring bore assets	20 009	19 317	18 758	17 790	16 951
Capex program [a]	8 367	11 145	10 724	9 652	8 687
Total	**35 342**	**36 833**	**35 515**	**33 111**	**31 042**
Return on assets					
Assets acquired since 1 July 1997	488	449	422	397	378
Monitoring of bore assets	1 401	1 352	1 300	1 245	1 186
Capex program	464	683	765	713	642
Total	2 353	2 484	2 487	2 355	2 206

[a] The capex program includes actual and forecast capital expenditures on the nominated programs prior to 2006-07.

Forecast costs

The efficient cost base for WRM in 2006–07 is forecast to be $55.3m (Table B3). Specific factors leading to the higher level of costs relative to past years for the various WRM activities concerned are provided in Table A2.14.

In accordance with the building block approach, depreciation has been included in the operating cost forecasts – but as the asset base is a preliminary estimate, the return on capital has not been incorporated into the cost base.

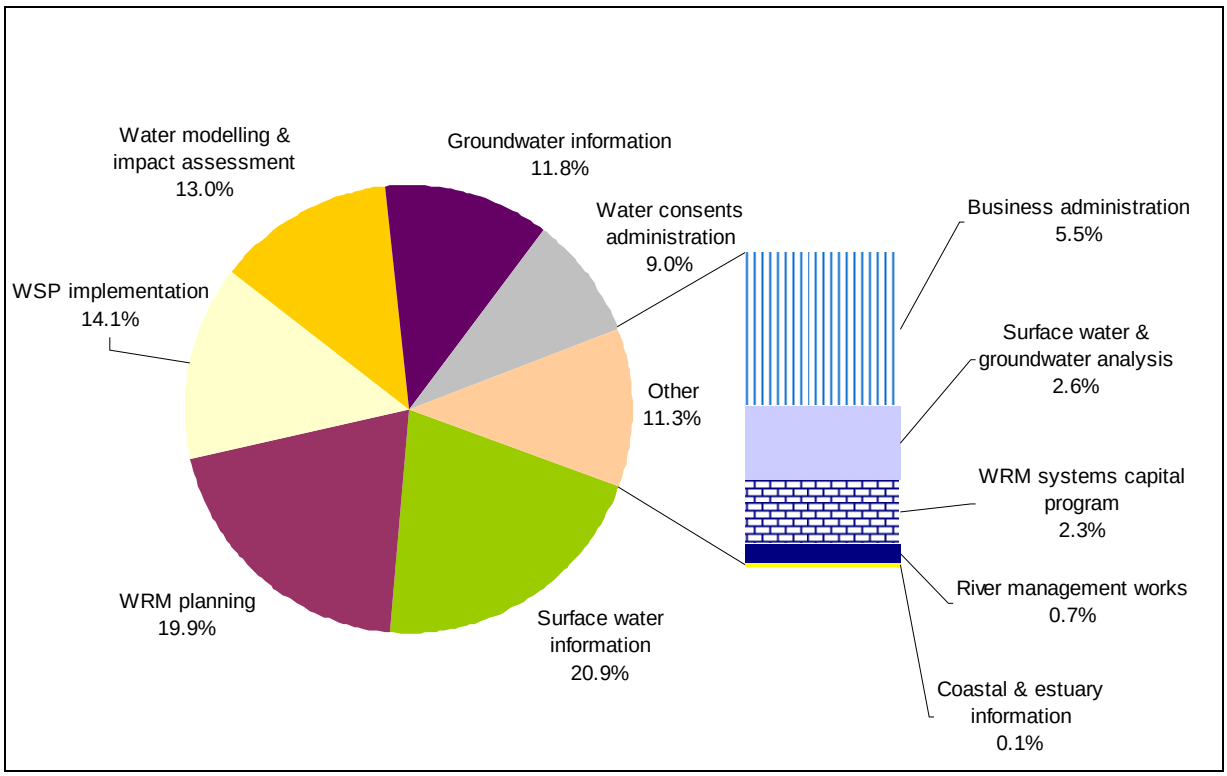
As shown in Figure B3, almost half of DNR's forecast costs (41%) are expected to be accounted for by just two activity groups – surface water information provision (21%) and WRM planning (20%).

Table B3: WRM total forecast costs – real values[a]

Water source	**2006–07 $'000**	**2007–08 $'000**	**2008–09 $'000**	**2009–10 $'000**	**2010–11 $'000**
Regulated	23 281	23 719	23 003	22 192	22 264
Unregulated	17 264	17 089	18 270	17 464	17 253
Groundwater – highly managed	10 463	10 801	10 754	10 727	10 752
Groundwater – other	4 261	4 305	3 999	4 020	3 889
Total	**55 269**	**55 914**	**56 026**	**54 403**	**54 158**

[a] 30 June 2005 dollars

Figure B3: Breakdown of WRM costs by activity group (2006–07)



Part C: User share of WRM costs

Introduction

Cost sharing refers to the way WRM costs are shared between government and bulk water users. Under existing cost sharing arrangements, IPART designated approximately 65% of WRM costs as being directly attributable to water users. Groundwater users are assumed to be responsible for almost all WRM costs associated with managing groundwater resources, while a smaller share of costs is allocated to users on regulated and unregulated rivers (Table C1).

The methodology underpinning these cost sharing ratios was developed by ACIL Consulting for the 2001 determination. Since this time, circumstances have changed sufficiently to warrant a revision of the cost shares, including:

- changes in some of DNR's WRM activities; e.g. protecting the security of users' entitlements, which delivers direct commercial benefits to users
- introduction of WSPs and catchment action plans, which establish explicit environmental objectives for each valley
- development of the NWI, which provides policy guidance on the implicit rights and obligations of water users with respect to the environment, and who should bear the risk of future changes in community preferences and expectations about environmental quality.

DNR also believes that the existing cost sharing methodology needs to be simplified and clarified to make the process of allocating WRM costs more transparent.

Table C1: Existing cost sharing arrangements

Water source	Total WRM costs IPART 2005 determination[a]	IPART determined user share	
	$m	$m	%
Regulated	21.4	11.7	55
Unregulated	18.9	11.2	59
Groundwater	10.6	10.2	97
Total	**50.9**	**33.1**	**65**

[a]2001–02 WRM forecast costs inflated by CPI to 2005 values. The 2001–02 costs are reported in Tables A10.1, A10.2 and A10.3 of IPART's 2001 Bulk Water Price Determination.

Proposed revisions to cost sharing methodology

To assist IPART in establishing an appropriate basis for sharing cost between water users and government, DNR has developed a systematic framework for application of cost sharing ratios based on each WRM activity. This framework enables each WRM activity to be assessed against a series of filter questions, which enable activities to be categorised into one of the following groups:

- WRM activities designed to reduce legacy impacts, as opposed to anticipated impacts
- WRM activities that principally provide private good outcomes
- WRM activities that principally provide public good outcomes

For each of these types of activities, the framework provides principled guidelines on 'who should pay' and in what proportion. The framework is illustrated diagrammatically in Figure A3.1, and cost shares derived from this process are summarised in Table A3.1. The cost sharing principles underpinning the framework are described below.

Private good outcomes

As outlined in Part A, some of the WRM activities undertaken by DNR are of direct commercial benefit to private users. These include activities that protect the integrity of the trading system and security of entitlements against unauthorised use. The cost of these types of activities should be fully attributed to water users. To this extent, it may be argued that if it were not for DNR providing this service, there would be a commercial incentive for water users to seek out the services from another provider.

Public good outcomes

It is more difficult to determine who should pay for activities that produce environmental benefits of a public good nature. The 'beneficiary pays' and 'impactor pays' principles are often used as a basis for determining cost allocation for the provision of public goods. ACIL Consulting's framework, on which IPART's current cost sharing methodology is built, adopts an impactor pays approach.

In the context of WRM, it could be argued that the community should pay for services that provide public good outcomes. This is the beneficiary pays argument. Alternatively, some would argue that water users should pay for provision of public good outcomes, because if it were not for their use activities, there would be no need for WRM to manage environmental problems. This is the impactor pays argument.

In practice, these principles are not particularly helpful for formulating cost shares, as they are quite subjective and do not have a strong economic basis. The principles can also lead to a degree of confusion if it is accepted that water users are not always the impactor. For example, using the ACIL definition of impactor pays, which appears in the 2001 pricing determination, the community is viewed as an impactor if, over time, it demands higher environmental standards.

Of more relevance is who holds the rights to environmental quality, either explicitly or implicitly. This often comes down to legal precedent or political judgement about what is and is not fair. The two polar extremes are as follows:

- If all rights to modify the environment have been allocated to water users, then government should pay for reductions in environmental impact.
- If all rights to the environment have been allocated to the public, then users should pay for the impact of their degrading activities.

In practice, it is generally accepted that water users have some rights to modify the environment, but have a duty of care to maintain a minimum standard. If this view is taken, performance below the minimum standard implies that the user should pay for WRM. However, the public should pay for any environmental demands exceeding the minimum standard. The cost share then comes down to a judgement about what the minimum standards should be and the extent to which these standards are being met.

DNR believes that the WSPs set out the environmental duty of care standards for water users. In most valleys, WRM is required in order to manage the environmental impacts of extraction. While current extraction levels specified by the WSPs are sustainable, there is an ongoing need to manage water use impacts and meet the environmental standards outlined in the WSPs. DNR proposes that most of these costs should be passed on to users. An exception is where WRM is targeted to natural streams not used for extractive purposes (unallocated rivers).

Looking to the future, it is possible that community demands for environmental quality will continue to grow, which may lead to a revision of WSPs when they come up for renewal. In this circumstance, there would be a case for government to bear any associated increase in WRM costs. This is analogous to the NWI risk assignment framework, which indicates that where there is increased public demand for environmental flows, there is an expectation that this would be funded by government, either through direct compensation payment or by entering the market and buying entitlements.

Legacy versus forward-looking impacts

The existing cost sharing arrangements adopted by IPART recognise that some WRM activities deal with environmental impacts caused by past users and use patterns. These are termed legacy impacts.

For the purposes of measurement, IPART 'drew a line in the sand' at 1 July 1997. All WRM costs incurred now or in the future to reverse adverse impacts of water use before 1 July 1997 are classified as legacy. The cost of WRM activities that address impacts arising from water use patterns after this date are classified as non-legacy.

Under current arrangements, the cost of non-capital WRM activities to address legacy impacts is allocated fully to government. The economic basis for this is explained below.

- A fundamental tenet of efficient resource allocation is that prices charged for services should be based on recurrent costs of providing the service, not the recovery of past costs. Pricing should thus be forward looking.
- Furthermore, there is every possibility that some past water users could have left the industry, sold their entitlement and captured some of the rents from the future prospective use of that entitlement. Thus, attempting to recovery legacy costs from past users is impracticable, and recovering them from current users is not justified on efficiency or equity grounds.

Capital works to rectify legacy impacts are known as compliance capex, such as fish ladders on dams, salt interception works and systems to rectify cold water pollution. Currently these costs are shared 50:50 between users and government.

DNR does not undertake many WRM activities that could be classified as addressing legacy impacts. This is because SWC is now responsible for all compliance capital works, and most operational activities directed to target legacy impacts are funded externally through programs such as the Natural Heritage Trust. The only WRM activities containing a legacy component relate to surface water quality management, water assessments (salinity), wetland management and managing impacts of dams on river health.

User share of costs

As a consequence of the significant water reforms in NSW in recent years, the institutional separation of SWC from DNR, and DNR's adoption of a new WRM activity profile, the existing cost shares that were initially developed by ACIL for use in the 2001 determination are no longer appropriate.

DNR is proposing a revised set of cost share ratios for each of its 60 WRM activities (see Appendix 3). The application of these cost shares to the 2006–07 cost projections results in a generally higher share of WRM costs allocated to water users than under current arrangements. This is principally because DNR holds the view that under the new system of secure water entitlements, licence holders have a primary duty-of-care obligation to meet agreed environmental objectives – as set out in the WSPs – thus protecting their access rights to water.

Table C2 provides details of the proposed average cost shares and the average cost shares used by IPART in its 2001 determination.

Table C2: WRM cost shares – 2006–07 [a]

Water source	Total cost	Proposed government share	Proposed user share	User share as proportion of total costs	IPART 2001 cost share
	$'000	$'000	$'000	%	%
Regulated rivers	23,281	5,259	18,022	78	55
Unregulated rivers	17,264	1,944	15,320	89	59
Groundwater	14,724	1,080	13,644	95	97
All water sources	**55,269**	**8,283**	**46,986**	**85**	**65**

[a] 30 June 2005 dollars

Part D: Allocation of WRM costs to water users

Introduction

A core principle of efficient pricing is to ensure that tariffs approximate the marginal costs of providing WRM services to each water user (or group of like users). Taken to its extreme, this principle would result in individual users paying a different tariff, reflecting the different costs of managing the specific demands each user makes on the WRM system. Clearly, this is not a feasible proposition or indeed desirable from an economic perspective, as the costs of administering such a tariff system would outweigh the benefits. Instead, it is necessary to group customers together with similar costs and set a single tariff structure for each group. In previous determinations, IPART adopted a grouping system based on the valley in which the customer is located and the water source being used.

In this submission, the term 'cost incidence' refers to the estimated level and cost of WRM activities attributed to each valley and water source. 'Cost allocation' refers to the implied allocation of costs to each group through the charging of tariffs.

A first step in allocating costs to these customer groups, through WRM charges, is to determine the cost incidence for each group and whether these groupings are indeed appropriate for pricing purposes. This requires an assessment of whether the unit costs of WRM provision are in fact substantially different between valleys and water sources. A key objective of the assessment is to establish whether there are some valleys or water sources that consistently require high (or low) levels of WRM service over a period of years, and to distinguish this condition from valleys or water sources whose costs vary from year to year.

Valley costing reports

DNR has prepared four years of costing reports for each valley and water source which identify the average WRM cost per ML of entitlement (calculated as total WRM cost divided by ML of entitlement or – in the case of licences which have been converted to unit shares – a nominal 1 ML per unit share). The reports cover the period 2001–02 to 2004–05, and thus represent actual rather than forecast costs. Average rather than marginal costs are reported, because the provision of WRM services is characterised as having a high proportion of fixed costs, meaning the cost of servicing an additional ML of entitlement is negligible.

As indicated in Part A, the costing reports were assembled by allocating each WRM job to a valley and a water source on the basis of an understanding of the nature of the job's WRM activity.

The costing reports provide a useful insight into the actual incidence of costs across valleys and water sources. Appendix 2 contains detailed tables of these costs. The following sections discuss:

- the proportional allocation of total WRM costs across valleys and water source. Comparisons are made to the incidence of costs that were reported in DNR's 2001 submission
- the unit cost of servicing each valley ($/ML entitlement) averaged over a four-year period.

The reported WRM costs comprise both government and user costs. The reports provide a guide to future tariff setting insofar as they demonstrate the historical incidence of costs.[2] They are not intended as a basis for setting prices, which requires forecast WRM cost data (Appendix 2) and application of associated cost sharing ratios (Appendix 3).

[2] A similar analysis has been conducted using cost forecasts. The proportional allocation of costs is not projected to change significantly from historical cost incidence.

Cost incidence across valleys

Figures D1 to D3 show percentage WRM cost allocations across valleys (percentages of total cost) for each water source. In each chart, allocations for 2004–05 are shown alongside allocations assumed in the 2005–06 determination, which were based on DNR's 2001 submission.

In general, proportional cost allocations have not changed significantly from the 2001–02 forecast costs, with the following exceptions:

- For regulated rivers, the share of costs allocated to Murray and Murrumbidgee water users has increased by approximately 5 percentage points. Hunter's share of costs has reduced from 11% to 3%.
- For unregulated rivers, the share of costs allocated to the North Coast has reduced by approximately 5 percentage points, while the cost allocation to Far West has increased by 3 percentage points.
- For groundwater, the share of costs allocated to the Namoi and Far West has decreased (by 5 and 7 percentage points respectively), and there has been an increase in the share of costs allocated to the Murray (5 percentage points).

While some differences in cost allocations between 2001–02 forecast costs and 2004–05 costs appear to be significant, a closer review of the data reveals that cost levels have varied considerably from year to year in some valleys. This is consistent with DNR's mode of operation, which is to deliver services across valleys on a needs basis, with the level of service delivered to each valley changing according to seasonal demands. In addition, WSPs have been progressively developed for each valley. Consequently, some valleys have experienced a period of intense WRM service delivery during the planning period. When the plans are completed, resources shift to another location. This temporal shifting of resources across the State to areas of need means that it is important to base pricing on average costs taken over a number of years, rather than focusing on costs in any one year.

The next section analyses average unit costs over a four-year period (2001–02 to 2004–05), and the degree of cost variation in each valley.

Figure D1: WRM proportional cost allocation across valleys for regulated rivers – 2004–05 actual costs and 2005–06 determination costs

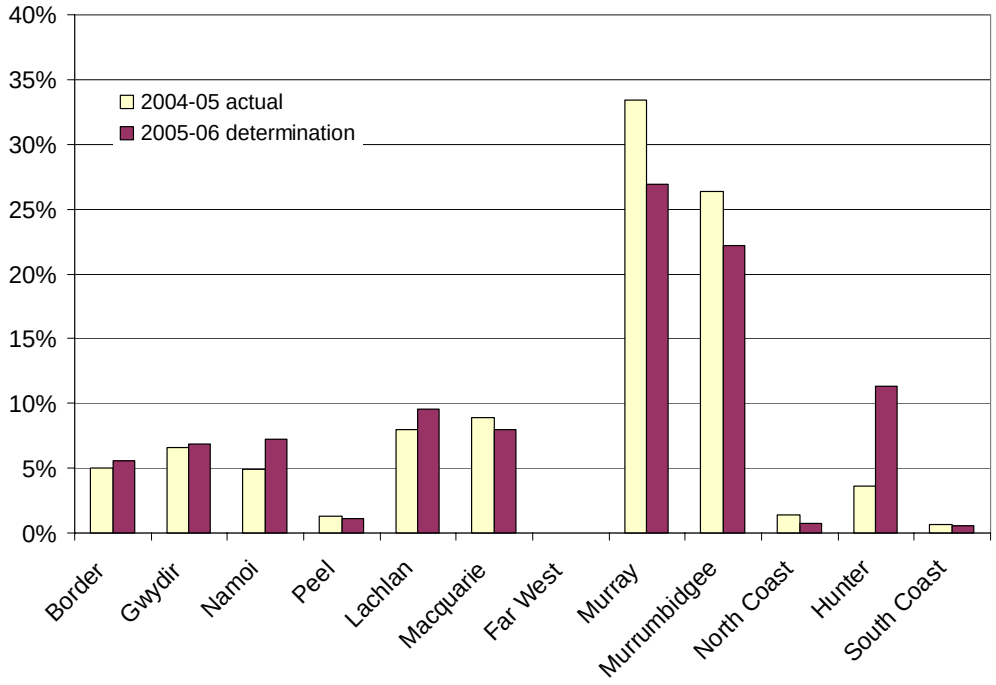


Figure D2: WRM proportional cost allocation across valleys for unregulated rivers – 2004–05 actual costs and 2005–06 determination costs

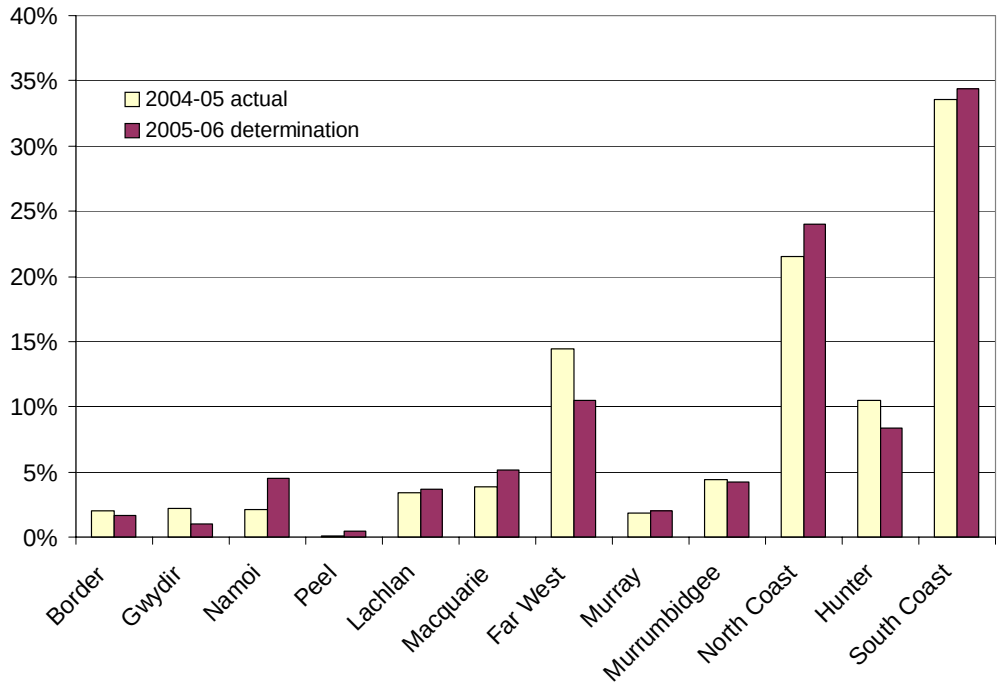
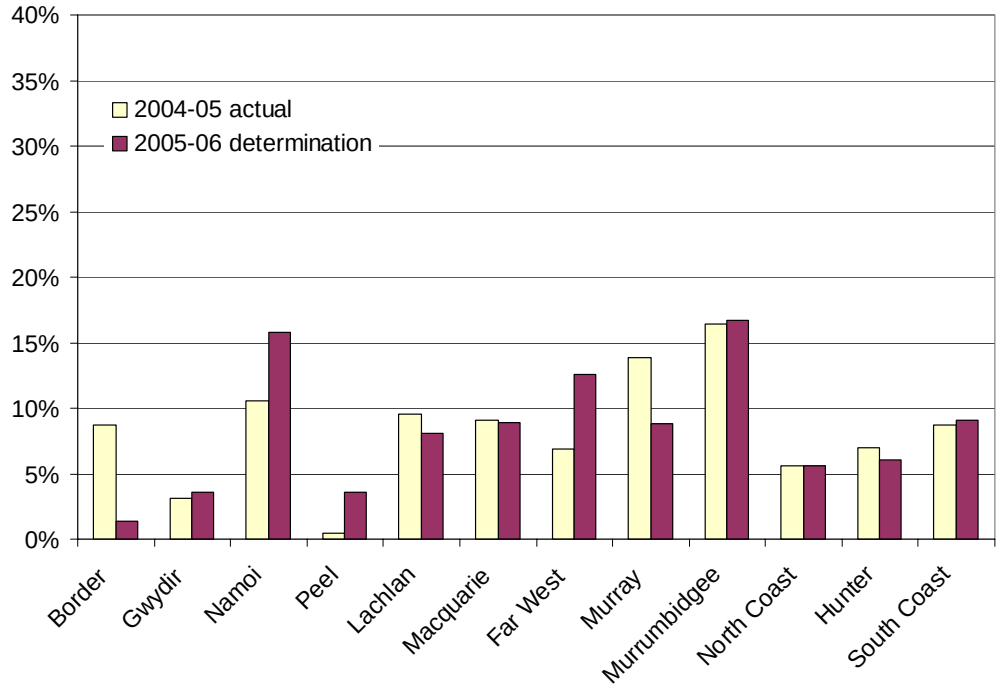


Figure D3: WRM proportional cost allocation across valleys for groundwater – 2004–05 actual costs and 2005–06 determination costs



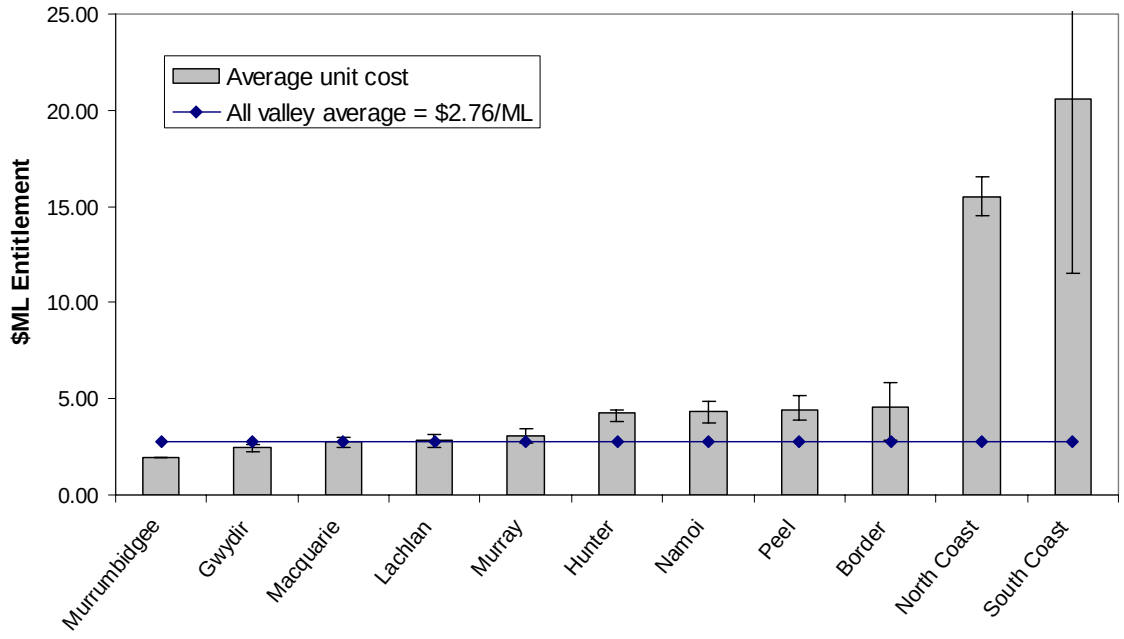
Regulated river unit costs

Figure D4 shows average unit costs of WRM ($/ML of entitlement), over the last four years, for regulated rivers in each valley. The costs concerned are total costs (government plus user share).

Across all valleys and all years, the State average cost for regulated rivers has been $2.76 per ML of entitlement. With the exception of the South Coast and North Coast valleys, unit costs range between $1.95 and $4.60 per ML.

The Border, Hunter, Namoi and Peel valleys are operating at the higher end of this range – of the order of $4.50 per ML. The highest costs occur on the North Coast and South Coast. The high average unit costs for these valleys – of the order of $16 to $21 per ML – is due to the low volume of entitlement in these valleys relative to other regions. Fixed costs are effectively spread over a lower volume of extraction.

Figure D4: Historical incidence of regulated river costs by valley – 4-year average with maximum and minimum (2001–02 to 2004–05). Error bars represent minimum and maximum variation about the average. Valleys are plotted in order of lowest to highest cost of service



Unregulated river unit costs

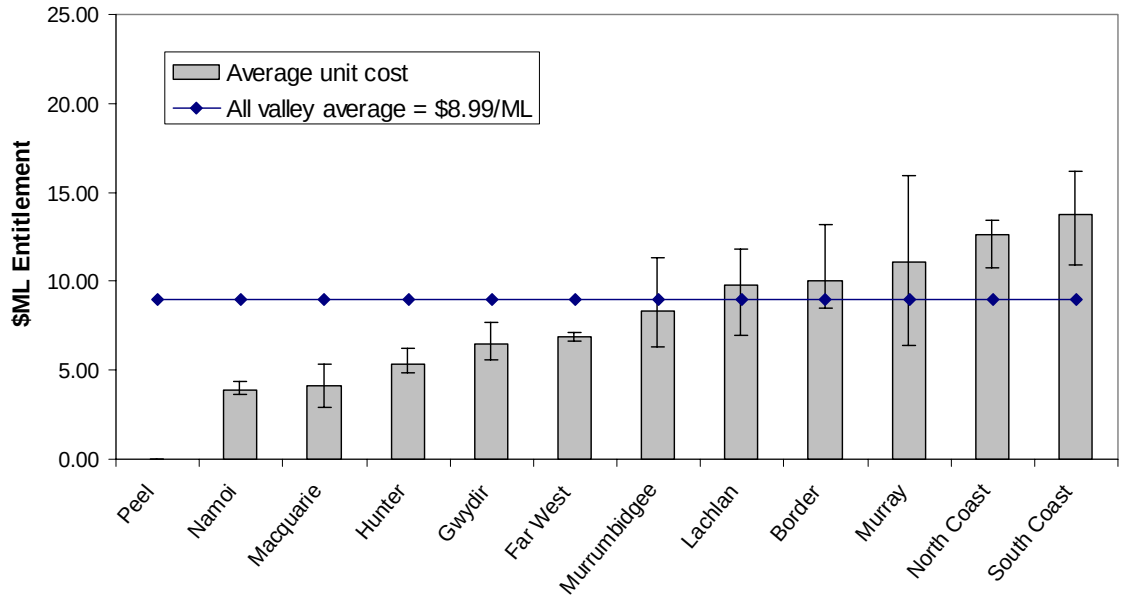
Figure D5 shows the average unit costs of servicing customers on unregulated rivers by valley. Across all valleys and years, the average cost has been $8.99 per ML. Costs for individual valleys range from $3.90 to $13.70 per ML.

Three valleys are operating at the approximate State average, including the Murrumbidgee, Lachlan and Border valleys. However, costs have varied significantly from year to year.

Customers in several other valleys cost less to service; e.g. unit costs in the Namoi, Macquarie and Hunter are considerably below the State average, with costs ranging from $3.86 to $5.30 per ML. Costs have also been relatively more stable in these valleys.

As is the case for regulated rivers, the unit cost of servicing unregulated river users in the North Coast and South Coast valleys is significantly higher than the State average. This partially reflects the large number of small licence holders in these valleys relative to other regions. Each valley has over 3300 unregulated river licences, which is twice as many as any other valley.

Figure D5: Historical incidence of unregulated river costs by valley – 4-year average with maximum and minimum (2001–02 to 2004–05)



Note: Area-based irrigation entitlement was converted to volume on the basis of the conversion ratios contained in the 2005 determination.

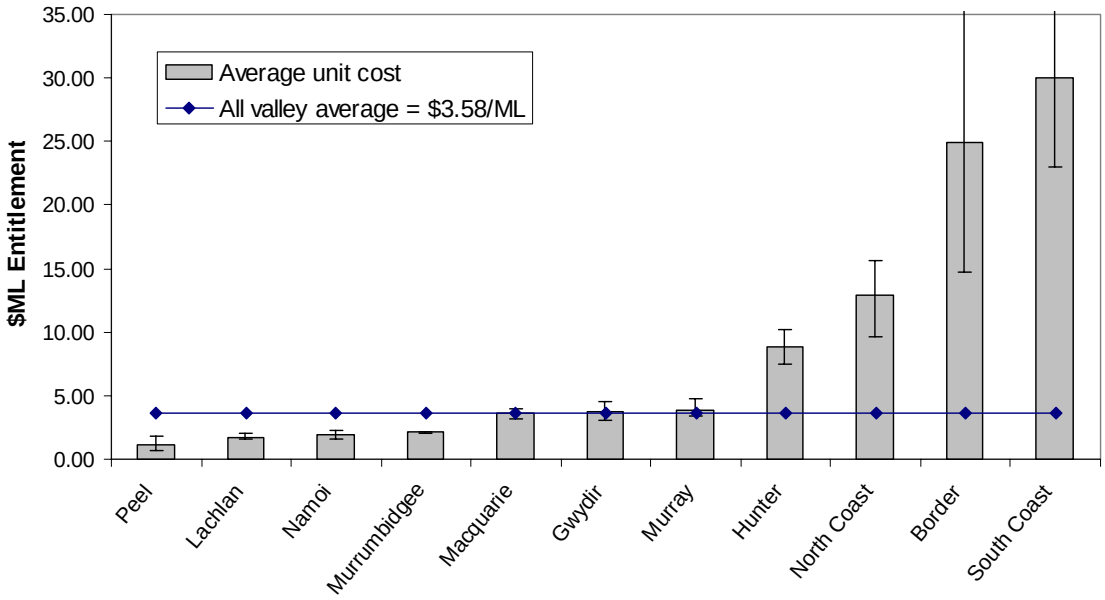
Groundwater unit costs

The statewide average WRM cost associated with managing groundwater (averaged across highly managed and other areas) has been $3.58 per ML of entitlement over the last four years, although there is a large degree of variation about this average from valley to valley (Figure D6). Valleys operating at approximately this cost level include the Macquarie, Murray and Gwydir.

The cost of servicing customers in several other valleys is much higher, principally because of lower volumes of entitlement held in these valleys. For example, the North Coast, Border and South Coast valleys have average unit costs ranging from $13 to $30 per ML. In the case of the Far West, costs associated with managing the Great Artesian Basin (GAB) have been allocated to this valley for accounting purposes. However, it has not been possible to calculate GAB unit costs because the associated entitlement volumes are not yet available.

Preliminary analysis indicates that unit costs of servicing groundwater users in highly managed areas are substantially more than the costs of servicing customers in other areas. In the highly managed areas, DNR undertakes detailed planning, obtains meter readings, regularly monitors groundwater levels and regularly reviews licence water allocations. Other areas have lower management requirements, with the status of groundwater being assessed from time to time.

Figure D6: Historical incidence of groundwater costs by valley – 4-year average with maximum and minimum (2001–02 to 2004–05)



Tariff implications

The cost analysis above suggests scope for simplifying WRM tariffs by applying a uniform tariff across some valleys, based on regional groupings of valleys with similar unit costs of service provision. While such a pricing regime could result in cross-subsidies between valleys in some years, the revolving nature of DNR's activities (indicated by the error bars in the above charts) means that over a period of years the level of cross-subsidisation would be minimal. Possible valley groupings are as follows.

- Regulated rivers:
  - Southern valleys, including the Murrumbidgee and Murray.
  - Valleys in the central region, including the Lachlan and Macquarie.
  - With the exception of the Gwydir, the northern valleys (Border, Namoi and Peel) have above-average unit costs. These valleys could form a discrete grouping.
  - The Hunter has above-average unit costs and therefore could warrant a separate tariff.
  - North Coast and South Coast valleys share similar physical and user characteristics and costs. Owing to significantly higher unit costs associated with these valleys, it would be unrealistic to impose full cost recovery on users in these regions, at least in the medium term. A policy of cross-subsidisation may need to be adopted or, alternatively, a government-funded customer service obligation may be required as an interim measure.
- Unregulated rivers:
  - On the basis of the historical incidence of costs, a uniform statewide WRM tariff for unregulated river users would result in a degree of cross-subsidisation across valleys in some years.
  - There is no definitive inland/coastal split in terms of unit cost differentials, beyond the observation that the North Coast and South Coast valleys are high-cost valleys and thus may warrant separate tariffs.
- Groundwater:
  - The main factor influencing unit cost differentials among groundwater users in different valleys is volumes of groundwater entitlement. Valleys with large entitlement volumes have relatively low unit costs of service, while those with low volumes have high unit costs. Inevitably, some level of cross-subsidisation

will be required if users in low-volume valleys are to be serviced, as strict cost-reflective pricing would lead to prohibitively high tariffs for these users.

- Beyond this, highly managed groundwater areas require higher levels of WRM input than other areas. There is therefore scope for two separate tariffs – one uniform tariff for all highly managed areas and another for all other areas.

Other allocation issues

MDBC and DBBRC costs

The Murray–Darling Basin Commission (MDBC) and Dumaresq–Barwon Border Rivers Commission (DBBRC) are cross-jurisdictional bodies established to coordinate and manage WRM activities from a 'whole of system' perspective where the issues involve more than one jurisdiction. These activities include monitoring water quality, managing ground water, monitoring bore operations, and developing and implementing salinity mitigation strategies. Both operating and capital expenditures are involved.

NSW is obliged to pay a share of these costs, as provided for under the terms of the MDB and DBBR agreements. In 2004–05, the NSW share of DBBRC costs was $0.5m. DNR has allocated these costs to regulated and unregulated rivers in the border valley in the proportions of 74% and 26% respectively, reflecting the relative entitlement volumes associated with these water sources.

The State's share of MDBC WRM costs was $5.5m in 2004–05. This excludes costs associated with River Murray Water, which are accounted for in the recovery of SWC's water delivery costs. Since 2001–02, MDBC WRM costs have risen in real terms by $1.6m. A breakdown of these costs by activity is presented in Table A2.5 in Appendix 2.

Under current pricing arrangements, the user share of MDBC costs is recovered from users in multiple inland valleys. As noted in the 2001 determination (and carried through to the 2005–06 determination), IPART has adopted the following allocation principles:

- 50% of WRM user costs are allocated to valleys connected to the Murray and Murrumbidgee rivers as follows: Murray (93%), Murrumbidgee (5%) and other inland valleys (2%).
- The remaining 50% of costs are allocated across Murray-connected valleys in proportion to the long-term average volumes of water extracted in each valley (having the effect of distributing costs more widely across inland valleys).

In assembling the historical cost data for this submission, MDBC cost elements were allocated to specific valleys and water sources to best reflect cost incidence. Cost allocations are reported in Figure D7. DNR proposes that the same cost allocations be used in future years.

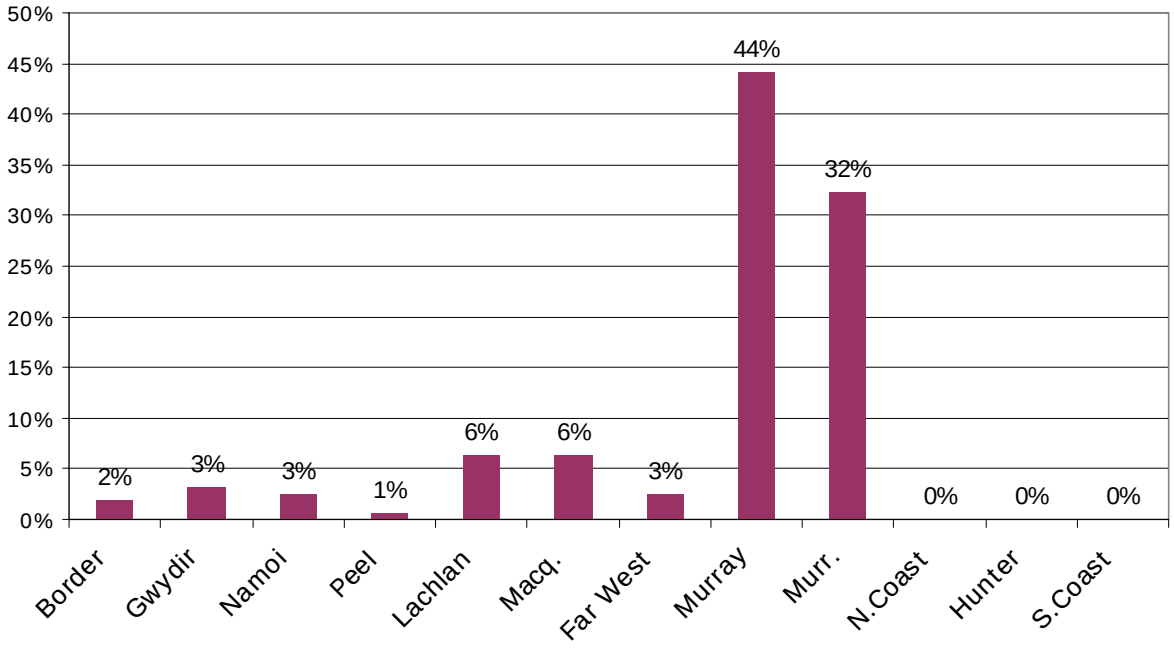
Table D1 provides details of MDBC operating and capital WRM costs for the period 2001–02 to 2004–05.

Table D1: MDBC operating and capital WRM costs – real values[a] ($2005)

Water source	2001–02 $'000	2002–03 $'000	2003–04 $'000	2004–05 $'000
Regulated	3621	3526	4259	5034
Unregulated	337	328	397	501
Total	**3958**	**3854**	**4656**	**5535**

[a]30 June 2005 dollars

Figure D7: Allocation of MDBC costs across valleys



Security premiums

DNR proposes that the WRM tariff structure, which will apply from 1 July 2006, exclude security premiums. Provision of different levels of security (or water supply reliability) is a function of SWC water delivery infrastructure and operations. Consequently, the premiums should be applied to SWC charges only, to reflect the additional infrastructure cost of providing higher reliability of supply. For any given level of entitlement volume, general- and high-security entitlements impose the same level of WRM costs on the system, regardless of the reliability of water delivery.

A single WRM access charge (as opposed to the existing two-part tariff) would effectively average high- and low-security premiums, thus delivering the same level of WRM revenue (level of cost recovery) as if the premiums were in place. This arrangement would result in a more cost-reflective, simpler and transparent WRM tariff. Removal of security premiums would result in marginally increased access charges for general-security water users and correspondingly lower charges for high-security water users.

Wholesale discounts

Under current pricing arrangements, irrigation corporations and districts (ICDs) receive discounts on the fixed entitlement component of their two-part charge. The discounts apply to ICDs in the Murray, Murrumbidgee and Lachlan regulated river valleys. Prices are discounted relative to other non-ICD customers who extract water from regulated rivers in the same valleys.

In reviewing whether these discounts should continue to apply, or whether the current size of discounts is appropriate, it is important to understand the reason why the discounts were initially implemented. Before price regulation by IPART, the former Department of Land and Water Conservation (DLWC) had granted wholesale discounts to irrigation districts primarily through reduced metering charges, which were levied on usage. At the time, it was acknowledged that wholesale irrigation customers defrayed some of DLWC's costs by aggregating water orders and undertaking metering and billing functions on its behalf. In 1997–98, IPART set maximum prices to preserve existing wholesale discounts, but moved all discounts to a fixed charge on entitlements.

Wholesale discounts continue to remain in place, applying to both DNR's WRM charges and SWC's water delivery charges, notwithstanding that DNR no longer undertakes water delivery functions, the cost of which the discounts were originally designed to offset.

Submissions made by the ICDs in response to the 2005 determination seek maintenance of the discounts on the basis that they provide a range of benefits to both DNR and SWC. Activities typically referred to include:

- communicating with licence holders
- licence surveillance, metering and billing
- provision of crop and water use data (which is used as an input to the DNR's IQQM[3] model)
- wetland monitoring data
- groundwater monitoring data.

DNR believes that the WRM activities noted do not materially offset its management costs. Communicating with licence holders and licence surveillance are essentially licensing rather than WRM-related activities, while provision of associated WRM information does not support the discounts currently in place. Given the relatively arbitrary spread of the discounts, and that they are based on water delivery activities that are no longer performed by DNR, DNR proposes that the wholesale discounts be removed.

Removal of the discounts will not result in an overall increase in WRM revenue for DNR. All charges are set in such a way that revenue does not exceed full cost recovery. Removal of the discounts will therefore result in increased charges for ICDs and correspondingly lower charges for non-ICD customers. This will effectively improve pricing transparency and equity by eliminating intravalley cross-subsidies, as non-ICD customers (including other wholesale customers who presently do not receive a discount) no longer continue to subsidise ICD customers.

In the future, DNR proposes that individual negotiated fee-for-service agreements would be a better mechanism to compensate ICDs for any provision of WRM services they undertake. Under such agreements, the quality of data or outcomes from the WRM services performed by the ICDs would be specified, and DNR would negotiate a discount on the WRM charged to ICDs. As noted in Part C, most of the WRM services provided by DNR, or those that could potentially be provided by ICDs, are user related. Therefore, the wholesaler's cost of fulfilling such agreements would be passed on to its retail customers. This arrangement would be a more transparent mechanism than the current discount regime for managing the public and private provision of WRM services.

Tariff structures

Under current arrangements, there are various tariff structures for recovering WRM costs, depending on the water source and user. For example:

- Regulated river tariffs comprise a two-part charge (a $/ML of entitlement access charge and a $/ML usage charge).
- Irrigators on unregulated rivers can be charged either an area-based charge, a per ML of entitlement access charge or a two-part tariff.
- Town water supply and industrial customers are charged a two-part tariff. For customers who have not been allocated an entitlement volume, the charge is a fixed access charge plus a usage charge.
- Groundwater tariffs in highly managed areas comprise a base charge per property ($/licence), an access charge on ML of entitlement and a usage charge.
- Groundwater tariffs in other areas comprise a base charge per property plus an access charge on ML of entitlement.

[3] Integrated Quantity and Quality Model, originally developed by the former NSW Department of Land and Water Conservation.

- SCA and Hunter Water Corporation are charged a single usage tariff, equivalent to the sum of the valley-specific unregulated rivers usage and the access charge applying to irrigators.

This tariff regime has arisen partly through historical precedent and partly through the inability to levy usage charges on some customers because extractions are not metered (see Appendix 6 for discussion about unregulated river volumetric conversion ratios). IPART has indicated that over a period of time it is aiming to structure most tariffs as two-part (consumption-based) charges, with the fixed-to-volumetric components generally in line with the current ratio of 60:40. This will bring tariffs in line with CoAG principles, which state that prices should reflect cost and be based on marginal cost pricing principles. In addition, IPART takes into account other factors for implementation of two-part tariffs, such as users' ability to control their water bills.

DNR believes there is a need to simplify tariffs and improve consistency of cost recovery across the different customer groups. However, it does not support recovery of WRM costs through a two-part tariff. There may be an efficiency rationale for recovering water delivery (SWC) costs through a two-part tariff, but this is not the case for recovery of WRM costs, as noted below.

- For the majority of WRM activities, the level of service provided does not vary with annual water consumption. DNR's cost base comprises a high proportion of fixed cost activities that are unrelated to volumes of water extracted and are more closely aligned to managing the overall entitlement system. These costs are incurred regardless of whether or not users exercise their option to take water under their entitlements.
- This contrasts with SWC, which is selling water delivery rather than WRM services. For SWC, it may be appropriate for a usage charge to be levied reflecting the long-run marginal cost of supplying water. For example, increased demand for water of a given reliability may require new infrastructure to be constructed, which would be incorporated into the long-run marginal cost of operating the system and passed onto users through a usage charge.
- The efficiency argument for usage-based pricing is strongest for urban water supply systems, where there is no feasible way of establishing a water market. In the absence of a water market, administered prices must be relied on to signal the scarcity value of water. In rural systems, water trading is feasible and is potentially a more efficient mechanism for signalling scarcity values.
- Paragraph 65 of the NWI refers to usage-based pricing only in relation to water storage and delivery pricing. It is silent on tariff structures to be applied to recover WRM costs.
- Usage-based pricing is often put forward as a demand management mechanism and a means for signalling scarcity values and environmental externalities associated with water use. However:
  - Under administered pricing, there is a risk of pricing WRM services above marginal cost simply to achieve demand management. This would be inefficient.
  - Price elasticity of demand for bulk water has been demonstrated to be relatively inelastic, at least over the range of price increases that would be implied by rebalancing WRM tariffs to a higher usage component.[4]
  - With respect to externality pricing, a robust cause and effect relationship between water use and environmental impact would need to be demonstrated for usage charges to be a sensible (and efficient) option for addressing externalities. In many instances, so called externalities are caused by multiple factors – not just water use – and there are more efficient mechanisms to deal with these impacts.

For the reasons above, DNR proposes that WRM costs be recovered entirely through a single access charge based on ML of entitlement (or unit share of the consumptive pool). Such a tariff would be set at the average per ML cost associated with servicing the entitlements of a particular user group (defined by water source or valley). Moving all cost recovery to an access charge based on entitlement volume – including removal of groundwater

4 Appels, D., Douglas, R and Dwyer, G. (2004) Responsiveness of Demand for Irrigation Water: A Focus on the Southern Murray-Darling Basin, Staff Working Paper, Productivity Commission. 31 August 2004.

base charges – would also assist in maintaining DNR's revenue stability, which is important in times of drought, when its WRM costs tend to increase rather than fall, in contrast to usage patterns.

An argument sometimes put forward as a reason to avoid levying a single access charge-based tariff is that it would encourage underutilised entitlements to become fully utilised as water users seek to minimise their average cost per ML. However, this is not considered to be a significant issue in NSW, as most surface water entitlements are already fully utilised (i.e. close to 100% of announced allocation is utilised in any given year).

Cost recovery levels

At current (2005–06) tariff levels, it is estimated that, in aggregate, WRM revenue recovered is equivalent to only 38% of costs attributable to users. Cost recovery is particularly low for unregulated rivers, being only 24%. Consistent with CoAG NWI requirements, DNR proposes that tariffs be increased to full cost recovery levels over the upcoming price path, although it is acknowledged that this will mean quite marked price increases for some users in some valleys.

Table D2 provides details of share of forecast recoverable WRM costs in 2006–07.

Table D2: Share of forecast 2006–07 WRM costs that would be recovered using current tariffs[a]

Water source	Total WRM costs $'000	Proposed user share of WRM cost $'000	Current tariff revenue[a] $'000	% user cost recovery (existing tariffs) %
Regulated rivers	23,281	18,022	10,383	58%
Unregulated rivers	17,264	15,320	3,605	24%
Groundwater	14,724	13,644	3,982	29%
All water sources	**55,269**	**46,986**	**17,970**	**38%**

[a]Tariffs as applicable in 2005–06. Total revenue calculated on the basis of long-term usage and entitlement volumes per 2005 determination.

Part E: Transactions on water management consents

Introduction

Bulk water service provision in NSW is regulated through DNR's water management consents regime, comprising licences, permits and approvals. IPART regulates fees for transactions on these consents. The costs attributable to the transactions are not included with WRM costs, being accounted for as separately identified activities for cost recovery purposes.

A new water consents regime has been introduced with implementation of WSPs under the WMA, a process which commenced on 1 July 2004. Conversion to the new system involves replacing WA entitlements with WMA water access licences (WALs) and approvals. To date, transition to the new system has resulted in the conversion of approximately 7000 entitlements under the WA to the new consents. The remainder of entitlements are being progressively converted over the next few years. A complete conversion to the new system is anticipated by 2009.

In areas where WSPs have not been put in place, the existing WA consents – water licences, permits and approvals and their associated transaction fees – will continue to apply until WSPs are established.

On 1 July 2004, DNR introduced an interim fee structure for transactions under the new WMA consents. This fee structure continued the existing WA transaction fees, based on a matching of transactions equivalent under both systems. Where there were no equivalent WA transactions, it was not possible to set any fees in the interim period, as this would have been in breach of IPART's determinations.[5] Thus, in 2004–05, the interim fee structure resulted in some reduction in cost recovery levels relative to the fee structure that applied to WA consents.

This submission provides an estimate of DNR's costs incurred in processing transactions on WMA consents (by transaction type over the next five years), and sets out a revised framework for cost recovery, which covers all transactions under the WMA. All transaction costs should be subject to full cost recovery.

Historical transaction costs

The annual cost of processing licence transactions under the WA is estimated to be $8.5m in 2004–05 (Table E1). Costs have been rising in real terms over the last four years as the WMA phases in, reflecting increased staffing resource for transaction processing.

Revenue from transaction fees recovers only about 20% of DNR's costs for this activity. In 2004–05, the level of cost recovery fell to 14%, primarily as a result of the conversion of 7000 WA licences to WMA licences and approvals and the subsequent adoption of the interim fee structure, as discussed above. In addition, some 1400 licence renewals that would have taken place during the year were postponed by legislation for two years.

5 DNR's February 2005 submission to IPART sets out the details of how this interim fee structure was developed and includes a schedule of the interim fees.

Table E1: Historical licence transaction costs and fee revenue – real values[a]

	2001–02 $'000	2002–03 $'000	2003–04 $'000	2004–05 $'000
Costs	6,750	7,213	8,611	8,543
Fee revenue	1,487	1,601	1,740	1,200
Cost recovery level	22%	22%	20%	14%

[a] 30 June 2005 dollars

WMA consents and transactions

While some consent transactions under the WMA are similar to those under the WA, many relate to entirely new categories of consents and activities. Moreover, WMA consents are of a fundamentally different nature from the WA consents. Under the WA, licences specified both the right to use water and the way in which that water could be taken or used. Licences were tied to land. Under the WMA, a water user must hold both a WAL, which is uncoupled from land title, and an approval, which specifies how the water can be used. WALs can be traded independently of approvals. Table E2 summarises the main features of the WA and WMA consents regime. A schedule of transactions that can be conducted on the WMA consents is provided in Appendix 6 (Table A6.7).

Table E2: Conversion to the WMA consents regime

Features of WA consents regime		Features of WMA consents regime	
WA entitlements		**WAL**	**Approval**
Authorise construction and use of water supply works and use of water on land		Specify rights to share of available water in a river or an aquifer	Granted for construction and use of water supply works (pumps, dams, etc.)
Maximum quantity of water which can be taken from river or aquifer		No expiry date, and held independently of land ownership	Granted for use of water on land (e.g. irrigation)
Typically have a 5-year term, and can be repeatedly renewed on application		Recorded on public register (similar to land title register)	Approvals tied to land, and held by whoever occupies the land to which the approval relates Generally have maximum term of 10 years, but can be repeatedly extended on application

Forecast costs

It is difficult to estimate future WMA consent transaction costs given the limited history of transaction use, and thus limited information can be provided on the unit costs of processing the transactions. There is also some uncertainty about the future volume of each category of transaction that water users will make, reflecting uncertainties about customer behaviour, climate change, changing commodity prices etc.

It is, however, possible to identify elements of the WMA consents regime which will affect DNR's transaction processing costs. Several elements of the regime are expected to increase DNR's costs:

- More rigorous assessment requirements for some categories of transactions under the WMA.

- An increase in the volume of transactions due to ongoing conversions from WA to WMA consents through to 2009 and increased trading activity. An estimate of future transaction activity is provided in Table A6.1 of Appendix 6.
- An increase in the volume of approvals, reflecting the larger range of categories of approvals under the WMA. An estimate of future issues of WMA WALs and approvals is provided in Table A6.2 of Appendix 6.

There are also some ameliorating factors that will have the effect of reducing transaction processing costs:

- The process for facilitating permanent transfers has been made more efficient with the unbundling of WALs from works approvals, meaning permanent trades can be achieved by a WAL dealing alone, provided the works and use do not change.
- DNR is implementing procedures and information systems designed to deliver consistency and accountability in transaction processing. These include initiatives that will allow online completion and lodgement of applications, substantially reducing administrative costs in handling and entering application forms. In some instances, automated processing and issuing of consents will also be possible. Further details are provided in Table A6.4.
- Reduced processing requirements for extensions of approvals as opposed to licence renewals, which was required under the WA. Under the WMA, approvals have a ten-year term in place of the five-year term of most WA licences, meaning a lower 'churn rate'. Table A6.3 of Appendix 6 summarises the historic rate of licence renewals under the WA and the forecast volume of approval extensions under the WMA.

In summary, while there are some unit cost savings expected in processing licence transactions, DNR expects the annual cost of transaction processing activities to increase by approximately $4m above historical costs. DNR plans to further increase resourcing for this activity to support the anticipated increase in transaction volumes, in order to reduce processing times to more acceptable levels and eliminate processing backlogs. As a result of this increased activity, total transaction costs are projected to be $12.2m in 2006–07 (Table E3).

Table E3: Forecast licence transaction costs – real values[a]

	2006–07 $'000	2007–08 $'000	2008–09 $'000	2009–10 $'000	2010–11 $'000
Licence transaction costs	12,228	12,892	12,864	12,867	12,888

[a] 30 June 2005 dollars

Principles for recovering costs

DNR proposes that WMA consent transaction fees be structured so as to:

- reflect the cost incurred in processing particular transactions, with fees developed on the basis of marginal cost (given that some types of transactions involve extensive levels of assessment)
- be standardised so that they can be easily understood and provide consistency between similar transactions incurring similar costs to process
- be based on an agreed, transparent consent transactions framework
- be capable of being calculated from the information provided in the application forms
- not lead to perverse water trading outcomes.

In addition, it is proposed that a separate, lower fee apply to licences and approvals required for taking water for domestic and stock purposes. This fee should apply whether the water is sourced from groundwater or surface water. In the past, the DNR has not charged a fee for licences or approvals for stock and domestic bores, but has charged a fee for licences for surface water extraction for stock and domestic use. The DNR does not believe that a continuance of the no-fee position stock and domestic bores can be justified.

The primary objective of the proposed fee structure is to improve cost reflectiveness of processing WMA consent transactions. Table E4 illustrates the elements of DNR's proposed framework for establishing the fees. Essentially, transaction costs are based on the amount and type of processing required. There are some tasks that are common to all transactions, while others require specialised, more resource-intensive assessment. A proposed framework for structuring fees is detailed in Table A6.5 in Appendix 6. Table A6.6 proposes a fees regime that would recover the cost of special assessments, and the circumstances in which these fees would apply. Table E5 contains estimates of the long-term average number of WMA consent transactions that would attract each category of fee (administration, advertising, and basic and special assessments).

Table E4: Proposed WMA consent fee components

Step	Similar for all transactions?	Fee component description
Initial contact	Yes	**Administration** – covers the basic handling of the application (receipt, acceptance checking, recording, correspondence). The administration fee should be common to all transactions, as the processes involved are similar.
Application received	Yes	
Application checked and accepted	Yes	
Advertisement	No	**Advertising** – where advertising is required by regulation, the advertising fee applied covers the cost of advertising and fielding inquiries on the advertisement.
Assessment	All transactions require some form of basic assessment, but some require more intensive, specialised treatment.	**Assessment** – covers the assessment required to determine whether an application should be granted and, if so, what conditions will be imposed. **Basic assessment –** designed to cover small or standard applications where assessment is generally straightforward. **Special assessment** – added where elements of the application are either of types or in areas where more complex assessment will be required.
Determination notification	Yes	**Administrative fee** – as above.

Table E5: Estimated volume of transactions attracting each category of fee[a]

	Total no.	Admin	Advertising	Assessment	
				Basic	Special
New water access licences					
Zero share	50	50			
Specific purpose	565	565		565	
Water access licence dealings					
Dealings – regulated rivers	240	240			
Dealings – unregulated rivers and groundwater	170	170		170	170
New or amended approvals					
Works only	546	546	546	546	273
Works and use	685	685	685	685	342
Use only	25	25	25	25	13
Approval extensions					
Admin only	3050	3050			
Assessment	50	50		50	50
Subtotal	*5381*	*5381*	*1256*	*2041*	*848*
Basic rights work approval	5545	5545			
Total	**10926**	**10926**	**1256**	**2041**	**848**

[a] Estimated annual long-term averages

Major utility licensing

Major utilities are a special case for bulk water regulation, where DNR incurs recurrent costs relating to the major utility licence that are uniquely attributable to that licence (see Appendix 4). Established arrangements are in place whereby the recovery of these costs is determined through bilateral agreements between DNR and each utility.

Appendix 1: WRM activities profile [1]

Code	Activity group / activity	Description [4]	Water source [4]	Closest matching subproduct
C01	**Surface water information provision**	**Collection & provision of information for ongoing assessment & management of quantity, quality, allocation & use of the State's surface water**		
C01-01	Surface water quantity monitoring / reporting / information provision	Non-tidal surface water monitoring – construction of monitoring sites, installation of sensors & recording equipment, data collection (including river flows & levels, storage levels, climate data, etc.), data processing, data quality control, data archiving, data analysis & knowledge transfer. Includes monitoring of flows required for operation of WSPs.	RU	PA100 PA110 PA300 PA400
C01-02	Surface water statewide database management	NSW surface water data custodianship activities, statewide coordination & administration, intra- & interstate liaison, data archive management, data archive reporting, systems development / maintenance / upgrades, data quality reporting, quality accreditation (including procedure development, best practice committees, internal quality audits, external quality accreditation), network design & review, system training, corporate data access & dissemination; includes new programs for WIXs, Pinneena & RIIS.	RU	PA310 PA320
C01-03	Surface water quality monitoring / reporting / information provision	Non-tidal surface water quality monitoring – system design, data collection / monitoring, data archiving, data analysis, information provision & knowledge transfer. Covers water quality from hydrometric network (e.g. salinity, temperature, pH, DO & turbidity) & other physical & chemical attributes from spot sampling programs.	RU	PA120 PA130 PA320 PA400
C01-04	Surface water ecology / biology information provision	Non-tidal surface water quality information provision on ecological / biological attributes of rivers, flood plains & wetlands – system design, data collection, data archiving data analysis, information provision & knowledge transfer. Covers programs/projects where information is gathered primarily via specific spot sampling for non-WSP activities (see C07-01) or NRC/CMAs (see C07-11 & C07-12). Includes blue-green algal monitoring activities.	RU	PA400
C01-05	Surface water quality statewide database management	Statewide administration, coordination & custodianship activities (as per C01-02).	RU	PA130 PA330
C01-06	Surface water asset management – for quantity/quality information provision	Maintenance & operation of monitoring sites, structures, vehicles, associated safety equipment (including boats, life vests, wet weather gear, etc.), field equipment (laptops, field/mobile sensors, etc.) & equipment installed at monitoring sites (sensors, loggers, batteries, solar panels, etc.), management & maintenance of associated testing & calibration of hardware & software, sensor & instrument calibration, operation of technical workshops.	RU	PA100 PA110 PA120 PA130
C02	**Groundwater information provision**	**Collection & provision of information for ongoing assessment & management of quantity, quality, allocation & usage of the State's groundwater**		
C02-01	Groundwater quantity monitoring / reporting / information provision	Groundwater level information – systems design, data collection, data archiving, data analysis, information provision & knowledge transfer.	G	PA200 PA210
C02-02	Groundwater quality monitoring / reporting / information provision	Groundwater quality information – systems design, data collection, data archiving, data analysis & information provision & knowledge transfer. Includes salinity & temperature by data loggers & spot sampling from bores.	G	PA220 PA230

Code	Activity group / activity	Description [4]	Water source [4]	Closest matching subproduct
C02-03	Groundwater statewide database management	Administration, systems maintenance/upgrades, quality control/assurance (GDS).	G	PA230
C02-04	Groundwater asset management – for quantity/quality information provision	Maintenance of field equipment/installations (e.g. groundwater monitoring bores, management & maintenance of hardware & software).	G	PA200 PA210 PA220 PA230
C03	**Coastal & estuary Information provision**	**Collection & provision of information for ongoing assessment & management of the State's coastal & estuaries water sources**		
C03-01	Coastal & estuary monitoring / reporting / information provision	Coastal & estuaries data collection, data archiving, data management, including policy & standard setting, development & maintenance of water databases, data analysis & information provision.	U	PA100 PA110 PA120 PA130
C03-02	Coastal & estuary asset management – for quantity/quality monitoring	Coastal & estuaries field equipment/installations, managing monitoring network, management & maintenance of hardware & software.	U	PA100
C04	**Surface water & groundwater analysis**	**Analytical services for water quality programs**		
C04-01	Analytical services for water quality programs	Laboratory analytical services for water quality programs C01-03, C01-04 & C02-02.	RUG	PA120
C05	**Water modelling & impact assessment**	**Development & operation of tools & models to undertake assessments & predictions to ensure resource sustainability**		
C05-01	Water sharing / accounting projects	Modelling for specific projects: • climate variability & water resource availability & allocation • NSW/QLD border rivers water sharing options • Barwon–Darling cap management strategy • Menindee Lakes Storage economically sustainable development project • TLM • impacts of reafforestation on water yields (Bombala & Delegate River catchments in 04–05) • Murray–Lower Darling: 6 threats to shared MDB resources • Integrated monitoring of environmental flows (IMEF) program • Snowy River environmental flow response monitoring • Metro water strategy – Hawkesbury–Nepean, Shoalhaven, Metro & Central Coast water sources • eWater Cooperative Research Centre	RU	PB120 PB130

Code	Activity group / activity	Description [4]	Water source [4]	Closest matching subproduct
C05-02	Water assessments	Includes: • assessment of programs of works performance in meeting salinity targets • assessment of NSW MDBC salinity register compliance • accountability for water trade salinity impacts • resource assessment / river, storage management – SWC • assess water recovery options – TLM, NWI, Water for Rivers (Snowy) & other clients	RU RUG	PD110 PD310 PD510 QC300
C05-03	Water balances/accounting	Water balance & accounting – ongoing development & administration for: • NWI requirements • hydrologic model maintenance • MDBMC cap auditing • water accounting – surface water–groundwater interaction • interstate water trade – assessment of trading rules • ongoing development of water modelling software & application to valley models • Living Murray Initiative – assessment of water management scenarios impacts • review of metropolitan water strategy	RU	PB100 PB110 PB120 PB130
C05-04	Groundwater balances/accounting	Includes: • ongoing development of groundwater models • water accounting – groundwater interaction • assessment of groundwater trading impacts/protocols • groundwater modelling for structural adjustment process • review of metropolitan water strategy	G	PA200 PB300 PB310
C06	**WSP implementation**	**Implementation of provisions of WSPs requiring ongoing action**		
C06-01	Environmental water provisions (Parts 3&5)	Implementation of environmental water provisions, including monitoring activities (e.g. IMEF recurrent), advisory committees & management of adaptive environmental water	RUG	
C06-02	Limits to availability of water (Parts 5&8)	Includes: • long-term extraction limit assessment, compliance & advisory committees • available water determinations • recharge review model development • GDE investigations • independent consultants review • structural adjustment	RUG	
C06-03	Rules for managing access licences (Parts 5&9)	Includes: • oversight of water allocation account management • management of extraction conditions & audit of extractions • general groundwater advice	RUG	

Code	Activity group / activity	Description [4]	Water source [4]	Closest matching subproduct
C06-04	Access dealing rules (Parts 5&10)	Includes: • administration of constraints within the water source • administration of changes to water source • determination of conversion factors	RUG	
C06-05	System operation rules (Part 12)	Includes: • oversight of system operation by SWC • operational monitoring, announcements etc. on unregulated rivers & groundwater	RUG	
C06-06	Monitoring & reporting (Parts 5&13)	Includes: • reporting on WSP performance indicators for annual reviews by CMAs & for 5-year reviews by NRC • socio-economic assessments of WSPs.	RUG	
C06-07	Plan amendments (Part 14)	Activities associated with any amendments specified in WSPs.	RUG	
C07	**WRM planning**	**Management planning activities**		
C07-01	WSP development	Includes: • water sharing policies • modelling for assessment of water sharing options • preparation of statutory documentation • preparation & processing of implementation programs for each WSP, detailing deliverables & associated timetable • preparation of implementation manuals specifying procedures to be undertaken to deliver provisions of WSPs, including reporting & auditing activities • maintenance of manuals, including updates & ensuring compliance with requirements specified therein, liaison with SWC re amendments review / amendment of clauses within current WSPs	RUG	PB120 PB130 PB310
C07-02	Water use plans	Development of statutory water use plans.	RUG	
C07-03	Drainage plans	Development of statutory drainage plans.	RUG	
C07-04	Floodplain plans	Development & refinement of policies & plans for development of floodplains & to limit or mitigate social or economic impact of floods. Regions develop statutory plans for rural floodplain areas.	RU	PD610
C07-05	Floodplain harvesting plans	Development of specific plans for management & control of water harvesting from floodplains.	RU	PB120
C07-06	Environmental water management planning	Linking ecosystems & environmental flow management.	RU	PD120
C07-07	Water savings planning	Revision & implementation of State water savings policy planning.	RU	
C07-08	Delivery capacity rights planning	Development & implementation of rights (extraction component of access licence) during peak demand.	RU	PB120 PB130 PB310

Code	Activity group / activity	Description [4]	Water source [4]	Closest matching subproduct
C07-09	Wetland recovery plan major initiative	Water recovered for environment via improved efficiencies in delivery system (capital-funded component included in C15-05). This initiative will develop environmental management plans for Macquarie Marshes & Gwydir Wetlands, which will provide for recovery & management of water for their ecosystems. Environmental management plans will mirror management plans being developed for Living Murray Initiative, which focuses on recovery & application of environmental water. This incorporates water recovery management projects (water recovered for environment via improved efficiencies in delivery system).	RUG	PD610
C07-10	NSW wetland policy implementation	To assist in protection of wetlands in good condition, rehabilitate degraded wetlands where feasible & support appreciation of wetlands by implementing various principles & actions, overseen by an interagency steering committee.		
C07-11	NRC reviews & support	Compiling information & reports to support NRC reviews of WSPs.		
C07-12	CMA support	Compiling information & reports to support CMA programs for environmental water programs.		
C07-13	River health & water quality plans	Provision of advice to water users & other stakeholders to assist & influence their management of surface water quality to achieve outcomes sought under management plans & policies, including: • undertaking studies for government (i.e. CMAs) in order to define priorities for investment (i.e. protection & rehabilitation options) • responding to enquiries from government agencies, private companies or customers; or providing unsolicited advice, assistance & information to target groups aimed at influencing attitudes & behaviours • attendance at meetings, delivery of papers to conferences or preparation of non-specific reports & information on river quality issues • community campaigns ranging from statewide programs to regional displays at local field shows	RUG	PD110
C07-14	Impact of dams on water quality	Actions used to address river health issues such as temperature fluctuations resulting from storages releases (cold water pollution).	R	PD110
C07-15	Blue-green algae operational planning	Functions provided by regional algal coordinating committees (RACCs), including: • weekly, fortnightly or monthly algal alerts for freshwater events (blue-green algae) • alerts for marine & estuarine events as required • development of contingency plans • maintenance of an algal information line & website • training & awareness of management authorities (including councils) • coordination of media response to algal events • coordination of scientific advice for each event RACCs also provide linkage with State Disaster Plan (DISPLAN) via contingency plans – in emergencies DISPLAN would override contingency plans & provide for significant resources & statewide coordination.	RU	PD200 PD210 PD220
C07-16	Bacterial, chemical & other regional operational planning	Includes: • management plans & strategies to address water quality issues, chemical & biological contamination • salinity mitigation works	RUG	PD410

Code	Activity group / activity	Description [4]	Water source [4]	Closest matching subproduct
C07-17	Interstate & national commitments	Includes: • development & implementation of operational programs to meet NWI commitments • development & implementation of NSW commitment to Living Murray Initiative • development & implementation of programs for National Groundwater Committee support to Natural Resource Management Ministerial Council • NSW contribution to MDB sustainable rivers audit • MDB CAP monitoring and reporting • MDB – 6 threats to shared resources, including: – climate change – bushfires – increased groundwater use – surface water impacts – large-scale reafforestation – reduced drainage from major sources due to supply efficiency – impact of farm dams	RUG	PD720
C08	**River management works**	**River management works for Murrumbidgee regulated river**		
C08-01	River management works planning	Management plans for river channels and banks.	R	PC410
C08-02	River bank & river bed remediation	Works plan to repair & stabilise river & channel banks & beds to maintain their integrity & flow capacity.	RU	PC410
C09	**Water consents administration**	**Activities to support administration of water consents regime**		
C09-01	HO systems administration	Includes: • Licensing Administration System (LAS) systems maintenance/upgrade • LAS administration, including maintenance of surface water & groundwater consents (licences & approvals) consistent with DNR's statutory responsibilities in regulating water extraction. Excludes processing of transactions on WA/WMA consents	RUG	PA110 PA210
C09-02	Regional administration	LAS administration, including maintenance of surface water & groundwater consents consistent with DNR's statutory responsibilities in regulating water extraction. Excludes processing of transactions on *WA/WMA* consents.	RUG	PA110 PB200 PB400
C09-03	HO register administration	HO administration, system maintenance, upgrade of access licence, approvals & environmental water registers.	RUG	PB110 PB120 PB130 PB200 PB400 PB220 PB310

Code	Activity group / activity	Description [4]	Water source [4]	Closest matching subproduct
C09-04	Licence cleansing	Includes: • cleansing of licences for conversion to *WMA* undertaken by HO & regions • volumetric conversions	UG	PB200 PB400
C09-05	Town water supply entitlements	Ongoing program of establishing entitlements allocations for town water licences & determination of new entitlements when requested by councils.	UG	PB120 PB310
C09-06	Compliance	Includes: • administration of surveillance to check compliance with consent conditions, including fieldwork, inspections & compliance checking • enforcement, including prosecution of non-compliance with consents conditions • farm dams policy education & enforcement	RUG	PB230 PB430
C09-07	Systems development	Includes: • development & maintenance of procedures & guidelines for access licence dealings, approval transactions etc. • monitoring of systems performance • staff training programs • information dissemination, including website development & maintenance		
C10	**Water consents transactions**	**Activities to enable transactions to be undertaken on water consents**		
C10-01	WA consents transactions	Renewals, transfers and new applications on licences, permits & approvals.	RUG	PB200 PB210 PB220 PB400 PB410 PB420
C10-02	*WMA* consents transactions	Includes: • issue, amend conditions, revoke conditions, dealings on access licences • issue & amend works & use approvals • issue of other approvals • extension of approvals	RUG	PB200 PB210 PB220 PB400 PB410 PB420
C11	**Business administration**	**Business activities to support WRM function**		
C11-01	Metering & billing water usage	Regulated river, unregulated river & groundwater metering & billing water usage. (Currently done by SWC under SLA – costs under SLA are recovered separately.)	RUG	PC220 PC230 PC250
C11-02	Business development	Planning to support implementation of WRM business function, including strategic, organisational, financial, human resource & corporate governance requirements.	RUG	TA

Code	Activity group / activity	Description [4]	Water source [4]	Closest matching subproduct
C11-03	Financial administration	WRM reporting required by stakeholders, including IPART & NWI, billing administration, revenue collection, maintenance of metering & billing SLAs, maintenance of pricing database, & responding to queries, correspondence, briefings, preparation of pricing submissions to IPART.	RUG	PD720
C12	**WMMIS capital program [2]**	**Government-funded capital programs to enhance WRM capability, effectiveness & efficiency (excludes recurrent funding costs to support the program)**		
C12-01	Metering & monitoring of water use systems on unregulated rivers & groundwater	Required to implement DNR's water extraction & WSP performance monitoring policy, & to facilitate 2-part tariff as necessary. Includes: • facilitating meter/monitor installation & calibration • enhanced communication & data collection/archiving systems • audit & compliance work	UG	PB230 PB430
C12-02	IMEF [4]	IMEF is a scientific program that assesses ecological benefits of environmental flows to the State's rivers & wetlands. Originally developed for major regulated rivers & the Barwon–Darling River system, IMEF is being extended to a number of unregulated rivers in order to monitor performance of the State's WSPs. This includes performance monitoring for both gazetted WSPs & those plans in development. It includes: • monitoring equipment • outsourced biological identification work • improved measurement of wetland inundation.	RU	PD120
C12-03	Groundwater monitoring network for WSPs & extension of surveillance & salinity networks	Enhanced groundwater monitoring bore network is required to provide appropriate surveillance for WSPs & to advise CMAs on investment strategies. Includes: • funding for new bore installations & data loggers • purchase of metering instruments, mainly for Murray and Murrumbidgee aquifers	G	PA200 PA210
C12-04	Integrated corporate water & ecological databases	Integration of DNR's database systems management (e.g. surface water, groundwater & water quality), allowing improved reporting & Internet data availability. Corporate database will allow information from various projects such as IMEF to be stored, then accessed & disseminated to users or community via the Net. It includes: • database development • Internet development • implementation.	RUG	PA110 PA130
C12-05	Water & wetland recovery management	Water recovered for environment via improved efficiencies in delivery system (recurrent component in C07-09). This initiative will develop environmental management plans for Macquarie Marshes & Gwydir Wetlands, which will provide for recovery & management of water for their ecosystems. Environmental management plans will mirror management plans being developed for Living Murray Initiative, which focuses on recovery & application of environmental water. This incorporates water recovery management projects (water recovered for environment via improved efficiencies in delivery system). 3–4-year program involves total funding of approx $27m. Of this amount, $13.4m is being provided as enhancement funding by NSW Government, & $13.4m is being sought in matching funding from Australian Water Fund.	RU	PD610

Footnotes to WRM Activities Profile

1. All WRM activities related to bulk water extraction are recorded in this schedule, the majority of which comprise activities for which costs are recoverable through WRM charges.
2. WMMIS capital programs are one off activities for which the annual costs should be amortised or depreciated over life of the product or system. Acquisition of equipment as part of these projects is not an activity but is shown as part of the overall WRM effort.
3. Management of unregulated river structures (weirs, regulators, etc.) has not been included as part of WRM activities as these assets are the responsibility of SWC.
4. R – regulated river, U – unregulated river, G – groundwater, WRM – water resource management, WSP – water sharing plan, NWI – National Water Initiative, SWC – State Water Corporation, IMEF – Integrated monitoring of environmental flows, LAS – Licensing Administration System, WA – *Water Act 1912*, WMA – *Water Management Act 2000*, MDB – Murray–Darling Basin, MDBC – Murray–Darling Basin Commission, NRC – Natural Commission Resource, CMA – Catchment Management Authority, DNR – Department of Natural Resources, WMMIS – Water Management Monitoring & Information System.

Appendix 2: Cost data

Historical costs

Table A2.1: Historical WRM operating costs – regulated rivers [a]

	2001–02 $'000	2002–03 $'000	2003–04 $'000	2004–05 $'000
Border	953	1 487	1 391	1 054
Gwydir	1 146	1 446	1 262	1 379
Namoi	1 002	1 345	1 186	1 027
Peel	130	249	199	273
Lachlan	1 961	2 196	1 913	1 688
Macquarie	1 598	1 933	2 020	1 870
Far West	–	–	–	–
Murray	5 815	7 296	7 273	7 042
Murrumbidgee	4 719	5 624	5 727	5 549
North Coast	57	116	83	298
Hunter	756	980	976	758
South Coast	634	299	157	133
Total	**18 770**	**22 976**	**22 188**	**21 072**

[a] 30 June 2005 dollars. Total WRM costs (government plus user share)

Table A2.2: Historical WRM operating costs – unregulated rivers [a]

	2001–02 $'000	2002–03 $'000	2003–04 $'000	2004–05 $'000
Border	345	233	221	250
Gwydir	221	225	195	269
Namoi	257	310	259	262
Peel	8	21	22	16
Lachlan	712	580	654	419
Macquarie	875	653	733	476
Far West	1 632	1 714	1 671	1 758
Murray	550	418	340	219
Murrumbidgee	968	769	583	541
North Coast	3 264	3 285	3 163	2 628
Hunter	1 006	1 070	1 014	1 277
South Coast	3 511	4 785	5 189	4 095
Total	**13 350**	**14 062**	**14 043**	**12 211**

[a] 30 June 2005 dollars. Total WRM costs (government plus user share)

Table A2.3: Historical WRM operating costs – highly managed groundwater [a]

	2001–02 $'000	2002–03 $'000	2003–04 $'000	2004–05 $'000
Border	194	190	243	689
Gwydir	250	319	350	241
Namoi	746	1 045	1 068	835
Peel	29	59	77	36
Lachlan	927	741	820	774
Macquarie	894	881	835	729
Far West	330	614	664	362
Murray	1 142	1 308	1 565	1 117
Murrumbidgee	1 280	1 346	1 248	1 322
North Coast	524	734	725	452
Hunter	92	192	213	125
South Coast	405	817	987	679

zser share).

Table A2.4: Historical WRM operating costs – other groundwater [a]

	2001–02 $'000	2002–03 $'000	2003–04 $'000	2004–05 $'000
Border	43	19	25	12
Gwydir	43	19	25	12
Namoi	48	20	27	20
Peel	8	18	33	4
Lachlan	–	–	–	–
Macquarie	35	10	7	2
Far West	216	181	191	197
Murray	–	–	–	–
Murrumbidgee	–	–	–	3
North Coast	–	–	–	–
Hunter	390	395	445	440
South Coast	408	211	136	25
Total	**1 191**	**872**	**890**	**715**

[a] 30 June 2005 dollars. Total WRM costs (government plus user share).

Table A2.5: MDBC historical costs and allocation – real values [a]

Allocation	Description	2001–02 $'000	2002–03 $'000	2003–04 $'000	2004–05 $'000
Unregulated rivers					
Basin-wide	Rivers and industry sustainable audit	77.8	75.8	22.7	50.9
Basin-wide	Cap audit	4.9	4.8	7.4	7.7
Basin-wide	MDBC river and industry	43.7	42.5	99.5	108.9
Basin-wide	Riverine environmental mgmt	193.7	188.6	254.3	319.9
Basin-wide	Interstate planning (water trading)	17.3	16.8	13.4	13.8
Subtotal		*337.4*	*328.5*	*397.3*	*501.3*
Regulated rivers					
Basin-wide	Rivers and industry sustainable audit	520.7	507.1	152.0	340.8
Basin-wide	Interstate planning (water trading)	115.6	112.6	89.6	92.7
Basin-wide	Cap audit	33.1	32.2	49.3	51.5
Basin-wide	MDBC river and industry	292.3	284.6	666.0	728.6
Basin-wide	Riverine environmental mgmt	1 296.0	1 262.1	1 701.7	2 141.1
Murray : Murrumbidgee 92:8	Infrastructure	30.7	29.9	20.8	33.8
Murray : Murrumbidgee 70:30	Salinity investigations	398.9	388.5	283.1	337.4
Murray Valley	MDBC Water resources management	25.6	24.9	29.2	88.5
Murray Valley	Fish passage management	890.0	866.7	1 250.6	1 202.3
Murray Valley	River and industry Lake Victoria	17.8	17.3	16.7	17.3
Subtotal		*3 620.9*	*3 526.0*	*4 258.9*	*5 033.9*
Grand total		**3 958.3**	**3 854.5**	**4 656.2**	**5 535.2**

[a] 30 June 2005 dollars

Table A2.6: DBBRC operating and capital costs – real values [a]

	2001–02 $'000	2002–03 $'000	2003–04 $'000	2004–05 $'000
Regulated rivers	116	113	126	123
Unregulated rivers	330	322	359	350
Total	**447**	**435**	**485**	**473**

[a] 30 June 2005 dollars

Cost forecasts

Table A2.7: Projected WRM operating costs – regulated rivers [a]

	2006–07 $'000	2007–08 $'000	2008–09 $'000	2009–10 $'000	2010–11 $'000
Border	1 226	1 226	1 226	1 226	1 226
Gwydir	1 323	1 323	1 323	1 323	1 323
Namoi	1 280	1 280	1 280	1 280	1 280
Peel	306	186	186	186	186
Lachlan	1 882	2 304	2 394	2 147	2 163
Macquarie	2 218	2 900	2 665	2 571	2 623
Far West	–	–	–	–	–
Murray	8 135	7 764	7 560	6 983	6 982
Murrumbidgee	5 436	5 276	5 033	5 139	5 138
North Coast	422	422	422	422	422
Hunter	896	882	758	758	758
South Coast	157	157	157	157	157
Total	**23 281**	**23 719**	**23 003**	**22 192**	**22 264**

a 30 June 2005 dollars

Table A2.8: Projected WRM operating costs – unregulated rivers [a]

	2006–07 $'000	2007–08 $'000	2008–09 $'000	2009–10 $'000	2010–11 $'000
Border	319	321	321	320	308
Gwydir	498	506	506	506	505
Namoi	341	342	343	342	341
Peel	82	82	82	82	81
Lachlan	730	817	809	763	793
Macquarie	950	802	874	734	779
Far West	3 100	3 070	3 093	3 108	2 784
Murray	502	539	560	575	573
Murrumbidgee	594	632	1 494	674	672
North Coast	3 128	3 177	3 326	3 422	3 489
Hunter	2 048	1 684	1 660	1 660	1 655
South Coast	4 974	5 117	5 202	5 278	5 272
Total	**17 264**	**17 089**	**18 270**	**17 464**	**17 253**

[a] 30 June 2005 dollars

Table A2.9: Projected WRM operating costs – highly managed groundwater [a]

	2006–07 $'000	2007–08 $'000	2008–09 $'000	2009–10 $'000	2010–11 $'000
Border	408	337	339	338	338
Gwydir	732	752	752	751	750
Namoi	1 104	1 202	1 202	1 202	1 201
Peel	261	264	264	264	263
Lachlan	1 288	1 253	1 290	1 289	1 312
Macquarie	1 766	1 873	1 908	1 870	1 877
Far West	519	672	524	525	523
Murray	1 375	1 383	1 386	1 387	1 387
Murrumbidgee	1 116	1 122	1 125	1 125	1 125
North Coast	1 053	1 105	1 121	1 133	1 137
Hunter	139	135	140	140	137
South Coast	703	703	703	703	703
Total	10 463	10 801	10 754	10 727	10 752

[a]30 June 2005 dollars

Table A2.10: Projected WRM operating costs – other groundwater [a]

	2006–07 $'000	2007–08 $'000	2008–09 $'000	2009–10 $'000	2010–11 $'000
Border	60	60	60	80	60
Gwydir	37	37	37	37	37
Namoi	60	60	60	60	60
Peel	25	25	25	25	25
Lachlan	412	488	296	296	296
Macquarie	318	433	317	317	317
Far West	1339	1191	1192	1193	1082
Murray	36	36	36	36	36
Murrumbidgee	50	50	50	50	50
North Coast	197	197	197	197	197
Hunter	814	814	815	815	815
South Coast	914	914	914	914	914
Total	**4 261**	**4 305**	**3 999**	**4 020**	**3 889**

[a]30 June 2005 dollars

Table A2.11: WRM user cost shares – 2006–07[a]

	Regulated rivers		Unregulated rivers		Groundwater – highly managed		Groundwater – other	
	Total $'000	User share $'000	Total $'000	User share $'000	Total $'000	User share $'000	Total $'000	User share $'000
Border	1 226	1 000	319	272	408	404	60	60
Gwydir	1 323	1 192	498	471	732	729	37	37
Namoi	1 280	1 102	341	292	1 104	1 099	60	60
Peel	306	260	82	72	261	260	25	25
Lachlan	1 882	1 631	730	640	1 288	1 280	412	412
Macquarie	2 218	1 882	950	857	1 766	1 370	318	318
Far West	–	–	3 100	2 828	519	354	1 339	1 015
Murray	8 135	5 409	502	444	1 375	1 337	36	36
Murrumbidgee	5 436	4 214	594	520	1 116	1 082	50	50
North Coast	422	375	3 128	2 877	1 053	1 026	197	197
Hunter	896	814	2 048	1 507	139	136	814	814
South Coast	157	143	4 974	4 540	703	633	914	914
Total	**23 281**	**18 022**	**17 264**	**15 320**	**10 463**	**9 708**	**4 261**	**3 936**

[a] 30 June 2005 dollars

Table A2.12: MDBC forecast costs and allocation – real values [a]

Allocation	Description	2006–07 $'000	2007–08 $'000	2008–09 $'000	2009–10 $'000	2010–11 $'000
Unregulated rivers						
Basin-wide	Improve environmental and consumptive use outcomes by improved management tools	12	12	5		
Basin-wide	Business development and improvement	84	85	87	87	87
Subtotal		*96*	*97*	*92*	*87*	*87*
Regulated rivers						
Basin-wide	Improve environmental and consumptive use outcomes by improved management tools	77	78	37		
Basin-wide	Business development and improvement	562	567	581	584	584
Murray / Murrumbidgee 92:8	Coordination and implementation of Native Fish Strategy	1 179	1 177	1 095	607	607
Murray / Murrumbidgee 70:30	Protection and enhancement of the basin shared water resources – (excluding Native Fish Strategy)	1 341	787	683	631	631
Murray / Murrumbidgee 70:30	Basin salinity management	894	906	942	854	854
Murray / Murrumbidgee 92:8	Modelling and supporting water delivery	292	301	222	202	202
Subtotal		*4 345*	*3 816*	*3 560*	*2 878*	*2 878*
Grand total		**4 441**	**3 913**	**3 652**	**2 965**	**2 965**

[a] 30 June 2005 dollars

Table A2.13: DBBRC forecast operating and capital costs – real values [a]

	2006–07 $'000	2007–08 $'000	2008–09 $'000	2009–10 $'000	2010–11 $'000
Regulated rivers	231	231	231	231	231
Unregulated rivers	142	142	142	142	142
Groundwater managed	**13**	**13**	**13**	**13**	**13**
Total	**388**	**388**	**388**	**388**	**388**

[a] 30 June 2005 dollars

Table A2.14: Basis for DNR's increased forecast costs

Code	Activity group / activity	Future activity in comparison with past activity
C01	**Surface water information provision**	
C01-01	Surface water quantity monitoring / reporting / information provision	Both the water sharing plans and the National Water Initiative require increased monitoring. The NWI (clause 80) requires that water accounting be raised to 'ensure that adequate measurement, monitoring and reporting systems are in place in all jurisdictions to support public and investor confidence'. The NWI also requires that the impact of future changes in water shares be apportioned according to the 'risk assignment model'. This means that we need to be able to discriminate climate change from other changes in order to calculate whether or not compensation is payable. The WSPs require measurement to be of a standard that allows water users to confidently know that they are not taking water when they should not be. The plans also require monitoring in order to inform the making of future plans with confidence of accuracy. This is an area where considerable increase in activity is required.
C01-02	Surface water statewide database management	Clearly, with such value attached to water access entitlements it is vital that all stakeholders have access to information to be able to assess whether or not their licences are being properly managed. The NWI (clause 86) requires the States to improve data collection and to facilitate better sharing of this information. This is an area where considerable increase in activity is required.
C01-03	Surface water quality monitoring / reporting / information provision	There are numerous areas which will be subject to increasing and fluctuating water quality. If we are to avoid the necessity of providing ever-increasing dilution flows, then we need to understand better where and when these events occur. Water users in the Murray are well aware of the necessity, having faced salinity problems for many years. These activities will need to increase as water quality becomes a dominant factor governing future access to water.
C01-04	Surface water ecology / biology information provision	WSPs are designed to improve ecological health of rivers. To understand whether or not the plans are effective, monitoring will have to increase in this area.
C01-05	Surface water quality statewide database management	See C01-02.
C01-06	Surface water asset management – for quantity / quality information provision	This represents managements of assets associated with the process of gathering water information. It would be expected that activity in this area would rise in proportion to the amount of monitoring required above.
C02	**Groundwater information provision**	
C02-01	Groundwater quantity monitoring / reporting / information provision	Extraction of water from underground storage has the potential to damage the aquifer. Extraction from one location has the potential to affect the extraction at a nearby location or at a location further afield from the aquifer inflow source. To prevent these impacts, monitoring of the state of the aquifer is vital. In the past, when extractions were below the sustainable yield, monitoring could afford to be spasmodic and crude. However, since extractions are currently at or beyond the sustainable yield, and the value of the licences, as fully tradable commodities, is high, it is vital that the state of the aquifer be kept under adequate scrutiny to avoid adverse impacts. This activity is expected to increase.

Code	Activity group / activity	Future activity in comparison with past activity
C02-02	Groundwater quality monitoring / reporting / information provision	Increased extraction has the potential to draw poor-quality water from adjacent aquifers. When this happens, the aquifer is ruined for some considerable time. To avoid the possibility, this activity is necessary. As above, past extractions have been low, necessitating low levels of activity. Extractions are now high, requiring increased activity.
C02-03	Groundwater statewide database management	See C01-02
C02-04	Groundwater asset management – for quantity / quality information provision	See C01-06
C03	**Coastal & estuary information provision**	Activities in this area largely address issues associated with river bar closure. Since river bar closure is largely a function of natural tidal movement, there is a relationship between the activity performed and the impacts caused by licensed extraction. Expenditure has not been included in WRM.
C03-01	Coastal & estuary monitoring / reporting / information provision	–
C03-02	Coastal & estuary asset management – for quantity / quality monitoring	–
C04	**Surface water & groundwater analysis**	
C04-01	Analytical services for water quality programs	This represents ancillary services associated with the water quality information. It would be expected that activity in this area would rise in proportion to the amount of water quality monitoring required above.
C05	**Water modelling & impact assessment**	
C05-01	Water sharing / accounting projects	These are projects largely aimed at analysing the effectiveness of plans in meeting their objectives. They will feed back into the plan review process in order to support rollover of existing plans or to support amendment of plans. The work in this area is vital in securing the size of the extractable component of the water source.
C05-02	Water assessments	This activity has two components. First, the assessment of water availability for the making of available water determinations. This is not expected to change in regulated rivers, but will increase in groundwater and unregulated rivers as the growth adjustment strategy is applied. This work is vital to the making of water available for extraction. This area also includes mandatory assessment of salinity impacts and performance against targets.
C05-03	Water balances / accounting	The NWI (Clause 80)requires better accounting of water. This area covers the accounting of water trade, extraction against the MDB Cap, surface and groundwater interface, and environmental water accounting. All of this is required in order to maintain confidence that water entitlements are not being eroded. This activity will increase to provide that confidence.
C05-04	Groundwater balances / accounting	See C05-03

Code	Activity group / activity	Future activity in comparison with past activity
C06	WSP implementation	
C06-01	Environmental water provisions (Parts 3&5)	This work involves the optimisation of the outcomes arising from environmental water use. Without this work, environmental condition will reduce, and this will require more water for the environment. This work is expected to increase in order to reduce the pressure for plan adjustment at year 10. Capital works in this area are not sought from water users.
C06-02	Limits to availability of water (Parts 5&8)	This area covers the improvement in the confidence in extractable share of water systems. Water sharing plans require these periodic reviews in order to ensure that the plan remains up to date with respect to the best knowledge of the extractable component. As pressure, particularly during drought, increases on groundwater systems, this work is vital to avoiding unexpected adverse outcomes from the plans. The work leads to increased confidence that the plan limit, which supports the licensed shares, is right.
C06-03	Rules for managing access licences (Parts 5&9)	Plans contain a number of rules governing water accounts. Work in this area is required to ensure that the rules of the plan are being complied with. For example, trading rules, spill rules, carryover rules. This work gives confidence that the water accounts are rigorous and deliver what is expected under plan rules. The NWI also requires this rigour to meet rigorous accounting standards. As more activity emerges in the water market and other derivative products are proposed, work in this area will be greater than it has been in the past.
C06-04	Access dealing rules (Part 5&10)	Dealings are the methods by which water ownership and extraction location change between parties. The development of rules to ensure integrity in the transaction is required in order to give confidence that water is being traded without third party conflict. This activity is expected to grow initially as NSW interaction with other States grows, and then to level off or reduce as the market matures. Clause 58 of the NWI provides guidance to the types of activities that will emerge in this area.
C06-05	System operation rules (Part 12)	A number of operational rules emerge from plans whose service is provided by either SWC or DNR. Involvement in these operational activities takes place in this area. This work provides on-time access to water. This is not expected to be a growth area.
C06-06	Monitoring & reporting (Parts 5&13)	The Act requires annual reporting. The plans also contain a commitment to periodic socioeconomic analysis to ensure that no unexpected outcomes emerge. Clause 89 of the NWI also requires the States to openly report on a number of issues.
C06-07	Plan amendments (Part 14)	As implementation progresses, a number of issues of omission or lack of clarity in plan rules are emerging. To preserve the intent of the plan, amendments are required. This activity was not previously required.
C07	**WRM planning**	
C07-01	WSP development	Most but not all plans will be complete by mid-2006. Some residual work will be included here in the early part of the price determination. Resources will then be moved to implementation activities once the WRSPs are in place. Activity here will be less than in the past submission.
C07-02	Water use plans	Other than irrigation area LWMPs, no regional water use plans have been developed. Given that water use approvals are not embargoed (only water access), there is a distinct possibility of inappropriate clustering of irrigation. Given that each application is considered on its own merit, a need is emerging to have a regional development plan to avoid the 'tyranny of incremental decisions'. This activity has not previously been required, as the licence embargo caught both access and use.

Code	Activity group / activity	Future activity in comparison with past activity
C07-03	Drainage plans	Drainage plans are required in order to better protect against irrigation-induced salinity through the contribution of inappropriate slow drainage to rising water tables. These have not previously been drawn up before. It is expected that this activity would be financed through local contributions, not water charges.
C07-04	Floodplain plans	Same as drainage plans.
C07-05	Floodplain harvesting plans	Floodplain harvesting plans are associated with the granting of a water access right in the same way as other water sharing plans do. DNR has not yet commenced activity in this area but expects to in the near future to incorporate all water access in a valley into the licensing framework. Activity in this area is new. Water taken from the floodplain reduces water availability further downstream. This activity preserves the integrity of existing extraction rights.
C07-06	Environmental water management planning	This activity is required to ensure continual improvement in achieving environmental outcomes from the limited environmental water available. This is a continuation of previous activity in this area.
C07-07	Water savings planning	The State Water Savings Policy is required to guide investment in water savings funded by Government in order to meet environmental improvement. Without this the environmental outcomes will be suboptimal, leading to greater pressure on the consumptive pool.
C07-08	Delivery capacity rights planning	In most systems now, development is constrained by delivery capacity rather than water availability (as expressed by water account balances). A market approach to sharing the river capacity is needed and will be developed here. This is a new activity but a necessary one to be able to allow optimal production to occur in the light of reducing river capacity. Clause 61 i provides a national commitment to establishing a market in delivery capacity.
C07-09	Wetland recovery plan major initiative	This is a specific initiative to provide better environmental outcomes in the Gwydir and the Macquarie marshes. Funding is expected from the NWI. It is a new initiative.
C07-10	NSW wetland policy implementation	The aim is to assist in protection of wetlands in good condition, to rehabilitate degraded wetlands where feasible, & to support appreciation of wetlands by implementing various principles & actions. Overseen by an interagency steering committee. This is a new policy which, if successful, will reduce pressure on the consumptive pool to deal with wetland decline.
C07-11	NRC reviews & support	This activity has not previously been undertaken, since the NRC has only recently been established. Most of the collection of information occurs under other programs required for core business of DNR.
C07-12	CMA support	Although CMAs are working in limited water matters, this activity is not recoverable in water charges.
C07-13	River health & water quality plans	As with wetland plans, maximising the effectiveness of the use of 'ECA' water in achieving water quality outcomes is developed via these plans in concert with community committees and the CMAs. WSPs require the establishment of such committees, and support in the form of information and scientific provision. These are new activities that utilise resources previously dedicated to supporting water management committees.
C07-14	Impact of dams on water quality	SWC and the Department of the Environment are working towards a set of rules to mitigate the effects of cold water releases. DNR provides information and river ecology expertise to assist in this. The final rules will be embedded in SWC works approval. Outcomes will be monitored to optimise the rules for best outcomes. This is not a new program, nor does it include data collection, which is supplied by SWC.

Code	Activity group / activity	Future activity in comparison with past activity
C07-15	Blue-green algae operational planning	This is not a new program, having been in place since the 1980s. This activity is required to mitigate the effects of the water stored in major storages (i.e. reduced flushing flows). It involves the coordination of regional algal responses.
C07-16	Bacterial, chemical & other regional operational planning	Management of salinity mitigation works. This is an ongoing activity designed to reduce the need for dilution flows, and hence to reduce the pressure on consumptive use.
C07-17	Interstate & national commitments	To maintain NSW's share of shared resources, DNR staff negotiate with other States on water access issues. Without these water sharing arrangements NSW could not allocate water to NSW licence holders. It is an ongoing activity.
C08	**River management works**	
C08-01	River management works planning	This activity relates to the planning of river restoration works on the Tumut River and the Murray River. It is an ongoing activity with no anticipated change in level. Income to fund the program has in the past been shared equally between water users, Snowy Hydro Ltd and the NSW Government.
C08-02	River bank & river bed remediation	See above.
C09	**Water consents administration**	
C09-01	HO systems administration	This represents the maintenance of the licence administration system. It is a stable program, similar to the past determination.
C09-02	Regional administration	This represents the maintenance of the licence administration system. It is a stable program, similar to the past determination.
C09-03	HO register administration	This supports the relationship between the DNR system and the Land Titles system. It is expected to be stable over the determination period. It is a new activity not included in the last determination.
C09-04	Licence cleansing	This activity is required to convert old licences to new. It is expected continue at a constant rate through the determination period. It is a new activity not included in the last determination.
C09-05	Town water supply entitlements	This activity is necessary in managing town water supply licences to ensure that these licence holders do not trade water to which they are not entitled. It is a new activity.
C09-06	Compliance	In view of the scarcity of water, compliance is expected to rise.
C09-07	Systems development	To improve quality of service, new systems are being developed, including training. Although systems have been constantly under development, it has not previously been brought out as a separate item.

Code	Activity group / activity	Future activity in comparison with past activity
C10	**Water consents transactions**	
C10-01	WA consents transactions	Until the WMA is completely activated, transactions are required to be completed under the WA. This area is expected to reduce.
C10-02	WMA consents transactions	These are new activities, all previously having been incorporated in the WA licence transfers. These will increase.
C11	**Business administration**	
C11-01	Metering & billing water usage	There is no change from previous determinations. This is based on a fee for service provided by SWC in unregulated rivers and groundwater. Costs in this area are expected to reduce as customer-read metering is installed.
C11-02	Business development	No change.
C11-03	Pricing & financial administration	Activity is increasing owing to requirements of NWI clause 64, which call for best practice water pricing.

Appendix 3: Cost sharing ratios

Figure A3.1: Decision framework for developing cost sharing ratios

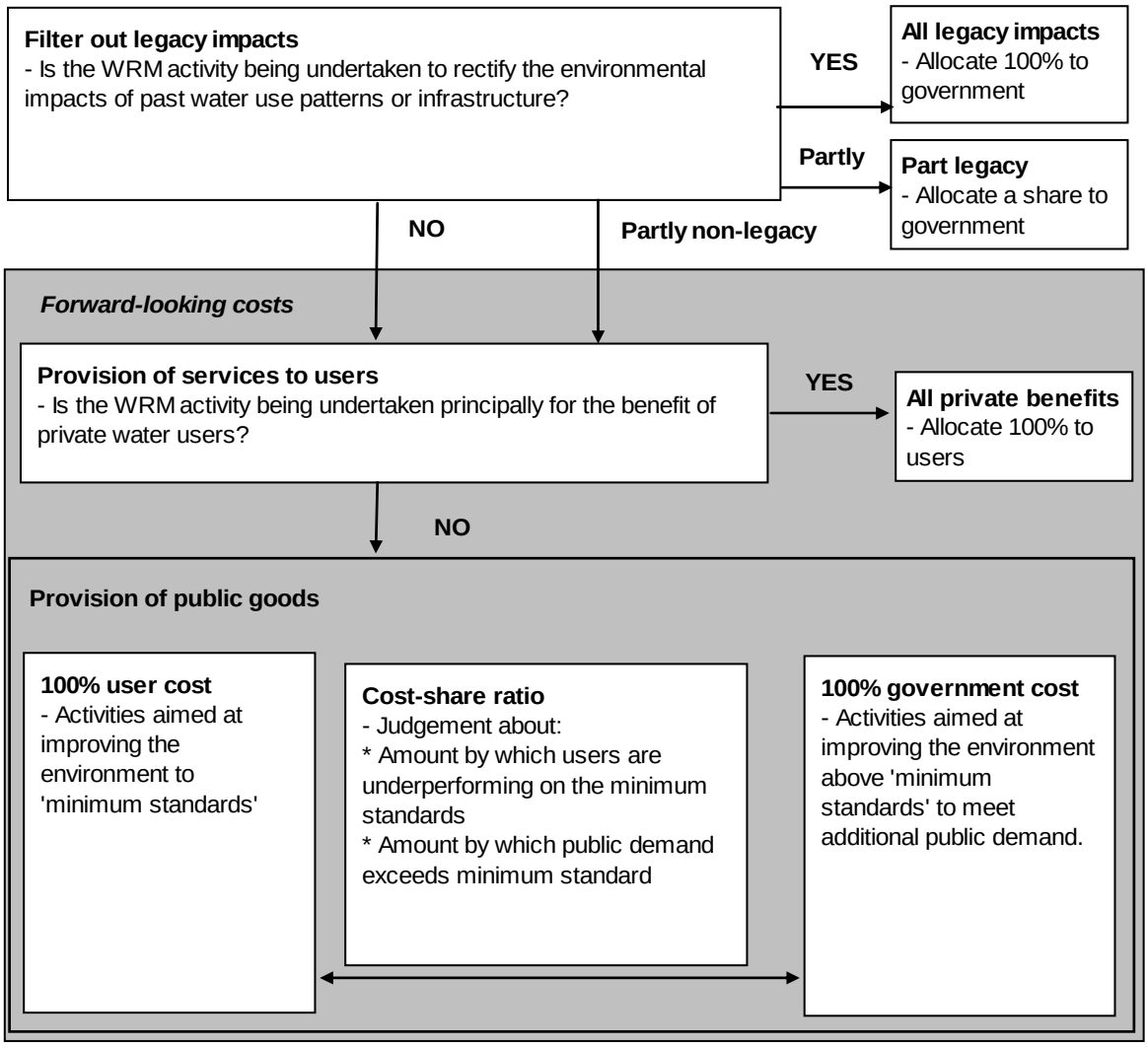


Table A3.1: Cost sharing ratios by WRM activity

Activity code	WRM activity	% Legacy component	% User share of future component	% Pass-through to users	Explanatory comments on cost shares	Closest matching sub-products	% User share (IPART 2001)
Surface water information provision							
C01-01	Surface water quantity monitoring / reporting / information provision	0%	90%	90%	Mostly user costs as users benefit from system security, the exception being the monitoring of unallocated water in natural river systems.	PA100	70%
						PA110	80%
						PA300	0%
						PA400	50%
C01-02	Surface water statewide data management	0%	90%	90%	Surface water flow data is required for managing the integrity of the water system and protecting users' entitlement security – thus, most costs are attributable to water users.	PA310	0%
						PA320	0%
C01-03	Surface water quality monitoring / reporting / information provision	10%	70%	63%	A small legacy component due to salinity. 30% of future costs are allocated to Government to account for monitoring of unallocated river systems. The rest is passed through to users.	PA120	50%
						PA130	50%
						PA320	0%
						PA400	50%
C01-04	Surface water ecology / biology information provision	10%	70%	63%	A small legacy component relating to some biological attributes affected by past use.	PA400	50%
C01-05	Surface water quality statewide database management	10%	70%	63%	Surface water quality data is required for meeting the environmental objectives specified in the WSPs. Users have an obligation to meet these objectives – and thus	PA130	50%

Activity code	WRM activity	% Legacy component	% User share of future component	% Pass-through to users	Explanatory comments on cost shares	Closest matching sub-products	% User share (IPART 2001)
					contribute to the cost of water quality monitoring.		
						PA330	0%
C01-06	Surface water asset management – for quantity/quality information provision	0%	90%	90%	Principally user-related costs, with the exception of assets in unallocated natural river systems.	PA100	70%
						PA110	80%
						PA120	50%
						PA130	50%
Groundwater information provision							
C02-01	Groundwater quantity monitoring / reporting / information provision	0%	100%	100%	Services provided solely for the benefit of users.	PA200	100%
						PA210	100%
C02-02	Groundwater quality monitoring / reporting / information provision	0%	100%	100%	Services provided solely for the benefit of users.	PA220	100%
						PA230	100%
C02-03	Groundwater statewide corporate database management	0%	100%	100%	Services provided solely for the benefit of users.	PA230	100%
C02-04	Groundwater asset management – for quantity / quality information provision	0%	100%	100%	Services provided solely for the benefit of users.	PA200	100%
						PA210	100%
						PA220	100%
						PA230	100%

Activity code	WRM activity	% Legacy component	% User share of future component	% Pass-through to users	Explanatory comments on cost shares	Closest matching sub-products	% User share (IPART 2001)
Coastal and estuary information provision							
C03-01	Coastal and estuary monitoring and information provision	0%	0%	0%	Zero pass-through to users because this activity relates to flood and tidal management, which is unrelated to bulk water use.	PA100	70%
						PA110	80%
						PA120	50%
						PA130	50%
C03-02	Coastal and estuary asset management – for quality and quality monitoring	0%	0%	0%	Zero pass-through to users because this activity relates to flood and tidal management, which is unrelated to bulk water use.	PA100	70%
Surface water and groundwater analysis							
C04-01	Analytical services for water quality programs	10%	90%	81%	A small legacy component due to salinity. 10% of future costs are allocated to Government to account for monitoring of unallocated river systems. The rest is passed through to users.	PA120	50%
Water modelling and impact assessment							
C05-01	Water sharing / accounting projects	0%	100%	100%	Water accounting data is required for managing the integrity of the water system and protecting users' entitlement security – thus, most costs are attributable to water users.	PB130	50%
						PB120	100%
C05-02	Water Assessments	50%	100%	50%	50% legacy component associated with assessment of salinity impacts.	PD110	0%
						PD310	10%

Activity code	WRM activity	% Legacy component	% User share of future component	% Pass-through to users	Explanatory comments on cost shares	Closest matching sub-products	% User share (IPART 2001)
						QC300	?
						PD510	100%
C05-03	Water balances / accounting	0%	100%	100%	Water accounting data is required for managing the integrity of the water system and protecting users' entitlement security – thus, most costs are attributable to water users.	PB110	100%
						PB100	100%
						PB130	100%
C05-04	Groundwater balances / accounting	0%	100%	100%	Services provided solely for the benefit of users.	PA200	100%
						PB300	100%
						PB310	100%
Water Sharing Plan implementation							
C06-01	Environmental water provisions (Parts 3&5)	0%	100%	100%	Users to pay for cost of meeting environmental obligations as specified in WSPs.	Nil	
C06-02	Limits to availability of water (Parts 5&8)	0%	100%	100%	Improved security of access is a private benefit.	Nil	
C06-03	Rules for managing access licences (Parts 5&9)	0%	100%	100%	Improved security of access is a private benefit.	Nil	
C06-04	Access dealing rules (Parts 5 &10)	0%	100%	100%	Improved security of access is a private benefit.	Nil	
C06-05	System operation rules (Part 12)	0%	100%	100%	Improved security of access is a private benefit.	Nil	
C06-06	Monitoring & reporting (Parts 5&13)	0%	100%	100%	Users to pay for cost of meeting environmental obligations as specified in WSPs.	Nil	
C06-07	Plan amendments (Part 14)	0%	100%	100%	Amendments to WSP to be met by users.	Nil	

Activity code	WRM activity	% Legacy component	% User share of future component	% Pass-through to users	Explanatory comments on cost shares	Closest matching sub-products	% User share (IPART 2001)
WRM Planning							
C07-01	WSP development	0%	100%	100%	Improved security of access is a private benefit.	PB120	100%
						PB130	100%
						PB310	100%
C07-02	Water use plans	0%	100%	100%	Improved security of access is a private benefit.	Nil	
C07-03	Drainage plans	0%	0%	0%	Drainage plans are not part of WSPs and are thus regarded as a public good obligation.	Nil	
C07-04	Floodplain plans	0%	0%	0%	Drainage plans are not part of WSPs and are thus regarded as a public good obligation.	PD610	0%
C07-05	Floodplain harvesting plans	0%	100%	100%	Improved security of access is a private benefit.	PB120	100%
C07-06	Environmental water management planning	0%	100%	100%	Users to pay for cost of meeting environmental obligations as specified in WSPs.	PD120	0%
C07-07	Water savings planning	0%	100%	100%	Users to pay for cost of meeting environmental obligations as specified in WSPs.	Nil	
C07-08	Delivery capacity rights planning	0%	100%	100%	Services provided solely for the benefit of users.	PB120	100%
						PB130	100%
						PB310	100%
C07-09	Wetland recovery plan major initiative	0%	100%	100%	Users to pay for cost of meeting environmental obligations as specified in WSPs.	PD610	0%
C07-10	NSW wetland policy implementation	20%	100%	80%	Users to pay for cost of meeting environmental obligations as specified in WSPs.	Nil	
C07-11	NRC reviews and support of WSPs	0%	100%	100%	Cost of reviews to be passed on to users.	Nil	
C07-12	CMA support for environmental water programs	0%	50%	50%	Cost of CMA support to be shared 50:50 between	Nil	

Activity code	WRM activity	% Legacy component	% User share of future component	% Pass-through to users	Explanatory comments on cost shares	Closest matching sub-products	% User share (IPART 2001)
					users and government.		
C07-13	River health & water quality plans	10%	100%	90%	Small (10%) legacy component due to salinity impacts. Rest passed on to users in line with their environmental obligations as specified in the WSPs.	PD110	0%
C07-14	Impact of dams on water quality	100%	0%	0%	100% legacy component due to infrastructure limitations.	PD110	0%
C07-15	Blue-green algae operational planning	0%	0%	0%	Bulk water users are not the only impactors – a wider natural resource management issue. All costs to be met by government.	PD200	0%
						PD210	0%
						PD220	0%
C07-16	Bacterial, chemical, salinity & other regional operational planning	10%	0%	0%	Bulk water users are not the only impactors – a wider natural resource management issue. All costs to be met by government.	PD410	0%
C07-17	Interstate and national commitments	0%	20%	20%	The broader government policy component of this activity is a public cost (80% share). The 20% passed through to users reflects their obligation to meet interstate environmental obligations.	PD720	50%
River management works (non-capital)							
C08-01	River management works planning	0%	100%	100%	Users to pay for the cost of meeting environmental obligations as specified in WSPs.	PC410	100%
C08-02	River bank and river bed remediation	0%	100%	100%	Users to pay for the cost of meeting environmental obligations as specified in WSPs.	PC410	100%
Water consents administration							

Activity code	WRM activity	% Legacy component	% User share of future component	% Pass-through to users	Explanatory comments on cost shares	Closest matching sub-products	% User share (IPART 2001)
C09-01	Head office systems administration	0%	100%	100%	Services provided principally for the benefit of users.	PA110	80%
						PA210	100%
C09-02	Regional administration	0%	100%	100%	Services provided principally for the benefit of users.	PA110	80%
						PB200	100%
						PB400	100%
C09-03	Head office register administration	0%	100%	100%	Water accounting data is required for managing the integrity of the water system and protecting users' entitlement security – thus, most costs are attributable to water users.	PB110	100%
						PB120	100%
						PB130	100%
						PB200	100%
						PB400	100%
						PB220	100%
						PB310	100%
C09-04	Licence cleansing	0%	100%	100%	Improved security of access is a private benefit.	PB200	100%
						PB400	100%
C09-05	Town water supply entitlements	0%	100%	100%	Planning activities to determine entitlements are principally undertaken for private benefit – improves all water users' security of access.	PB120	100%
						PB310	100%
C09-06	Compliance	0%	100%	100%	Improved security of access is a private benefit.	PB230	100%

Activity code	WRM activity	% Legacy component	% User share of future component	% Pass-through to users	Explanatory comments on cost shares	Closest matching sub-products	% User share (IPART 2001)
						PB430	100%
C09-07	Systems development	0%	100%	100%	Improved security of access is a private benefit.	Nil	
Water consents transactions							
C10-01	*Water Act 1912* consents transactions	0%	100%	100%	Transaction fee for service.	PB200	100%
						PB210	100%
						PB220	100%
						PB400	100%
						PB410	100%
						PB420	100%
C10-02	*Water Management Act 2000* consents transactions	0%	100%	100%	Transaction fee for service.	PB200	100%
						PB210	100%
						PB220	100%
						PB400	100%
						PB410	100%
						PB420	100%
Business administration							
C11-01	Metering & billing water usage	0%	100%	100%	Services provided solely for the benefit of users.	PC220	100%
						PC230	100%
						PC250	100%
C11-02	WRM business development	0%	80%	100%	This activity involves financial and costing systems development and business models to improve customer	TA	?

Activity code	WRM activity	% Legacy component	% User share of future component	% Pass-through to users	Explanatory comments on cost shares	Closest matching sub-products	% User share (IPART 2001)
					focus. As such, the majority of costs are related to servicing customers and should be passed through.		
C11-03	Financial administration	0%	80%	80%	80% allocation to users is consistent with IPART 2001 determination.	PD720	50%
						PC104	80%
WRM systems capital program							
C12-01	Metering & monitoring of water use systems on unregulated rivers & groundwater	0%	100%	100%	Services provided principally for the benefit of users. Any public spillover benefits regarded as a bonus.	PB230	90%
						PB430	90%
C12-02	IMEF	0%	100%	100%	This activity assesses the ecological benefits of environmental flows. Users to pay the cost of meeting their environmental obligations as per WSPs.	PD120	0%
C12-03	Groundwater monitoring network for WSPs & extension of surveillance & salinity networks	0%	100%	100%	Improved security of access is a private benefit.	PA200	100%
						PA210	100%
C12-04	Integrated corporate water & ecological databases	0%	50%	50%	Cost of data management systems shared 50:50 between users and Government. Government share accounts for WRM on unallocated natural river systems.	PA110	80%
						PA130	50%
C12-05	Water & wetland recovery management	0%	100%	100%	Cost is allocated fully to users in line with WSP environmental obligations.	PD610	0%

Appendix 4: Major utility licences

DNR regulates the water management works and water extraction activities of six of the seven major utilities proclaimed in Schedule 3 of the WA. DNR is cognisant of matters raised by stakeholders regarding cost recovery for major utilities, and provides the following information to assist IPART and stakeholders in satisfying themselves that the basis for cost recovery is clear and transparent. Articulation of a clear and transparent framework for determining how DNR allocates costs associated with management of major utilities will assist in this task.

DNR believes that costs on which major utility charges are based should be clearly definable within a framework that is:

- flexible enough to accommodate the evolving strategic and unique operational needs of a major utility
- able to be applied to the range of major utility licence management activities
- robust enough to deal with situations where a major utility has consents under both the WA and WMA
- able to facilitate a continued dialogue between major utility licence holders and DNR, whilst satisfying IPART's regulatory requirements
- capable of establishing the basis for efficient licensing costs for major utility users.

The basis for the framework is built around definitions of the different types of charges on which costs are incurred. These charges reflect the need to ensure that future costs are recovered through the most appropriate mechanism, as noted below.

1. WRM charges – paid by major utilities and all water users in the valley concerned.

2. Major utility licence management fees – charged in accordance with the WA (ss. 188 and 194). In future, these fees will be recovered through the WMA (s. 114). They are negotiated individually with major utilities, are based on actual costs incurred during a given year, and can vary considerably from year to year depending on the cycle of the licence. Fees relate directly to costs incurred in managing the licence, and reflect costs that would not have otherwise been incurred.

Other charges – based on costs directly negotiated between DNR and each utility for services not included in either of the above categories. They are subject to SLA between the relevant parties, and do not form part of the Government monopoly service declaration. Costs incurred by DNR in this category are isolated from charges incurred in the other two categories, but the utility is not obliged to use DNR as a service provider for such services (e.g. Hunter hydrographic services and Metropolitan–Shoalhaven environmental flows project.)

The current approach allows a level of flexibility necessary in charging costs that vary from year to year owing to the licence review cycle established in accordance with the WA & WMA. Mechanisms for formal consultation between the major utilities and DNR are in place, and provide an open forum for discussion of the derivation of recoverable costs.

In future, charges for categories 1 and 2 will be recovered through the provisions of the WMA (s. 114) rather than the WA. DNR believes that maintenance of the current regime, allowing for transition to the WMA (s. 114), is an appropriate path for future charges for major utility licence management.

Appendix 5: WRM capital programs

NSW Water Extraction Monitoring Program

NSW domestic customers in large towns are metered by local water supply authorities, as are works for taking water from regulated rivers and some major groundwater sources. However, most water taken from unregulated rivers and groundwater sources is currently unmetered.

This is because, while licences on NSW regulated rivers were converted to a volume basis in the 1980s (and licensees were required, as a condition of their licence, to install a meter), until recently landholders taking water from unregulated rivers and smaller groundwater systems had licences that specified an area that could be irrigated rather than a maximum volume of water that could be taken. These unregulated and groundwater licences are now being converted so that the licence has an entitlement to a volume of water.

There are about 30 000 licences in NSW for which water extraction monitoring should be applied. These are split into:

- 6000 licences on regulated rivers, with 94% of these already metered
- 13 000 licences on unregulated rivers, with 1% of these metered
- 10 000 licences for high-yield bores to extract groundwater, with 34% of these metered.

SWC has the responsibility of monitoring water extraction on regulated rivers, while DNR has responsibility for monitoring extraction on unregulated rivers and groundwater systems.

While it may be desirable for all water extracted under licences to be metered, this is impractical. Therefore, a risk-based approach to water use monitoring must be used, whereby risks to the natural resource system can be reduced to the extent possible. In general, the licensee will install, own, maintain, calibrate and observe the water meter or alternative monitoring equipment.

Currently, water extracted under about 9300 licences is metered. In the future, it is proposed to progressively increase the level of metering. This upgrade will start with the large-scale extractors in the priority water sources, before the myriad number of smaller scale extractors are included. As well as direct flow meters, alternative methods of usage monitoring will be implemented. Alternative methods to flow meters include calibration of measured electricity consumption against water extraction, calibration of a pump's measured operating hours against water extraction, calibration of a pump's measured revolutions against water extraction, and use of a pumping diary to manually record pumping hours. These alternatives to flow meters require the rating of pump or motor performance against the rate of water delivery, but offer considerable cost savings because existing equipment can be used. However, they do have the disadvantage of a much lower level of accuracy than flow meters.

The licence holder will be responsible for:

- purchasing and installing (in accordance with DNR standards and guidelines and manufacturer's specifications) any necessary monitoring equipment
- obtaining, recording and transmitting readings at specified intervals
- maintaining the monitoring equipment in good order, and undertaking any necessary repairs
- providing information that rates or calibrates the reading from the monitoring equipment against ML of water extracted.

DNR will be responsible for:

- determining the type of monitoring to be applied to each licence
- providing advice to licensees on the installation of monitoring equipment
- inspecting and checking the monitoring equipment after installation

- providing a system for the entry and maintenance of the data
- auditing to ensure the accuracy and reliability of the water usage information.

In some areas, DNR may arrange for SWC to carry out the duties of extraction monitoring. This will be done by way of an SLA or similar arrangement.

DNR has a program in place that aims to ensure that by June 2008, about two-thirds of the (unregulated rivers and groundwater) volume that is extracted will be actively measured. This represents about 8% of the number of licences. Subsequent programs will increase the amount of water being actively measured.

Planned expansion of Hydrometrics Network

In recent years, NSW has developed WSPs to establish the rules for sharing water between the environment and water users, and between competing water users. These plans require new resource management standards to be met, which will be facilitated through better monitoring.

- Project aim – To underpin the effective implementation, monitoring and evaluation of WSPs with accurate and timely assessment of water resource condition.
- Project activities – Installation of a network of hydrometric gauging stations strategically located to monitor the state of the streams within the WSPs.
- Project timetable – Determination of sites will start within 3 months of project start. Stations will be brought online progressively over the life of the project (4 years). Initial data from the stations will be available within one year of project start. Stations will continue to be operated under NSW funding for a considerable number of years after Australian Water Fund (AWF) funding has ceased.
- Project location – Stations will be located on streams throughout NSW.
- Project budget – An application has been made to the Commonwealth Government for $4m over 4 years from the AWF. NSW funding will be a long-term commitment of approximately $1.9m a year.

This project aims to expand NSW's existing water monitoring network via the construction of new gauging stations in order to enable effective implementation of the WSPs. Accurate data on water resources is necessary to define the amount of water available to be shared between competing users, and to ensure that water is extracted in an orderly manner, in accordance with licence and WSP conditions. In line with the NWI, it will provide information to develop a national water balance, and will enable accounting and reporting on environmental water, as well as identification of interaction of stream and aquifer flows.

Of the 178 gauging stations expected to be installed under the project:

- 103 stations will be new sites that monitor a full range of water flow characteristics
- 25 will be new sites that monitor a more limited number of parameters, such as low water level
- 50 will be upgrades or relocations of existing stations.

The project will cover site selection, physical construction of stations, and the purchase and installation of equipment (such as recorders, sensors and telemetry) to enable the ongoing monitoring of water resources. In circumstances where the stations are designed to target the surface–groundwater interface, the project will also cover the construction and instrumentation of related groundwater piezometers.

Planned extension of the groundwater monitoring network

An integral part of the WSPs is the management of water level and water quality decline using suitably located and constructed groundwater monitoring sites. The effectiveness of local impact (management) restrictions will be dependent on construction of monitoring bores in suitable locations and sunk to appropriate depths. The implementation program for each WSP identifies areas in each groundwater source where the existing monitoring networks require upgrading to meet the objectives of the plan.

The extension of the groundwater monitoring bore network will also provide appropriate surveillance for WSPs and facilitate advice to CMAs on investment strategies.

The highest priorities for construction of new State-owned bores and purchase of monitoring instruments are the Murray and Murrumbidgee aquifers ($2.3m). The monitoring equipment to be purchased includes data loggers and salinity probes. The need for continuous monitoring, and transfer of data by telemetry, will be considered where it is cost effective. The monitoring bores are permanently labelled and surveyed to a standard datum for adequate interpretation of water level data.

Appendix 6: WMA consent transactions data

Table A6.1: Historic and forecast volume of consent transactions

	Historic				Forecast							
	2002–2003	**2003–2004**	**2004–2005**	**2005–2006**	**2006–2007**	**2007–2008**	**2008–2009**	**2009–2010**	**2010–2011**	**2011–2012**	**2012–2013**	**2013–2014**
WA												
Permanent transfers	177	170	39	17	10	0	0	0	0	0	0	0
Conversions												
WA licence conversions (estimate)			7 000		3 000	7 000	7 000	4 000				
WMA												
Dealings – regulated rivers			167	201	219	227	236	240	240	240	240	240
Dealings – unregulated rivers & groundwater			9	11	83	117	151	170	170	170	170	170
Total dealings notified	**0**	**0**	**176**	**211**	**302**	**344**	**386**	**410**	**410**	**410**	**410**	**410**

Table A6.2: Historic and forecast volume of new licence issues and approvals

	Historic				Forecast							
	2002–2003	**2003–2004**	**2004–2005**	**2005–2006**	**2006–2007**	**2007–2008**	**2008–2009**	**2009–2010**	**2010–2011**	**2011–2012**	**2012–2013**	**2013–2014**
WA												
Surface water licences – stock & domestic	533	598	722	546	546	468	286	104	0	0	0	0
Surface water licences – not stock & domestic	59	66	80	69	69	59	36	13	0	0	0	0
Groundwater licences – stock & domestic (non-renewable)	6 818	4 521	5 296	5 545	4 436	1 109	0	0	0	0	0	0
Groundwater licences (renewable)	758	502	588	616	494	373	219	66	0	0	0	0
Total new WA licences	**8 167**	**5 687**	**6 686**	**6 776**	**5 545**	**2 009**	**541**	**183**	**0**	**0**	**0**	**0**
Conversion												
WA entitlement conversions (estimate)			7 000		3 000	7 000	7 000	4 000				
WMA												
New water access licences			0	46	46	267	489	615	615	615	615	615
Works approvals (excluding basic rights bores)			11	34	34	233	433	546	546	546	546	546
Water use approvals			0	10	10	16	22	25	25	25	25	25
Works & use approvals			6	31	153	407	661	650	685	685	685	685
Total works and use approvals (excluding basic rights bores)			17	**75**	**197**	**656**	**1 115**	**1 222**	**1 256**	**1 256**	**1 256**	**1 256**
Works approvals (basic rights bores)			37	72	1 109	4 436	5 545	5 545	5 545	5 545	5 545	5 545

Table A6.3: Licence renewals under the WA and WMA approval extensions

	Historic				Forecast							
	2002–2003	**2003–2004**	**2004–2005**	**2005–2006**	**2006–2007**	**2007–2008**	**2008–2009**	**2009–2010**	**2010–2011**	**2011–2012**	**2012–2013**	**2013–2014**
WA												
Renewals	4 377	4 327	3 838	3 283	2 814	2 345	625	200	0	0	0	0
Conversion												
WA licence conversions (estimate)			7 000		3 000	7 000	7 000	4 000				
Resulting WMA approvals			9 890	9 890	12 900	19 900	26 900	30 900	30 900	30 900	30 900	30 900
WMA												
WMA approval extensions	0	0	0	0	3 956	1 978	3 182	5 380	4 802	5 002	3 600	2 200
Total renewals or extensions	**4 377**	**4 327**	**3 838**	**3 283**	**6 770**	**4 323**	**3 807**	**5 580**	**4 802**	**5 002**	**3 600**	**2 200**

Table A6.4: Initiatives to improve efficiency of processing consent transactions

Initiative	Description
A water assessment guide is being developed for all staff processing water consents	A preliminary version is currently being used. It is designed to deliver consistency in assessing applications. It will be continually enhanced to reflect improved scientific knowledge and assessment techniques.
Information tools are being developed to reduce manual processing	For example, replacing manual viewing of hard copy maps with integrated graphical screens showing proposed works or use overlaid on land boundaries, soils, aquifer risk maps etc.
Automated processing system	Transactions are now processed using a system that records each step in processing, and automates generation of such things as advertisements and letters to applicants. The information provided by this system is already being used to identify systemic processing problems that can be resolved.
Program promoting expansion of the use of the internet for consents	Public registers of all WALs, approvals and application forms are available online. An applicant will be able to log on via the Internet and follow the progress of their application.

Table A6.5: Proposed fee structure for each transaction type

Transaction type	Common admin fee	Advertising fee	Basic assessment fee	Possible special assessment fees
Water access licence dealings				
Subdivide	✓			
Consolidate	✓			
Change	✓			✓
Subdivide and change	✓			✓
Change and consolidate	✓			✓
Assign share component	✓			✓
Interstate (import)	✓			
Interstate (export)	✓			
New water access licences				
Zero share component	✓			
Specific purpose	✓		✓	
Continuing, after controlled allocation	✓		✓	
New approvals				
Water supply work	✓	✓*	✓	✓
Water use – irrigation	✓	✓	✓	✓
Water use – town water supply	✓		✓	
Combined water supply work and water use	✓	✓	✓	✓
Amendment of approval				
Increase	✓	✓*	✓	✓
Decrease	✓			
Extension of approval				
Routine	✓			
Where assessment required (specified in regulations – none currently)	✓		✓	✓
Other				
Surrender of licence or approval				
Water allocation assignment				
Water allocation assignment (ground-water or unregulated river water sources)	✓		✓	✓

* Not always required – Regulations set out types of works that are to be advertised.

Table A6.6: Proposed special assessment fees

Proposed fees structure	Justification
For WAL dealings, $x per unit share if the WAL relates to groundwater or unregulated surface water sources.	Change-type dealings in groundwater and unregulated river water sources require local impact assessment in addition to consideration of rules in WSPs. It is generally cost reflective to adopt a sliding scale, as the larger the unit share, the greater the risk of local impact and the greater the assessment effort.
In relation to water supply work approvals, additional fees are proposed as follows: • For pumps, $x for each L/s capacity greater than 50. • For bores, a flat additional fee if the bores tap an aquifer or part of an aquifer that is stressed or at high risk or in a declared local impact zone. • For each on-river dam or weir, a flat additional fee. • For any open channels or water storages on a floodplain, a flat additional fee. • For any construction requiring removal of more than nominal native vegetation, a flat additional fee.	Each of these approvals incurs significant additional assessment work, and to be more cost reflective should incur an additional fee. • Adopting a sliding scale for pumps bigger than 50 L/s is reasonable given that the larger the works, the greater the risk of impacts. This is also consistent with the previous fee scale. • For bores that tap an aquifer or part of an aquifer that is already stressed by extraction or has very sensitive groundwater-dependent ecosystems, there is a sharp increase in the effort involved in order to limit third party and ecological impacts. • On-river dams and weirs require substantial additional assessment to limit third party and ecological impacts. • Works on floodplains require special consideration of impacts on flood flows. • Removal of native vegetation requires specialist assessment.
For water use, an additional $x/ha for land where irrigation is proposed, in excess of 4 ha in the Eastern Division, 10 ha in the Central and Western divisions.	Larger areas of land naturally incur larger assessment costs. The larger homogeneous expanses away from the coast mean that larger areas can be assessed for a similar cost to smaller areas on the coast.
Water allocation assignment $x per ML if the WAL relates to groundwater or unregulated surface water sources.	DNR gives consent to water allocation assignments for unregulated rivers and groundwater. Local impact assessment is required. It is generally cost reflective to adopt a sliding scale, as the larger the licence, the greater the risk of local impact and the greater the assessment effort.
If any proposed works or water use are deemed significant (in accordance with s. 112 of the *Environmental Planning and Assessment Act 1979*) and the proponent is required to prepare an environmental impact statement (EIS) or species impact statement (SIS), a flat additional fee should apply.	Where an EIS or SIS is to be assessed, there is significant additional work required. (Note: this applies only to applications where DNR is the determining authority under Part 5 of the *Environmental Planning and Assessment Act 1979*). Historically, only a small number of water licence applications have required an EIS or SIS.

Table A6.7: Types of water consent transactions

Transaction type	Description	Projected activity
Water Act 1912 transactions		
Issue of new licence / authority / permit	Grant of a new entitlement for a pump or bore. Includes conditions on volume and use. New entitlements are generally available only for limited purposes (e.g. domestic).	Diminishing as process of conversion to *Water Management Act 2000* continues.
Renewal of licence / authority / permit	Renewal of an existing entitlement, generally at 5-year intervals.	
Permanent transfer of entitlement	Cancellation of one entitlement and issue of another equivalent entitlement at another location.	As most of these have occurred on regulated rivers, most of which have been converted, they are already reduced to very small numbers.
Temporary transfer of entitlement	Temporary reduction in volume of one entitlement and corresponding increase in volume of another.	
Water Management Act 2000 water access licence transactions		
New zero-share component WAL (WMA s. 61)	Effectively just a mechanism for establishing an account into which water can be bought and sold.	No corresponding previous transaction. Numbers are expected to increase substantially over time.
New specific-purpose WAL (WMA s. 61)	Applications for new non-tradeable WALs for specific purposes (e.g. domestic, town water) are allowed by water sharing plans and regulations	Projected numbers based on previous activity in issuing new licences.
New continuing WAL (after controlled allocation) (WMA ss. 61, 65)	Some water sharing plans provide for issuing of new tradeable WALs by controlled allocation (e.g. auction, tender).	Small numbers projected, as there is very little uncommitted water in the State.
Subdivision (WMA s. 71P)	Splitting of a WAL into multiple smaller WALs.	Projections based on previous permanent transfer activity, with an increase factored in. The legislation is designed to allow greater trading activity using these dealings, and licence holders are already starting to make use of them.
Consolidation (WMA s. 71P)	Consolidating multiple WALs into a single WAL.	
Change (WMA ss. 71O, 71R, 71S, 71W)	Changing the location or category of a WAL.	
Subdivision and change	Combination transaction.	
Change and consolidation	Combination transaction.	
Share component assignment (WMA s. 71Q)	Moving share from one WAL to another.	
Interstate (import) (WMA s. 71U)	Issuing a new WAL where a corresponding interstate equivalent is cancelled.	
Interstate (export) (WMA s. 71U)	Cancelling a WAL where a corresponding interstate WAL is created.	

Transaction type	Description	Projected activity
Transfer (WMA s. 71M)	Change of ownership. No consent is required, therefore no consent fee applies. Transfers are simply lodged for registration at the Department of Lands.	Numbers expected to increase with increased trading activity.
Term transfer (WMA s. 71N)	Transfer of rights of a WAL for a fixed term (like a lease). As with transfers, no consent required.	No precedent. Numbers will increase.
Mortgages, charges, caveats etc. (WMA ss. 71D, 71E, 71X, 72, 73)	These are similar to the corresponding transactions on land. As with transfers, no consent required.	No precedent. Numbers will increase.
Water allocation assignment (WMA ss. 71T, 71V)	Essentially the same as a temporary transfer. Nearly all are on regulated rivers, and are handled by SWC. Assignments for groundwater or unregulated river water sources are handled by DNR.	Opportunities for water allocation assignment in groundwater and unregulated river water sources are limited. Numbers are expected to be small for some time.
Water Management Act 2000 approval transactions		
New water supply work approval (WMA s. 95)	These approvals allow the construction and use of pumps, bores, dams etc.	Projections based on historic activity in granting new non-irrigation licences
New water use approval (WMA s. 95)	These authorise irrigation of land and use of water for town water supply.	Projections based on part of historic activity in permanent transfers.
New combined water supply work and water use	Authorise both works and use. Typically for new developments	Projections based on historic activity in granting new irrigation licences.
Approval amendment (WMA s. 107)	Amendment of an existing approval to increase it (e.g. additional works, use area) or reduce it. Typically for expansion of an existing development.	Projections based on part of historic activity in permanent transfers.
Approval extension (WMA s. 105)	Approvals have a term of up to 10 years. At the end of the time they may be extended a further 10 years. This is an administrative process except for those cases set out in regulations, where full re-assessment is required.	Average future numbers will be less than previous renewal activity because of longer term, even though the number of approvals is larger. Because of the manner in which conversion is done, the numbers are not evenly spread, however.

Appendix 7: Volumetric conversion ratios

In the 2005 determination, the maximum charge for irrigators with water licences authorising extraction of water from unregulated rivers was set out on the following basis:

- a two-part tariff consisting of:
  - an entitlement charge (being a charge expressed in dollars per megalitre of entitlement or in dollars per unit share) and
  - a usage charge (being a charge expressed in dollars per megalitre of water actually extracted); or
- an area-based charge (being a charge expressed in dollars per hectare of authorised area of irrigation); or
- a volume of entitlement charge (being a charge expressed in dollars per megalitre of entitlement or in dollars per unit share).

For some years, charges for unregulated river licences for irrigation have been set by the second method (authorised area), and DNR will continue to bill on this basis for 2005–06.

There has been an expectation that DNR would move to a volumetric basis for charging, since volumetric conversion of licences occurred in 1999–2000. DNR has not done so, because a detailed billing analysis has shown that many individual charges would increase substantially (while others would reduce). This was not anticipated by IPART in earlier determinations, the intention being that the charges would be approximately the same regardless of the method conversion methodology used.

When licences were converted to a volumetric basis, the conversion was based on each licence holder's previous 5 years of crops irrigated, with different factors being applied on the basis of crop type and zone. Consequently, the ratio for conversion from authorised area to volume varies from licence to licence. If charges were to be based on volume, those licences with higher conversion factors would have a significant jump in their charges, while those with low conversion factors would get a reduction in charges. In some cases, this can lead to increases of as much as 500% for existing licence holders.

In the long term, it is reasonable that licences with a larger volume should be billed a higher amount regardless of their previous authorised area. This is because the value of the licence and the ability to take water are directly related to entitlement volume, and the area is no longer a constraining factor. However, DNR recognises that consideration should be given to the impacts of a sharp increase in WRM charges on farm businesses, and therefore proposes that annual increases be phased in over time.

Appendix 8: Service level agreements

Hydrometric SLA

DNR operates and maintains some 800 river gauging stations throughout NSW, including 300 on regulated rivers and 500 on unregulated rivers. Gauging stations provide operational streamflow (hydrometric) data for the WRM and water delivery (SWC) functions.

An SLA has been established for hydrometric services supplied by DNR to SWC for its regulated river operations. Under the SLA, DNR undertakes to supply surface water quantity data to SWC within agreed reliability standards.

The contracted fee for service under the SLA is based on full cost recovery, being the expenditure necessary to operate and maintain the gauging stations, subject to meeting the agreed standards of service specified in the SLA. For 2006–07, the total contract fee is estimated to be $4.1m.

Income received under the SLA is offset against DNR's WRM cost base in establishing cost recovery by way of WRM charges. Accordingly, the WRM cost estimates in this submission are net of income from the SLA.

Gauging stations are not currently capitalised, primarily owing to the difficulties in monitoring the number of and movements in the various equipment components throughout the State. A management plan has been developed to optimise the allocation and use of gauging stations. The plan will also provide the necessary data to monitor and control the distribution of equipment and will allow for inclusion in DNR's assets register in due course.

Metering & Billing SLA

SWC provides metering and customer billing services on all bulk water sources, including unregulated rivers and groundwater systems managed by DNR.

Under this SLA, SWC undertakes to meter and bill customers on unregulated rivers and groundwater to agreed standards. The fee for the service is negotiated between DNR and SWC.

In 2006–07, the cost to DNR for these services is forecast to be $215,000 for billing and approximately $870,000 for metering.

The costs are of a normal business nature, and therefore are fully recoverable from water users under current cost sharing arrangements. The WRM cost estimates in this submission from 2004–05 onwards include the estimated cost of the SLA.

Appendix 9: Abbreviation of terms

AWF	Australian Water Fund
CAP	Catchment Action Plan
CMA	Catchment Management Authority
CoAG	Council of Australian Governments
CPI	Consumer Price Index
DBBRC	Dumaresq–Barwon Border River Commission
DIPNR	Department of Infrastructure, Planning and Natural Resources
DLWC	Department of Land and Water Conservation
DNR	Department of Natural Resources
EFT	equivalent full-time
ICD	Irrigation Corporations and Districts
IMEF	integrated monitoring of environmental flows
IPART	Independent Pricing and Regulatory Tribunal
LAS	Licensing Administration System
MDB	Murray–Darling Basin
MDBC	Murray–Darling Basin Commission
NHT	Natural Heritage Trust
NRAC	Natural Resource Advisory Council
NRC	Natural Resource Commission
NWI	National Water Initiative
SCA	Sydney Catchment Authority
SLA	service level agreements
SWC	State Water Corporation
WA	*Water Act 1912*
WAL	Water Access Licence
WMA	*Water Management Act 2000*
WMAA	*Water Management Amendment Act 2004*
WMMIS	Water Management Monitoring and Information System
WSP	water sharing plan

Appendix 10: Contact information

Any queries relating to this submission should be directed to the DNR officer in your region, listed below.

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NSW Implementation Plan for the National Water Initiative

2005

TABLE OF CONTENTS

NSW National Water Initiative Implementation Plan:

Introduction

NSW signed the Intergovernmental Agreement on a National Water Initiative (NWI) at the Council of Australian Governments meeting on 25 June 2004.

The NSW NWI Implementation Plan sets out the actions that NSW has already completed and provides detailed information, for each NWI action, on the tasks and timeframes to complete remaining commitments, and the context within which these actions are being implemented.

Legislative and Regulatory Framework

NSW effected fundamental reforms to its water management framework by way of the *Water Management Act 2000*. Further reforms that implemented all but two elements of the NWI framework were achieved by way of the *Water Management Amendment Act 2004*.

Under these reforms, NSW has gazetted and initiated water sharing plans, consistent with the requirements of the NWI, that regulate approximately 80 percent of water use in NSW. Under these plans, fully tradeable water access licences, separate from land title and water works and use approvals, and consistent with NWI requirements, are being created and registered.

Two key obligations of the NWI require implementation in NSW by way of further legislative amendments:

- the risk assignment framework; and
- giving effect to a Heads of Agreement between the Government and major Irrigation Corporations to permit increased water trade.

Legislation to facilitate these changes is proposed for the 2005 spring Parliamentary session.

Implementation

Many of the actions progressed so far have been implemented within the resources of the former Department of Infrastructure, Planning and Natural Resources. NSW has recently undergone administrative changes in the management of natural resources. The Department of Natural Resources (DNR) is in the process of being established. Hence it is difficult to specify the resources allocated to specific programs at this stage. However, resources will continue to be allocated in the future for the implementation of the NWI.

The NSW NWI Implementation Plan demonstrates that many NWI actions are already significantly progressed in NSW. In addition to the various nationally coordinated studies and implementation processes, actions of the NWI requiring significant implementation activity within NSW are:

- completion of the water planning and licence conversion process across NSW for the remaining 20 percent of water use;
- implementing indefeasibility of water title;
- regulating floodplain harvesting;
- further development of the water title register;
- steps to facilitate increased water trading;

- further development of the water accounting framework; and
- knowledge and capacity building efforts.

Monitoring

NSW will monitor its progress in water reform with reference to key performance indicators developed by the national Natural Resource Management Ministerial Council (NRMMC). In the interests of cross-jurisdictional consistency, NSW considers it important that the NWI signatories use the NRMMC's agreed performance indicators as a tool to indicate the relative progress of different jurisdictions. A national framework such as this will allow jurisdictions to learn from each other and work together towards a high standard of water resource management Australia-wide.

A second source for performance indicators specific to NSW's activities will be the NSW Natural Resources Commission (NRC), the independent statutory body responsible for providing advice and making recommendations to Government on major policy actions related to environmental and natural resource management. The NRC has already established a strong record of public consultation and offering meaningful and clear state-wide standards and targets.

NSW National Water Initiative Implementation Plan

NWI Element No 1: Water Access Entitlements and Planning Framework

Action 1: Implementation of the framework – IGA Para 26 (i) & (iii)

Actions

i) Substantially complete plans to address any existing over-allocation for all river systems and groundwater sources in accordance with commitments under the 1994 COAG agreement.

ii) Review any plans developed for the 1994 COAG framework to ensure that they now meet the requirements of the NWI in terms of transparency of process, reporting arrangements and risk assignment.

IGA Date: 26 (i) end of 2005, 26 (iii) Immediate

Context

NSW commenced 31 WSPs on 1 July 2004 that address existing over-allocation for rivers and coastal groundwater sources. The plans were developed by community based local Water Management Committees. These plans set the rules for providing water for the environment and direct how the water available for extraction is to be shared between users. The plans are available on the DNR website, www.dipnr.nsw.gov.au. The 2004 amendments to the WMA and amendments to the individual plans gazetted on 1 July 2004 ensure that NSW WSPs and new water licensing system are consistent with the NWI and operate within its ambit.

Plans for most of the remaining water sources are expected to be ready for public exhibition in 2006 for progressive implementation from 2006/07 as resources are available to convert existing licences to WMA licences (refer Element 1, Action 3).

Collectively the 31 WSPs commenced on 1 July 2004 return around 220 GL of water to the environment (taking as a base 1993-94 MDBC cap levels). Commencement of a further 6 plans for major inland groundwater sources that have been gazetted will complete NSW's remaining commitments on over-allocated systems under the 1994 COAG water reform framework.

Implementation Timetable

Steps/Deliverables	Start date	End date	Status/ Comments	Lead Agency
Substantial completion of plans to address any existing over allocation for all river systems and groundwater resources in accordance with commitments under the 1994 COAG water reform framework by end 2005			The definition and extent of overuse and the on-going evaluation of the impacts of the plans to address overuse are areas where existing knowledge is limited. Future action in this area links strongly to the Knowledge and Capacity Building Actions of the NWI (paras 98 to 101).	DNR
Commencement of 31 WSPs		1 July 2004	Plans have commenced and will apply for a period of 10 years up to 2014. They will be reviewed as soon as possible after year 5 by the NRC in the context of catchment health. The NRC will then advise the Minister for Natural Resources on whether a WSP should be remade or extended The NRC review will address environmental, socio-economic and education aspects of WSPs. Information and data for the reviews will be provided to the NRC by DNR, the CMAs and relevant agencies.	

Steps/Deliverables	Start date	End date	Status/ Comments	Lead Agency
Immediate review of existing water plans to ensure they meet the requirements of the NWI		July 2004	Complete	
Gazetting amendments to plans to include NWI requirements		1 July 2004	Complete	
Commencement of 6 Groundwater WSPs	1 July 2006		Plans are scheduled to begin in July 2006 following negotiations on structural adjustment assistance with Commonwealth Government and subsequent amendments to the plans.	

Cooperation with other jurisdictions

A number of WSPs will deal with cross border resources, such as the Border Rivers, Upper Murray, Snowy Rivers and Googong. Cross-jurisdictional consultation, including relevant Intergovernmental Agreements, will be undertaken in the development of these plans.

Link to NWI outcomes
This action helps achieve:
NWI objectives 23 (i) to (iv)

i) Clear and nationally compatible characteristics for secure water access entitlements;

ii) Transparent, statutory based water planning;

iii) Statutory provisions for environmental and other public benefit outcomes, and improved environmental management practices;

iv) Complete the return of all currently over-allocated or overused systems for environmentally sustainable levels of extraction.

NWI outcomes 25 (i) to (v)

i) Enhance the security and commercial certainty of water access entitlements by clearly specifying the statutory nature of these entitlements;

ii) Provide a statutory basis for environmental and other public benefit outcomes in surface and groundwater systems to protect water sources and their dependent ecosystems;

iii) Be 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;

iv) Provide for adaptive management of surface and groundwater systems in order to meet productive, environmental and other public benefit outcomes;

v) Implement firm pathways and open processes for returning previously over-allocated and/or overdrawn surface and groundwater systems to environmentally-sustainable levels of extraction;

Link to relevant performance indicators

NSW will provide links to relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 1: Water Access Entitlements and Planning Framework

Action 1 A: Implementation of the framework – IGA Para 26 (ii)

Action

i) Amend legislative and administrative regimes to incorporate the elements of the entitlements and allocation framework in the NWI

IGA Date: end 2006

Context

While the WMA as first passed implemented many of the elements that were to be included in the NWI, the 2004 amendments to the WMA ensure that NSW's WSPs and new water licensing system are consistent with the NWI and operate within its ambit.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status/Comments	Lead Agency
Legislative and administrative regimes amended to incorporate the elements of entitlements and allocation framework by end 2006				DNR
Amendments made to the WMA 2000		1 July 2004	Complete.	
Amendments made to WSPs		1 July 2004	Complete.	

Cooperation with other jurisdictions

Not applicable.

Link to NWI outcomes

This action helps achieve:

NWI objectives 23 (i) to (iv) & (vii) to (x)

i) Clear and nationally-compatible characteristics for secure water access entitlements;

ii) Transparent, statutory-based water planning;

iii) Statutory provision for environmental and other public benefit outcomes, and improved environmental management practices;

iv) Complete the return of all currently over-allocated or overused systems to environmentally-sustainable levels of extraction;

vii) 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;

viii)Policy setting which facilitate water use efficiency and innovation in urban and rural areas;

ix) Addressing future adjustment issues that may impact on water users and communities; and

x) Recognition of the connectivity between surface and groundwater resources and connected systems managed as a single resource

NWI outcomes 25 (i) to (v), (viii), (ix) & (xi)

i) Enhance the security and commercial certainty of water access entitlements by clearly specifying the statutory nature of those entitlements;

ii) Provide a statutory basis for environmental and other public benefit outcomes in surface and groundwater systems to protect water sources and their dependent ecosystems;

iii) Be 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;

iv) Provide for adaptive management of surface and groundwater systems in order to meet productive, environmental and other public benefit outcomes;

v) Implement firm pathways and open processes for returning previously over-allocated and/or overdrawn surface and groundwater systems to environmentally-sustainable levels of extraction;

viii) Reflect regional differences in the variability of water supply and the state of knowledge underpinning regional allocation diversions;

ix) Recognise indigenous needs in relation to water access and management;

xi) Protect the integrity of water access entitlements from unregulated growth in interception through land-use change.

The 2004 amendments to the WMA incorporate the following key NWI features into the NSW water management system:

- the issuing of perpetual licences for most categories of licence
- transparent and robust planning processes
- a robust access entitlement register and
- increased opportunities for trade

Link to relevant performance indicators

NSW will provide links to relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 1: Water Access Entitlements and Planning Framework

Action 2: Water access entitlements to be defined and implemented – IGA Para 27-34

Key actions

i) Separation of water access entitlement from land described as a perpetual or open-ended share of the *consumptive pool* of a specified water resource, as determined by the relevant *water plan*.

ii) The allocation of water consistent with a *water plan*.

iii) Regulatory approvals enabling water use at a particular site for a particular purpose specified separately to the *water access entitlement*, consistent with the principles set out in Schedule D.

iv) *Water access entitlements* should be:

- able to specify the essential characteristics of the water product;
- exclusive; traded, given, bequeathed or leased;
- subdivided or amalgamated;
- mortgageable (and in this respect have similar status as freehold land when used as collateral for accessing finance);
- enforceable and enforced; and
- recorded in publicly-accessible reliable water registers that foster public confidence and state unambiguously who owns the entitlement, and the nature of any encumbrances on it.

v) *Water access entitlements* will also:

- clearly indicate the responsibilities and obligations of the entitlement holder consistent with the *water plan* relevant to the source of the water;
- only be able to be cancelled at Ministerial and agency discretion where the responsibilities and obligations of the entitlement holder have clearly been breached;
- be able to be varied, for example to change extraction conditions, where mutually agreed between the government and the entitlement holder; and
- be subject to any provisions relating to access of water during emergencies, as specified by legislation in each jurisdiction.

vi) The provisions in paragraphs 28-32 are subject to the following provisions:

- fixed term or other types of entitlements such as annual licences will only be issued for consumptive use where this is demonstrably necessary (e.g. poorly understood and/or less developed water resources) and/or where the access is contingent upon opportunistic allocations, and/or where the access is provided temporarily as part of an adjustment strategy, or where trading may otherwise not be appropriate. In some cases, a statutory right to extract water may be appropriate; and
- an ongoing process will be in place to assess the risks of expected development and demand on resources in poorly understood or undeveloped areas, with a view to moving these areas to a full entitlement framework when this becomes appropriate for their efficient management.

vii) Special circumstances facing the minerals and petroleum sectors that may need to be addressed by policies and measures beyond the scope of this Agreement.

IGA Date: Immediate

Context

In the water sources covered by the 31 commenced WSPs, the licensing arrangements now come under the WMA and are consistent with all the key actions listed above. Amendments were made to the WMA in June 2004 specifically to ensure that NSW licensing arrangements are compatible with the NWI. The water access licence (the water access entitlement): is separate from the water use and works approvals; entitles the holder to a

specified share in the available water; is open to a range of new water dealings (trade, subdivision, lease); and has conditions aligned with the relevant WSP. Water access licences for commercial purposes are issued in perpetuity, while those for specified purposes such as town water supply, domestic and stock use are issued for as long as the purpose remains (i.e. are open ended). Supplementary water licences in the regulated river systems are issued for as long as the relevant WSP provides for such licences.

The majority of holders in these WSP areas have been formally notified of their water access licence and approval conditions. As the licence ownership and mortgage arrangements are finalised (with the licence holder and financial institutions), water access licences are being progressively recorded on the Water Access Licence Register (which operates similarly to the Land Titles Register) and the water access licence certificate issued. Under the transitional provisions of the WMA, security interest holders must be given two years from the date licences are converted to the WMA to have their security interests registered on the Register. For the licences in the initial 31 WSPs, the deadline for registration of security interests is June 2006. DNR has been working closely with the major financial interests and all registered interests to finalise this process and will also be advertising to alert all small unregistered security interests of this requirement. Indefeasibility of water licence titles for the licence holders in the initial 31 WSP areas should be available by 2007.

All remaining water licences in NSW will be similarly converted to water access licences and approvals under the WMA as WSPs are implemented in their areas. The development of WSPs, and therefore the timing for conversion of water licences, falls within 4 groupings:

Group A – the 31 WSPs which have been commenced. These cover the most stressed river systems in NSW (i.e. the major regulated river systems) plus a number of individual unregulated rivers and 5 coastal groundwater systems. These 31 WSPs account for about 80% of surface water use and some 25% of licences.

Group B – WSPs for 5 major inland groundwater systems have been gazetted (Upper and Lower Namoi, Lower Gwydir, Lower Macquarie, Lower Lachlan and Lower Murrumbidgee alluvial aquifers) and a sixth (Lower Murray) is substantially completed. Implementation of these WSPs has been suspended until 1 July 2006 for CMAs, in collaboration with both the NSW and Commonwealth Governments, to consult with local communities. This will allow the plans to be finalised, determining how the water reductions will be achieved and where structural adjustment funding will be allocated. These plans will cover a further 10% of licensed water users.

Group C – 39 macro plans will be substantially completed in 2006 and progressively commenced from July 2007. Approximately 700 unregulated river sources, which largely follow sub-catchment boundaries, have been grouped into 27 WSP areas, largely based on river basins. Approximately 88 groundwater sources have been grouped into 12 WSP areas based on geological provenance (alluvium, coastal sand etc) and location in the State (north coast, south coast etc). The aim of the macro plans is to ensure that broad values of each WSP area are maintained so that the WSP rules for areas with similar values mixes (e.g. high ecological and low economic values) will aim to meet similar objectives even if the WSP areas are in different areas of the State. The 39 macro plans will account for a large portion of the State's licences – around 45% - although most are small users. A detailed explanation of the macro planning process can be found at Attachment A.

Group D – 17 individual WSPs which require very specific water sharing rules. These cover the remaining 20% of licences and will be completed and commenced progressively from 2006 to 2008 for:

- the eight remaining regulated rivers - Border Rivers and Googong (both subject to interstate agreements), Fish, Belubla, Peel, Paterson, Toonumbar and Bega;
- the Snowy and Upper Murray Rivers which are subject to interstate agreements;
- four complex unregulated river systems - Lowbidgee Flood Control District, Barwon-Darling, Hunter estuaries, and greater metropolitan Sydney (covering the Hawkesbury / Nepean / Coxs / Shoalhaven / Woronora / Illawarra region rivers); and
- three complex aquifer systems (Great Artesian Basin, Border Rivers and Peel).

Implementation Timetable

Steps/Deliverables	Start date	End date	Status/ Comments	Lead Agency
Water access entitlements and the separate water use and works approvals to be defined and implemented immediately. Development of water access entitlements is in four groups.	June 2003	June 2007	The process essentially takes four years from start (license cleansing) to finish (indefeasible water title). On a statewide basis approximately 60% of all (group A, B, C and D) existing *Water Act* licences in NSW have been cleansed and their details verified (the first stage of the process). The information is then re-checked just prior to the commencement of a WSP to take account of licence transfers.	DNR
Group A (initial 31 WSPs): Licence data cleansing and verification, conversion to water access licence and approvals, and finalisation of ownership/tenancy and mortgage arrangements	June 2003	June 2006	DNR has instituted a fast-track process for issuing certificates for those who wish to undertake water licence transfers	
Majority of licence and approval holders (approximately 70%) formally notified of their conditions	February 2005	March 2005	Complete	
90% of licences uploaded into the Water Access Licence (WAL) Register and 50% of certificates issued	July 2004	Decembe r 2005	In-house by DNR and through the use of contractors	
All converted water use and works approvals and their conditions listed on the DNR register	July 2004		Register available on the DNR website	
Registration of security interests	July 2004	June 2006	Security interest holders have 2 years time from the date the licence is converted to register their interest	
Indefeasibility of title	July 2004	June 2007	Dependent on finalisation of licence ownership and security interests. The ownership of some licences may be contested through the courts	
Group B (5 major inland groundwater systems) licences and approvals developed in the above manner	June 2003 (cleansing process began)	June 2007	The WSP will commence from 1 July 2006 and the new licensing arrangements thereafter. The community will be consulted on how water reductions will be achieved and where structural adjustment funding will be allocated	
Indefeasibility of title	June 2003	June 2009		

Steps/Deliverables	Start date	End date	Status/ Comments	Lead Agency
Group C (macro plans) licences developed in the above manner	June 2003	June 2009	Some will be converted and issued before June 2009 depending on the commencement date of the WSP	
Indefeasibility of title	June 2003	June 2011		
Group D (17 individual WSPs for specific water resources with special requirements) licences developed in the above manner	June 2003	June 2009	Some will be converted and issued before June 2009 depending on the commencement date of the WSP	
Indefeasibility of title	June 2003	June 2011		

Cooperation with other jurisdictions

NSW is actively participating in the NWI project to ensure compatibility between States within the Murray-Darling Basin and works with Queensland to ensure compatible arrangement along the Border Rivers system. NSW is involved in the Murray Darling Basin Commission Interstate Water Trade Project Board, which oversees trade in the Murray and Lower Darling WSP areas.

Link to NWI outcomes

This action helps achieve:

NWI Objective 23 (i)

i) Clear and nationally compatible characteristics for secure water access entitlements;

NWI Outcomes 25 (i) & (vii)

i) Enhance the security and commercial certainty of water access entitlements by clearly specifying the statutory nature of these entitlements

vii) Compatible water entitlements across jurisdictions to improve investment certainty, be competitively neutral and to minimise transaction costs on water trades (where relevant)

Link to relevant performance indicators

NSW will provide links to the relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 1: Water Access Entitlements and Planning Framework

Action 3: Water to meet environmental and other public benefits – IGA Para 35 & 37

Actions

i) Water to meet agreed *environmental and other public benefit outcomes* is 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;
- be defined as the water management arrangements required to meet the outcomes sought, including water provided on a rules basis or held as a water access entitlement; and
- if held as a water access entitlement, may be made available to be traded (where physically possible) on the temporary market, when not required to meet the *environmental and other public benefit outcomes* sought and provided such trading is not in conflict with those outcomes.

ii) New South Wales will provide for:

- secure ecological outcomes by describing the *environmental and other public benefit outcomes* for water systems and defining the appropriate water management arrangements to achieve those outcomes; and
- resource security outcomes by determining the shares in the *consumptive pool* and the rules to allocate water during the life of the plan.

IGA Date Immediate

Context

Water sharing under the *Water Management Act 2000* is required by section 5(3) to give first priority to the protection of the environment and its dependent ecosystems and second priority to protection of basic landholder rights. As such, water for environmental and other public benefits is accorded higher security than licensed use. Sharing or extraction of water under any other right or by licensed use must not prejudice these priorities except in extreme drought conditions. Section 8 of the WMA provides that WSPs must "contain provisions for the identification, establishment and maintenance of planned environmental water", and also "must contain provisions relating to adaptive environmental water". In essence, all water that is not specified as available for extraction is protected as environmental water, either by way of rules in WSPs or by being held as adaptive environmental water. For example, in the Gwydir River system some 56% of the long-term average annual flow is preserved and contributes to ecosystem health.

Planned environmental water is provided for by rules in WSPs (e.g. cease to pump levels in unregulated rivers, environmental allocations held in the storage in regulated rivers or reservation of a proportion of the sustainable yield in groundwater systems). The rules are fixed for the ten year life of the WSP and can only be amended by the Minister for Natural Resources with the concurrence of the Minister for the Environment. The Natural Resources Commission will review the plans against the natural resource management standard and targets after year five, and recommend whether they should be extended or re-made at the end of their ten year term.

Adaptive environmental water is water held under a water access entitlement that contains specific conditions requiring the water to be committed for specified environmental purposes either generally or at certain times or circumstances. Environmental water held under an adaptive environmental water access licence is available to be temporarily traded when not required for the specified environmental purpose. Amendments are to be made shortly to the WMA to clarify the administration and operation of licences with adaptive environmental water conditions arising from water savings projects under the Living Murray and other initiatives.

WSPs have been developed and commenced for 31 water sources (returning a volume of about 220 GL to the environment compared to 1993/94 MDBC Cap levels of development) and plans for 5 inland groundwater sources have been prepared and awaiting commencement. In the regulated rivers, the water sharing rules were based on data on water use, river flows, hydrologic modelling and previous implementation and assessment of various environmental flow rules, data held by other agencies and the expertise of the water management committees. For the unregulated rivers a stressed river assessment was made determining the hydrologic and environmental stress. For the groundwater systems studies were undertaken to assess the sustainable yield and to identify groundwater dependent ecosystems.

A further 17 water sources have been identified as requiring individual plans. All other water sources in New South Wales will be included in macro plans, each of which will include a number of water sources. The methodology for classifying water sources within a macro plan and the process for developing macro plans has been developed through an inter-agency working group. This involves identifying the environmental, cultural and public values of the water source using a check list and classifying each water source in terms of its instream (environmental) and extraction (socio-economic) values and risks using two matrices. One rates the water source's instream value against hydrologic stress and the other the instream risk against dependence on extraction. Water sources will be rated as low, medium or high for these four characteristics. Generic environmental and water trading rules have been developed for the different classifications. Where values / risks are low, fairly simple environmental rules and open water trading rules would apply, with more intensive management required for the higher risk or stressed water sources.

Regional panels comprising inter-agency and CMA representatives will establish the classifications and assess the applicability of the generic rules. Based on local knowledge, including consideration of socio-economic impacts, the Panels may recommend the continuation of current rules, adoption of the generic rules or a combination.

Implementation Timetable

Steps/Deliverables	Start Date	End Date	Status/Comments	Lead Agency
Immediate definition, provision and management of environmental water and water for other public benefit outcomes. This process is included in water plans and will be staged according to the Group of plans				DNR
Group A (31 initial WSPs) Commencement of 27 river plans Commencement of 4 Coastal Groundwater Plans		1 July 2004 1 July 2004 1 July 2004	Complete. Complete. Complete.	
Group B Commencement of 5 Inland Groundwater Plans		1 July 2006	Consultation with the community over how reductions will be made and how structural adjustment funding will be allocated.	
Group C (macro plans covering unregulated and groundwater systems) Commencement of 29 macro plans for unregulated rivers Development and commencement of 14 macro Groundwater Plans, to include management rules to protect Groundwater Dependent Ecosystems	 In stages – work on development of plans commenced January 2005 In stages – work on development of plans commenced January 2005	 1 July 2008 1 July 2008	 Duration of the data cleansing and conversion process necessitates a staged delivery timetable. These plans group water sources into a valley plan that will identify stressed sources. The methodology for developing the macro plans will be completed by 1 July 2005.	

Steps/Deliverables	Start Date	End Date	Status/Comments	Lead Agency
Group D (individual WSPs) Development of 17 individual WSPs that will define rules for environmental water	In stages – work on development of plans commenced January 2005	1 July 2008	Areas included: 8 regulated rivers (Border Rivers, Googong, Fish, Belubla, Peel, Paterson, Toonumbar and Bega); 2 unregulated rivers subject to interstate agreements (Snowy Upper Murray); 4 complex unregulated river systems (Lowbidgee Flood Control District, Barwon-Darling, Hunter estuaries and greater metropolitan Sydney); and 3 complex aquifer systems (Great Artesian Basin, Border Rivers and Peel). Plans will be completed having regard to priority and complexity and the issues to be addressed (e.g. requirements of IGAs).	

Cooperation with other jurisdictions

A number of WSPs will deal with cross border resources, such as the Border Rivers, Upper Murray, Snowy Rivers and Googong. Cross-jurisdictional consultation, including relevant Intergovernmental Agreements, will be undertaken in the development of these plans.

Link to NWI outcomes

This action helps achieve:

NWI outcomes 25 (ii) and (iv)

ii) provide a statutory basis for *environmental and other public benefit outcomes* in surface and groundwater systems to protect water sources and their dependent ecosystems;

iv) provide for adaptive management of surface and groundwater systems in order to meet productive, environmental and other public benefit outcomes;

Link to relevant performance indicators

NSW will provide links to relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 1: Water Access Entitlements and Planning Framework

Action 4: Water plans based on characteristics and components of Schedule E – IGA Para 36, 39 & 40

Actions

i) Prepare water plans that include (as listed in Schedule E) health of the water source, risks to water availability, objectives, all uses and users (including indigenous water), environmental and other public health outcomes, reliability, circumstances under which water may be taken and conditions. Plans should include pathways to reduce over-allocation or use (where relevant), a review process that allows changes to be made in light of improved knowledge, be consistent with relevant natural resource management plans, identify level of connectivity between surface and groundwater systems and impacts on downstream users and the environment, and include consultation with stakeholders.

ii) Monitor the performance of water plan objectives, outcomes and water management arrangements, factor in knowledge improvements provided for in the plans and provide regular public reports.

IGA Date: 2010

Context

WSPs in NSW have already been developed or will be developed according to the characteristics listed in Schedule E. All 36 gazetted plans do, and all future plans will, clearly describe the water source to which they pertain and the objectives for the water source that the plan aims to achieve. Plans set out the current condition of the relevant river or aquifer and delineate current uses and users of the water, as well as likely future use and risks to the resource and to extraction from the resource. This is based on historical data regarding water extraction, river flows, groundwater levels; hydrological and hydrogeological modelling; socio-economic profiles prepared for the catchments and environmental and agricultural information held by the agencies.

Plans indicate the reliability of entitlements under them and set out clear rules about when, how and how much water can be taken. They also clearly specify any provisions that may change as a result of further studies. For example in the groundwater plans, there is likely to be provision allowing review and amendment of the sustainable yield estimates.

DNR is required to include in its Annual Report details of the implementation of all WSPs. In addition, the NRC will review all WSPs and advise the Minister for Natural Resources on whether the provisions in these plans are materially affecting the achievement or non-achievement of targets in catchment action plans. In conducting its reviews, the NRC will call for and have regard to relevant public submissions. It will also examine the socioeconomic impacts of the current water-sharing plans and the impacts of any proposed changes to those plans. The NRC will report to the Minister for Natural Resources and may submit recommendations on whether a water-sharing plan and/or catchment action plan should be remade or extended.

As to the inclusion of interception activities in WSPs, floodplain harvesting rules are being developed and will be incorporated into WSPs (refer Element 1, Action 8). Interception by farm dams is specified through the Farm Dams policy and their impact is taken into account in developing the extraction limit for resource to which the plan relates and from which the plan rules largely derive.

For plans covering individual water sources, locally-based committees examine all the scientific and socio-economic evidence to devise the objectives most suited to their local water source and community, and the plan rules required to meet those objectives. For macro plans, a classification method has been derived through inter-agency collaboration and uses a nine-level risk matrix of high, medium and low levels of environmental risk and dependency on extraction. The classification will guide the level of water sharing rules to be adopted. Regional panels, including representatives of the Catchment Management Authorities, will then review the classifications and rules based on local knowledge and consideration of the socio-economic impacts of the rules.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Development of WSPs by 2007 for systems that are over-allocated, fully allocated or approaching full				DNR

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
allocation and development. Development of WSPs by 2009 for systems that are not yet approaching full allocation will occur according to the four groups of water plans.				
Development of WSPs for Group A		June 2004	Completed - amendments to plans were gazetted and plans commenced on 1 July 2004	
Development of WSPs for Group B		June 2006	Amendments to the plans may be required following negotiations with Commonwealth. Plans are expected to commence on 1 July 2006	
Development of WSPs for Group C Regional panels to submit recommendations on classification and WSP rules	May 2004	October 2005		
Public exhibition, finalisation and gazettal of plans	May 2006	December 2006	Staged process as individual plans are ready. The aim is to have **majority** of the macro plans on public exhibition by mid July 2006 for commencement by July 2007	
Development of WSPs for Group D Public exhibition, finalisation and gazettal of plans	December 2005	July 2008	Staged process as individual plans are ready. Some of these plans including those for metropolitan Sydney and Great Artesian Basin are expected to commence in July 2006	
Monitoring of and reporting on WSPs Undertaking of mid-term review for initial WSPs Reporting on annual implementation	2009	June 2014 Nov 2005	 To be included in DNR Annual Report	
Application of the monitoring and reporting process to Groups B, C and D.	Progressive, depending on commencement of plans			

Cooperation with other jurisdictions

A number of WSPs will deal with cross border resources, such as the Border Rivers, Upper Murray, Snowy Rivers and Googong. Cross-jurisdictional consultation, including relevant Intergovernmental Agreements, will be undertaken in the development of these plans.

Link to NWI outcomes

This action helps achieve:

NWI objectives 23 (i), (iii), (iv), (vi), (ix) and (x)

i) Transparent, statutory-based water planning;

iii) Statutory provision for environmental and other public benefit outcomes, and improved environmental management practices;

iv) Complete the return of all currently over-allocated or overused systems to environmentally-sustainable levels of extraction;

vi) Clarity around the assignment of risk arising from future changes in the availability of water for the consumptive pool;

ix) Addressing future adjustment issues that may impact on water users and communities; and

x) Recognition of the connectivity between surface and groundwater resources and connected systems managed as a single resource.

NWI outcomes 25 (i) to (x)

i) Enhance the security and commercial certainty of water access entitlements;

ii) Provide a statutory basis for environmental and other public benefit outcomes

iii) Productive, environmental and other public benefit considerations identified and considered in an open and transparent way;

iv) Provide for adaptive management of surface and groundwater systems; Implement firm pathways and open processes for returning previously over-allocated and/or overdrawn surface and groundwater systems to environmentally-sustainable levels of extraction;

v) Clearly assign the risks arising from future changes to the consumptive pool;

vi) Reflect regional differences in the variability of water supply and the state of knowledge underpinning regional allocation decisions;

vii) Recognise indigenous needs in relation to water access and management;

viii) Identify and acknowledge surface and groundwater systems of high conservation value, and manage these systems to protect and enhance those values.

Link to relevant performance indicators

NSW will provide links to NRMMC indicators and NRC targets when they are available.

NWI Element No 1: Water Access Entitlements and Planning Framework

Action 5: Addressing over allocation as per NCC commitments – IGA Para 41 & 43-44

Actions

i) Substantially complete by 2005 allocations to provide a better balance in water use for all river systems and groundwater resources that are over-allocated or stressed for NCC endorsed implementation programs.

ii) For other over-allocated or overused systems, determine precise pathways for adjustment.

iii) Make substantial progress by 2010 in adjusting all over-allocated and or overused systems in accordance with States' Implementation plans.

IGA Date: 2005, end 2010

Context

The NSW WSPs make a significant step towards addressing overuse, in the context of the community's capacity to adjust to reductions in water allocations over the ten year term of these first plans.

NSW's water planning framework is being undertaken in 4 groups. Group A -the initial 31 WSPs - covers the majority of the stressed river systems in NSW. Group B covers the majority of the over-allocated/overused groundwater systems. Combined these plans encompass over 80% of all water used in NSW.

Group A plans commenced in July 2004. The regulated river systems are being managed through extraction limits and environmental flow rules which will reduce environmental stress. These rules were implemented from the start of the plan, as they build on previous environmental flow rules. As noted above, the conversion of old volumetric licences to a system of perpetual unit share also avoids the possibility of entitlements being over-allocated, as the new water access licences no longer specify a licence volume.

Group B - the over-allocated/overused inland aquifer systems. Plans have been developed which identify the percentage reductions required to bring allocations within the sustainable extraction levels. The measures include supplementary water access licences which over the ten year period are phased out.

Group C - the 43 macro WSPs will cover most of the remaining river catchments and broad groundwater system types. On a State basis they do not represent major areas of over-allocation or overuse (stress). There may, however, be local zones of over-use within a plan area. The classification process identifying the water sources as high, medium or low risk should be completed by October 2005 (refer Element 1, Action 4). Rules will be tailored to the classification and will include processes for adjusting overuse if and where necessary. These plans will be progressively implemented from July 2007.

Group D - comprises 17 individual WSPs which require very specific water sharing arrangements. These plans will be progressively developed and implemented from 2006 to 2008. The most significant remaining stressed river in NSW is the Barwon-Darling River and a cap management strategy is to be introduced in July 2005 to reduce water extractions within this system prior to the completion of the WSP.

Floodplain harvesting (See Element 1 Action 8), which is an outstanding water extraction issue, is to be brought within existing water sharing arrangements. Volumetric allocations will be made, and these will be inserted into relevant WSPs so that all water extraction in NSW is through WSPs and the new rights systems.

Overuse will be addressed through establishing and managing long term extraction limits. Each water sharing plan establishes a long-term annual extraction limit. Long-term average annual total extractions will be managed within the respective limit, thereby protecting the proportion of river flows identified for fundamental ecosystem needs at the start of the Plan from unlimited increases in long-term water extraction.

A long-term extraction limit in:

- all inland regulated river water sources is equal to or less than the MDBC Cap level of long-term average annual extractions. In nearly all cases the extraction limit is less than the Cap;
- all inland unregulated river water sources is equal to the MDBC Cap level of long-term average annual extractions; and

- all coastal unregulated river water sources is equal to the sum of entitlements and basic rights requirements at the commencement of the respective WSP. It limits future extractions to no more than what could have been extracted under the entitlements existing at the start of the WSP.

In all regulated river water sources, if average annual total extractions exceed the respective long-term extraction limit by 3% or more, then water allocations for supplementary water access licences, and if required for regulated river general security access licences, will be reduced.

In all unregulated river water sources, if annual total extractions (i.e. all water users) over 3 consecutive years in the water source exceed the respective long-term extraction limit by 5%, then water allocations for unregulated river access licences will be reduced.

In both regulated and unregulated rivers, allocations will be reduced by an amount necessary to return subsequent total water extraction to the respective long-term extraction limit.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Substantial addressing of over-allocation as per NCC requirements by 2005 within:				DNR
Initial 31 WSPs		July 2004	Completed. These plans cover the majority of the stressed river systems in NSW (i.e. the major regulated rivers).The plans address over-allocation and known overuse.	
5 inland alluvial aquifers		July 2006	Substantially complete - plans identify measures to address over-allocation and known overuse. These plans represent the major areas of groundwater over-allocation.	
Determination of precise pathways for adjustment for 43 macro WSPs	March 2005	December 2005	The classification process and initial plan rules for the majority of these plans will be determined by December 2005, with plans finalised in 2006 for implementation from July 2007. The classification and rule setting process transparently identifies the transition from current rules to the proposed rules.	
Determination of precise pathways for adjustment for 17 individual WSPs:				
Barwon-Darling River		July 2005	A cap was approved in July 2005, with the operational details to be developed by late 2005	
Sydney Metro plan		July 2006	Water sharing rules require finalisation (over 75% of extraction is by water authorities). Adjustment to sustainable yield of the system is the subject of the broader Metropolitan Water Plan and referenced to the WSP	
Other plans		July 2009	Plans will be progressively finalised and implemented from July 2007. July 2009 represents the desired end	

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
			date for the commencement of all plans in NSW noting that this is 6 months earlier than the due date in the NWI of December 2009	
Make substantial progress in adjusting all over-allocated and or overused systems by 2010.		July 2008	WSPs should commence for all of NSW by July 2009 at the latest. Most plans requiring adjustment will have commenced by 2007, so substantial progress in adjusting overused systems will be made by 2010	

Cooperation with other jurisdictions

NSW has sought to work cooperatively with the Commonwealth on the structural adjustment issue for the groundwater plans.

A number of WSPs will deal with cross border resources, such as the Border Rivers, Upper Murray, Snowy Rivers and Googong. Cross-jurisdictional consultation, including relevant Intergovernmental Agreements, will be undertaken in the development of these plans.

Link to NWI outcomes

This action helps achieve:

NWI Objectives 23 (ii) & (iv)

i) Transparent statutory-based water planning

ii) Complete the return of all currently over-allocated or overused systems to environmentally-sustainable levels of extraction

NWI outcomes: 25 (i) & (iii)

i) Secure ecological outcomes by describing the environmental and other public benefit outcomes for water systems and defining appropriate water management arrangements.

ii) Resource security outcomes by determining the shares in the consumptive pool and rules to allocate water during the life of the plan.

Link to relevant performance indicators

NSW will incorporate the relevant NRMMC indicators and NRC targets when available.

NWI Element No 1: Water Access Entitlements and Planning Framework

Action 6: Implementation of Risk Assignment Framework – IGA Para 26 (v), 46-50,

Actions

i) Implement the following risk assignment framework for all changes in allocation not provided for in pathways to address overuse in water plans.

- Reductions arising from natural events such as climate change, drought or bushfire would be borne by licence holders at all times.
- Reductions arising from bona fide improvements in the knowledge about the capacity of water systems to sustain particular extraction levels would be borne by licence holders up to 2014.
- After 2014, reductions arising from bona fide improvements in the knowledge about the capacity of water systems to sustain particular extraction levels would be borne -
- by licence holders for the first 3% reduction in water access;
- by the State/Territory Governments and the Commonwealth Government for reductions in water access of between 3% and 6% (one-third and two-third shares respectively);
- by the State/Territory Governments and the Commonwealth Government for reductions in water access above 6% (shared equally).
- Reductions arising from changes in government policy not previously provided for would be borne by governments.
- Where there is voluntary agreement between relevant State or Territory Governments and key stakeholders, a different risk assignment model to the above may be implemented.

IGA Date: Immediate

Context

Effective from 1 July 2004, NSW has already introduced the context in which an effective risk framework occurs (refer paragraph 47 of the NWI). This includes:

- a new share based water access entitlements framework
- water plans developed through a transparent process which determine water allocation for the entitlements. 31 WSPs have already commenced. 5 major inland ground water plans will commence on 1 July 2006. 39 macro plans will progressively commence from July 2007
- regular reporting of progress with implementing the WSPs
- pathways for dealing with known over-allocation and/or overuse established through the WSPs.

The NWI risk assignment framework applies in two stages: the current stage; and the post-2014 stage. The first stage requires the NSW Government to bear the costs of changes in government policy not provided for by the plans, while changes arising from natural events or improvements in knowledge are borne by the licence holders. After 2014, the main change is that the costs of changes in access resulting from improvements in knowledge are then shared between licence holders, State Government and the Commonwealth Government.

The existing compensation arrangements as set out in Section 87 of the WMA for the duration of the first WSP for each water source are consistent with and in fact more generous to licence holders than the NWI risk assignment framework. These arrangements enable compensation to be claimed in cases where WSP arrangements are altered in a manner that is not provided for in the WSP, and which have the effect of reducing a licence holder's water allocations (this is regardless of whether the change is policy or knowledge driven). This system guarantees the rules under which access will be provided for 10 years.

NSW is planning to legislate during the second half of 2005 for the adoption of the NWI risk assignment provisions applying after 2014.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Risk assignment framework to be implemented immediately for all changes in allocation arising from change in government policy not specified in the WSP	July 2004	June 2014 for initial 31 WSPs (10 years after plan start date for other plans)	This aspect of the risk assignment framework is consistent with the compensation provisions of the WMA which are in effect for the existing 31 WSPs and will also apply to the initial term of all WSPs	DNR
Risk assignment framework provisions covering sharing of costs for changes arising from improvements in knowledge to apply after 2014. This requires the following legislative and agreement actions:				
Stage 1 – (Amend WMA 2000)	Sept 2005	Dec 2005	Adoption of the post 2014 provisions of the NWI framework requires amendments to the WMA. A Bill is planned to be introduced to Parliament in the Spring 2005 Session	
Consultation on draft amendment Bill	Sept 2005	Oct 2005		
Introduction of Bill in Parliament	Oct 2005			
Bill passed		Dec 2005		
Stage 2 – Operational Framework	Jan 2006	Dec 2006	For the framework to be implemented there needs to be an MOU between NSW and the Commonwealth on the operational and financial aspects and also a regulation	
Draft operational framework developed	Jan 2006	Mar 2006		
Consultation and development of a Memorandum of Understanding on the framework with the Commonwealth	Mar 2006	June 2006		
Operational framework finalised		July 2006		
Draft amendments to WMA Regulation to include risk assignment provisions		September 2006		
Consult on amendments		October 2006		
Preparation of costs and benefits schedule as per Subordinate Legislation Act Schedule 1 requirements		November 2006		

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Regulation amended		Dec 2006		
NWI Risk assignment commences	2014			

Cooperation with other jurisdictions

NSW intends to develop a Memorandum of Understand with the Commonwealth Government on the operational framework prior to implementation. The draft operational arrangement will also be discussed with other States and Territories, as it may serve as a model for other States and Territories to follow.

Link to NWI outcomes

This action helps achieve:

NWI objective 23 (vi)

vi) Clarity around the assignment of risk arising from future changes in the availability of water for the consumptive pool

NWI outcome 25 (vi)

vi) Clearly assign the risks arising from future changes to the consumptive pool.

Link to relevant performance indicators

NSW will provide links to the relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 1: Water Access Entitlements and Planning Framework

Action 7: Water plans to address indigenous water issues – IGA Para 52-54

Actions

i) The Parties will provide for indigenous access to water resources, in accordance with relevant Commonwealth, State and Territory legislation, through planning processes that ensure:

- inclusion of indigenous representation in water planning wherever possible; and
- w*ater plans* will incorporate indigenous social, spiritual and customary objectives and strategies for achieving these objectives wherever they can be developed.

ii) Water planning processes will take account of the possible existence of native title rights to water in the catchment or aquifer area. The Parties note that plans may need to allocate water to native title holders following the recognition of native title rights in water under the Commonwealth Native Title Act 1993.

iii) Water allocated to native title holders for traditional cultural purposes will be accounted for.

IGA Date: Immediate

Context

Indigenous interests have been recognised on a number of different levels as a result of the water reforms in NSW. Accordingly, the objectives of the WMA and each of the WSPs specifically include the protection of spiritual, social and customary values of Aboriginal communities.

A number of mechanisms are used to meet these objectives:

Native Title

Native Title Rights have been provided for under the Basic Landholder Rights provisions of the WMA, allowing a native title holder to take and use water, without the need for an access licence or approval, in the exercise of native title rights. Each of the WSPs recognise that extractions as part of a native title right may increase over the term of the WSP, in the event that native title is granted in NSW.

In addition, applications for consents under the WMA (in relation to a new grant of water, or an approval) are notified to native title claimants etc, in accordance with the *Native Title Act* 1993.

Indigenous representation

During the development of the WSPs, each WSP committee included two representatives from the local Aboriginal community, such as representatives from Local Land Councils, Elders Groups etc. It was the responsibility of the representatives to ensure that information provided at, and decisions arising from, the WSP committee meetings were referred back to their local community for comment.

To facilitate future consultation on natural resource management issues, the Catchment Management Authorities are establishing Aboriginal Reference Groups, which will act as the representatives for local Aboriginal communities. Land councils, Elders Groups, and Traditional Owners are represented on these groups. These Reference Groups will be used for consultation on future WSPs.

Protection of cultural heritage

All applications for new/amended water supply works and use approvals, and certain dealings, will be assessed to ensure that the grant of the application will not impact on Aboriginal cultural heritage. In addition, certain applications for approvals are advertised in an Indigenous newspaper circulating within the potentially affected Aboriginal community, allowing for objections to applications to be made.

Indigenous access to water

Each of the WSPs provides for access to water for cultural purposes by Indigenous communities and persons in the form of Aboriginal cultural access licences. Aboriginal cultural access licences will also apply to all future WSPs developed in NSW. The NSW Government has waived the application fee for Aboriginal cultural access licences. In addition, certain WSPs provide for Aboriginal commercial access licences (North Coast). Future coastal WSPs will provide for Aboriginal commercial access licences.

Aboriginal Water Trust

The Aboriginal Water Trust (AWT), currently being established under the WMA, is a strict commercial program that supports Aboriginal people of NSW to participate in the State's water economy by accessing grants through the AWT to run commercially viable businesses where water is an essential component of the business's operations. Funding of $5 million is being made available for the first two years of operation.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Water plans to address indigenous water issues immediately				
Recognition of Native Title Rights	2000	Ongoing	Specified in WMA and WSPs	DNR
Inclusion of indigenous representation	1995	Ongoing		DNR / CMA
Establishment of Aboriginal Reference Groups	2004	Ongoing	3 Reference Groups established to date	CMAs
Consideration of cultural heritage in assessments	2004	Ongoing		
Cultural access licences available	2004	Ongoing	Available in all WSPs	
Commercial access licences available	2004	Ongoing	In North Coast and future coastal WSPS	
Aboriginal Water Trust (AWT) Establish operating protocols Establish AWT Advisory Board Commence investment in Aboriginal businesses to enable Aboriginal people to participate in the commercial water market	 July 2005 December 2005 March 2006	2007 August 2005 Ongoing 2007	 A performance evaluation of the AWT in 2007 will determine its continuity	 DNR

Cooperation with other jurisdictions

Not applicable.

Link to NWI outcomes

This action helps achieve:

NWI objectives 23 (ii) & (iii)

ii) Transparent, statutory based water planning; and

iii) Statutory provisions for environmental and other public benefit outcomes, and improved environmental management practices.

NWI outcomes 25 (iii) & (ix)

iii) Be 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; and

ix) Recognise indigenous needs in relation to water access and management.

An indigenous community whose spiritual and cultural knowledge is protected and incorporated into natural resource management in NSW, and who have access to water for the cultural and commercial benefit of their communities.

Link to relevant performance indicators

NSW will provide links to the relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 1: Water Access Entitlements and Planning Framework

Action 8: Interception Activities IGA Para 55-57

Actions

i) Assess the significance of major interception activities such as farm dams and bores; intercepting and storing of overland flows; and large-scale plantation forestry on catchments and aquifers.

ii) Apply appropriate planning, management and / or regulatory measures where necessary to protect the integrity of the water access entitlements.

iii) In water systems that are fully allocated, over-allocated, or approaching full allocation:-

- interception activities that are assessed as being significant should be recorded (for example, through a licensing system);
- any proposals for additional interception activities above an agreed threshold size will require a water access entitlement:
  - the threshold size will be determined for the entire water system covered by a water plan, having regard to regional circumstances and taking account of both the positive and negative impacts of water interception on regional (including cross-border) natural resource management outcomes (for example, the control of rising water tables by plantations); and
  - the threshold may not apply to activities for restricted purposes, such as contaminated water from intensive livestock operations;
- a robust compliance monitoring regime will be implemented; and

iv) In water systems that are not yet fully allocated, or approaching full allocation:

- significant interception activities should be identified and estimates made of the amount of water likely to be intercepted by those activities over the life of the relevant water plan;
- an appropriate threshold level will be calculated (as per 57 (i)(b)) of water interception by the significant interception activities that is allowable without a water access entitlement across the entire water system covered by the plan:
- progress of the catchment or aquifer towards either full allocation or the threshold level of interception should be regularly monitored and publicly reported:
  - once the threshold level of interception is reached, or the system is approaching full allocation, all additional proposals for significant interception activities will require a water access entitlement unless for activities for restricted purposes, such as contaminated water from intensive livestock operations.

IGA Date: No later than 2011.

Context

Implementing NWI requirements in relation to interception activities is a high priority for NSW. NSW is taking steps to address and regulate where necessary two key types of interception: interception by farm dams, and floodplain harvesting.

Sections 53 and 54 of the WMA encompass the requirements of the NWI with respect to interception activities undertaken by farm dams. NSW has developed a Farm Dams Policy which specifies the threshold levels for basic harvestable rights above which all interception must be licensed. The DNR website (www.farmdamscalculator.dipnr.nsw.gov.au) contains a Farm Dams calculator which helps calculate the maximum harvestable farm dam capacity for properties in the State.

Floodplain harvesting is covered neither by existing water access entitlements, nor by the 31 WSPs which commenced operation on 1 July 2004. NSW is developing a general policy for NSW based on the outcomes of a pilot project of regulating floodplain harvesting in the Gwydir Valley to meet the NWI requirements. The general policy will:

- establish a process and timeline for audits of floodplain extraction works;
- establish a process and timeline for delivery of floodplain harvesting outcomes within the Water Sharing Plan framework; and
- develop rules for issuing floodplain harvesting licences under section 55A of the WMA within the MDB cap for inland river systems.

The collection of monitoring data and the process of consultation with key stakeholders has already begun, and it is anticipated that a draft floodplain harvesting policy will be developed by in December 2005.

Regulation of floodplain harvesting activities under the policy will be carried out through water access licences, since all water extraction (other than extraction associated with basic rights) must be licensed under the WMA. Access licences and works approvals will be issued for all approved works currently undertaking floodplain harvesting activities. Compliance issues will be managed consistent with the NWI.

Interception through farm forestry will first need to be identified and then addressed through the entitlements framework (steps included in the implementation framework below).

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Assessment of the significance of major interception activities such as farm dams and bores; intercepting and storing of overland flows; and large-scale plantation forestry on catchments and aquifers	Audit methodology November 2004	October 2005	Currently an audit methodology is being developed to deal with the issue of determining the number, type and location of works capable of harvesting overland flow on the State's floodplains. This will inform the development of a National Knowledge Strategy on water interception by land use change activities.	DNR
Assessment of significance of large-scale plantation forestry on catchments and aquifers through:	2007	2011	This action will be carried out in cooperation with CSIRO and the MDBC. NSW looks forward to input from the Federal Department of Agriculture, Fisheries and Forestry and the NWI Working Group for national consistency on this action	
Developing a methodology to identify plantations and changes in plantations over time				
Applying the methodology to identify the changes				
Assessing the impact of changes on a catchment scale				
Depending on the scale of the impact, bringing plantations approval into the licensed water access framework				
Development and	November	December	Floodplain harvesting is the key	

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
implementation of Floodplain Harvesting Policy which deals with the interception and storage of overland flows within the State's floodplains	2004	2005	overland flow harvesting mechanism within NSW. Currently it is not adequately encompassed by the provisions of the WMA. The current Floodplain Harvesting Policy project will rectify this situation.	
Development of Water Plans consistent with the NWI for the interception and storage of overland flows within the State's floodplains	December 2005	July 2007	A key flow on from the development of a State-wide Floodplain Harvesting Policy will be the inclusion of floodplain harvesting provisions in existing and future WSPs. These plans will be consistent with the provisions of the 1994 COAG agreement and provisions of the NWI	
Development of an assessment and licensing platform to manage flood plain harvesting extraction category	December 2005	July 2007	Currently Floodplain Harvesting activities are not encapsulated within the licensing framework of the WMA which requires that a gazetted water sharing plan be in place prior to issuing of access licences. In the case of Floodplain Harvesting, Macro Plans will be developed for the State's floodplains. Once gazetted these plans will fulfil the requirements of the WMA and access licences for Floodplain Harvesting activities will issued in accordance with the provisions of the Macro Plans.	
Determine allocation status and threshold size of the systems in which interception and storage of overland flows occurs.		July 2006	Currently the level knowledge on the types and rates of extraction by works which intercept and store overland flows is very limited. This action links strongly to the Knowledge and Capacity Building Actions of the NWI (paras 98 to 101)	
Monitor progress of extractions within not yet fully allocated catchments	July 2006	July 2007	This provides benchmarking for compliance within the WSPs	
Undertake robust compliance monitoring within over-allocated systems		Ongoing	This provides benchmarking for compliance within the WSPs	

Cooperation with other jurisdictions

By their very nature overland flows on floodplains are not constrained by State borders. To ensure a consistent approach is achieved, an operational relationship has been established with the Queensland Department of Natural Resources and Mines (DNRM) to deal with issues particular to the NSW/Qld Border Rivers system. The strengthening of the current relationship with DNRM will facilitate the development of a shared understanding of the issues and the development of practical solutions to overland flow management along the common trunk

stream within the respective State's legislative constraints. Similar cooperation with Victoria's Department of Sustainability and Environment (DSE) is envisaged for the management of overland flow harvesting from the floodplains associated with the Murray River.

Link to NWI outcomes

This action helps achieve:

NWI Objectives 23 (i) to (iv), (vi) to (ix)

i) Clear and nationally-compatible characteristics for secure water access entitlements;

ii) Transparent, statutory-based water planning;

iii) Statutory provision for environmental and other public benefit outcomes, and improved environmental management practices;

iv) Complete the return of all currently over-allocated or overused systems to environmentally-sustainable levels of extraction;

v) Clarity around the assignment of risk arising from future changes in availability of water for the consumptive pool;

vi) 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;

vii) Policy setting which facilitate water use efficiency and innovation in urban and rural areas;

viii) Addressing future adjustment issues that may impact on water users and communities

NWI Outcomes, in priority order, 25 (ix), (ii), (iii), (v) and (viii)

i) Protect the integrity of water access entitlements from unregulated growth in interception through land-use change.

ii) Provide a statutory basis for environmental and other public benefit outcomes in surface and groundwater systems to protect water sources and their dependent ecosystems;

iii) Be 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;

iv) Implement firm pathways and open processes for returning previously over-allocated and/or overdrawn surface and groundwater systems to environmentally-sustainable levels of extraction;

v) Reflect regional differences in the variability of water supply and the state of knowledge underpinning regional allocation decisions

Link to relevant performance indicators

NSW will provide links to relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 2: Water Markets and Trading

Action 1: Publicly accessible compatible trading registers IGA Para 59

Actions

Introduction of pathways by 2004, and full implementation by 2006, of compatible, publicly-accessible and reliable water registers of all water access entitlements and trades (both permanent and temporary) on a whole of basin or catchment basis, that:

i) Contain records of all entitlements and trades including location

ii) Achieve secure water access entitlements

iii) Protect third party interests

iv) Minimise transaction costs

v) Are publicly accessible and includes price of trade and identity of entitlement holder

vi) Enable monitoring of trade and water use volumes.

IGA Date: end 2004 for pathways, end 2006 for implementation

Context

The Water Access Licence Register which records all the legal information about a water access licence including ownership, tenancy arrangements, encumbrances, share component and water dealings and provides the water title has been established by the Department of Lands and is searchable via the internet at a cost of $8 per search. The majority of the licences in the existing water sharing plan areas have been converted and placed on the Water Access Licence Register. Clarification of ownership and mortgage arrangements are delaying the remaining licences.

DNR also provides a number of free on-line public registers which include:

- water access licences (excluding ownership) and their conditions (searchable via water source or individual licence number);
- water supply works and use approvals, including conditions (searchable via water source or individual approval number);
- water allocation assignments (temporary trades) including location, volume traded and price (searchable via water source or individual licence number; and
- water usage (searchable via water source and category of licence).

Information about transfers (permanent water trades) is currently only available on an individual licence basis through the WAL Register. DNR intends to establish a register of permanent trades so that this can be monitored on a water source basis. Data control, security and transfer arrangements, however, first need to be established and coordinated with the Department of Lands.

DNR is working with the major financial interests, other mortgagee and company interests (where known) to ensure that the information on third party interests in a water access licence are recorded on the WAL Register. Registration forms are available on the DNR website. DNR will also be advertising to alert other third party interests in the current converted licences (those in the 31 WSPs) of their need to register these interests by June 2006.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Adoption of publicly accessible compatible systems for registering: by end 2004				DNR
Water access entitlements		Dec 2004	WAL register established & administered by Department of Lands. DNR register also available which shows licence conditions but excludes information on licence owner.	
Permanent trades - by individual licence		Dec 2004	Information available from WAL Register	
Permanent trades - by water source		June 2006	DNR to establish register of transfers by water source	
Temporary trades		Dec 2004	Register established & administered by DNR.	
Water use		Dec 2004	Register established & administered by DNR.	
Full implementation of register of all NSW licences:				
For all existing converted licences i.e. subject to a current WSP (Group A)	Dec 2004	June 2006	Security interests are being advised that they have until June 2006 to register their interest in a WAL and to have it recorded on the WAL register. Indefeasibility of title is intended to be guaranteed by August 2007	
Remaining licences	June 2006	June 2010	Registration will be a progressive process as WSPs prepared, licences converted, and security interests identified and given required time to have interests registered.	
National Water Commission Working Group to identify steps required to achieve compatible water register systems, giving regard to the requirements under IGA 60 and studies to be undertaken under IGA 61		July 2005	NSW recognises the need for the registers to be electronically linked and integrated. Upon the establishment of a nationally compatible framework, links to the NSW land titles register will be established.	
NRMMC NWI Working Group receives report from NWC on agreed steps to achieve consistency and considers necessity of further inter-jurisdictional collaboration		September 2005		
Steps required to achieve compatibility in water register systems incorporated into		September 2005		

jurisdictions' implementation plans				
NRMMC annual report to COAG in 2005-06 to include jurisdictions' progress towards implementing compatible to water register systems		October 2006		

Cooperation with other jurisdictions

Discussions were held with Queensland when developing the Water Access Licence Register. NSW also participates in the Inter Jurisdictional Working Group on Registers that has been established by the National Water Commission.

Link to NWI outcomes

This action helps achieve:

NWI Objectives 23 (i)

i) Clear and nationally-compatible characteristics for secure water access entitlements

NWI Outcomes 58 (i), (ii) and (v)

i) Facilitate the operation of efficient water markets and the opportunities for trading, within and between States and Territories, where water systems are physically shared or hydrologic connections and water supply considerations will permit water trading;

ii) Minimise transaction costs on water trades, including through good information flows in the market and compatible entitlement, registry, regulatory and other arrangements across jurisdictions;

v) Provide appropriate protection of third-party interests**.**

Link to relevant performance indicators

NSW will provide links to relevant performance indicators and NRC targets when they are available.

NWI Element No 2: Water Markets and Trading

Action 2: Compatible institutional and regulatory arrangements to facilitate trade IGA Para 60 & 62

Actions

i) States and Territories agree to establish by 2007 compatible institutional and regulatory arrangements that facilitate trade, including arrangements consistent with principles in Schedule G

ii) Remove barriers to temporary trade

iii) Review impact on trade of interim threshold

iv) Full removal of barriers to trade

IGA Date: 60 end 2007, 60 (ii) immediate (except for southern MDB), 60 (iv) (a & b) 2009

Context

The 2004 amendments to the WMA and the 31 WSPs that commenced on 1 July 2004 establish trade arrangements in accordance with the principles of trade in Schedule G of the NWI. Permanent trading is also possible in those areas still governed by the *Water Act 1912*. In areas where usage is metered, such as the major inland aquifers, temporary trade is also permitted. In addition, the existing arrangements allow for trade in planned unregulated river systems. However, the WMA provides a greater range of water dealing and trading arrangements and all NSW water sources will come under the WMA arrangements once WSPs are implemented. Generally the limitations to trade are based on environmental or physical constraints. The water sharing plans that are currently being developed, for areas that are not covered by a plan, aim to remove non river health/hydrological barriers to trade.

Some private irrigation entities, which essentially hold one major water licence in which their shareholders are entitled to use a share of the available water, limit or do not allow permanent trade out of their areas on the grounds of maintaining their viability. Amendments to the WMA are being prepared to legislate the removal of barriers to trade in the Irrigation Corporation areas (Action 4). This would permit open trade up to at least the 4% interim threshold limit. The NSW is also investigating the removal of similar barriers by other irrigation entities such as Trusts, Districts and the former surface water authorities.

For trade outside the Murray-Darling Basin, there are no barriers to trade in WSPs except for those related to physical constraints or to protect the needs of the environment.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Trading arrangements consistent with principles in Schedule G of the NWI by end 2007		1 December 2004 for initial 31 WSPs	Trading arrangements consistent with principles in Schedule G are already in place in areas where 31 existing WSPs apply. In the remaining areas of the State, historical trading arrangements operate. Trading arrangements as per Schedule G will, however, progressively be applied as the WSPs, macro plans and groundwater plans are completed and implemented.	
Remove barriers to temporary trade immediately		December 2004	Inter-state temporary trade is occurring between the connected Murrumbidgee, Murray and Lower Darling systems. Progressively removing the few remaining Murrumbidgee trade barriers.	

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Removal of barriers to temporary trade in the border rivers system		1 July 2006	Dependent on implementation of the proposed NSW / Queensland Intergovernmental Agreement.	
Removal of barriers to permanent trade by irrigation corporations	June 2004	July 2006	NSW is currently developing amendments to its legislation and expects to have the interim threshold in place by January 2006. Details listed in Action 4	
Full removal of barriers to trade by 2014 (other than Southern MDB)		2014	NSW is currently investigating removal of permanent trade barriers for other irrigation entities (Trusts, Irrigation Districts). NSW will progress towards full removal of barriers to trade before 2014	
The Commonwealth/State Water Trading Group receive outputs of the water trading studies under IGA 61		November 2005	NSW is actively participating in the NWI Water Trading Group, and will consider implementing the recommendations resulting from these studies, where appropriate	
The Commonwealth/State Water Trading Group, in consultation with the NWI Working Group, to consider recommendations from the studies and develop a work plan of actions to facilitate compatible institutional and regulatory arrangements that facilitate trade		March 2006	NSW, in cooperation with other jurisdictions, will facilitate the implementation of actions arising from the trading studies, where appropriate.	
NWI Working Group provides work plan to NRMMC		October 2006		
Institutional and regulatory arrangements in place in all jurisdictions		End 2007		
NRMMC annual report to COAG in 2007-08 on actions taken to implement paragraph 60 (i), (ii) & (iii)		October 2008		

Cooperation with other jurisdictions

Discussions are being conducted with Queensland on trading in tagged entitlements on the Borders river system. However, Queensland needs to introduce legislative amendments to implement this.

NSW actively participates in the Murray Darling Basin Commission Interstate Water Trade Project Board, which oversees trade in the Murray and Lower Darling WSP areas.

Link to NWI outcomes

This action helps achieve:

NWI objective 23 (v)

v) 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.

NWI outcome 58 (i)

i) Facilitate the operation of efficient water markets and the opportunities for trading, within and between States and Territories, where water systems are physically shared or hydrologic connections and water supply considerations will permit water trading.

Since all water extraction has to be licensed under the WMA 2000, the water market will be able to trade in the full range of water entitlement, including floodplain harvesting. Access licences and works approvals will be issued for all approved works currently undertaking floodplain harvesting activities. Volumetric licences will be issued with precise access conditions such as commence to pump conditions or the provision of time and event meters will be included for all these new licences for the purpose of monitoring compliance.

Link to relevant performance indicators

NSW will provide links to the relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 2: Water Markets and Trading

Action 3: Complete studies and consider implementation of recommendations IGA Para 61

Actions

i) All parties agree to complete the following studies and to consider implementation of any recommendations:

ii) Review of water products

iii) New approach to sharing delivery capacity and extraction rates among users

iv) Feasibility of establishing market mechanisms such as tradeable salinity and pollution credits to provide incentives for investment in water-use efficiency and farm management strategies and for dealing with environmental externalities

IGA Date: June 2005.

Context

A key element of the NWI is the development of robust and open water markets and trading. To support the implementation of the actions on trading, the parties agreed under the NWI to complete studies as per clauses 61 (i to iii) and 63 (iv). The Water Trading Working Group, coordinated by the Department of Prime Minister and Cabinet is currently preparing terms of reference for the trading studies to be conducted under NWI clauses.

NSW has already undertaken a number of intra-jurisdictional studies related to the suitability of market based mechanisms to deal with environmental externalities. Salinity credit trading has already been implemented in the Hunter River Salinity Trading Scheme.

Terms of Reference for the water trade studies have been agreed by the Working Group, with the planned completion of most studies by October 2005 for consideration by jurisdictions.

Implementation Timetable

Steps/ Deliverables	Proposed start date	End date	Status / Comments	Lead Agency
Review of water products	May 2005	October 2005	NSW will participate in this study. Terms of reference have been agreed by the Water Trading Working Group, coordinated by the Department of Prime Minister and Cabinet.	Commonwealth
Study of sharing delivery capacity and extraction rates among users	May 2005	October 2005	As above	Commonwealth
Study of the feasibility of establishing market mechanisms such as tradeable salinity and pollution credits to provide incentives for investment in water-use efficiency and farm management strategies and for dealing with environmental externalities	June 2005	A longer timeframe is suggested by the Working Group.	As above	Commonwealth

Cooperation with other jurisdictions

NSW actively participates in the inter-jurisdictional Water Trade Working Group coordinated by the Department of Prime Minister and Cabinet.

Link to NWI outcomes

This action helps achieve:

NWI objectives 23 (v)

v) 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

NWI outcomes 58 (i) and (iii)

i) Facilitate the operation of efficient water markets and the opportunities for trading, within and between States and Territories, where water systems are physically shared or hydrologic connections and water supply considerations will permit water trading;

iii) 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

Link to relevant performance indicators

NSW will provide links to the relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 2: Water Markets and Trading

Action 4: Removing trade barriers in Southern MDB IGA Para 63

Actions

Parties (Commonwealth, NSW, Victoria and SA) agree to:

i) Take necessary steps to enable the use of exchange rates and/or tagging for interstate trade;

ii) Reduce barriers to trade in southern MDB and establish an interim limit on permanent trade out of water irrigation areas of 4 percent per annum

iii) NSW make legislative changes to give effect to a Heads of Agreement between Government and Irrigation Corporations to remove barriers and permit increased trade up to the interim limit;

iv) Review actions to assess whether relevant parties have removed barriers to achieve interim limit

v) Study into mechanisms necessary to enable interstate trade

vi) Review outcome of actions by NSW, 63 (v)

vii) NWC monitor impacts of interstate trade, 63 (vi)

viii) Review the impact on trade under the interim threshold, 63 (vii).

IGA Date: 63 (i) to 63 (iv) June 2005, 63 (v) end 2007, 63 (vi) ongoing, 63 (vii) end 2009

Context

The WMA 2004 amendments, by providing for a robust water planning regime, secure perpetual access rights to water, a strong access rights register and the access licence dealing principles provide users with the confidence to engage in water trading.

The NSW Government is working closely with the Irrigation Corporations in the southern MDB to establish the 4% interim trade threshold and to implement mechanisms to mitigate any potential adverse consequences flowing from the removal of trading restrictions (e.g. the problem of stranded assets).

The NRMMC NWI Working Group will oversee implementation of this review. The mechanism for undertaking the review will be determined closer to the date, depending on what is most appropriate at the time.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Take necessary steps to enable the use of exchange rates and / or tagging for interstate trade by June 2005:		July 2004	NSW has taken legislative action to facilitate tagging. Discussions with relevant jurisdictions are underway to establish and apply exchange rates (eg to account for changes in reliability between jurisdictions and in delivery losses) and to administer licences in other jurisdictions (eg monitoring and compliance for "tagged" water across jurisdictional boundaries).	DNR
			The MDBC project board has received technical advice on "exchange rates". MDBC will continue to use "sensible" exchange rates and evaluate any third party impacts until studies on tagging are completed. It is likely that exchange	

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
			rates and tagging will be required to facilitate an effective market. The MDBC inter-state trade group has agreed to pursue work on a tagging model and is also considering the possibility of hybrid models involving tagged entitlements and exchange rates.	
Reduce barriers to trade in southern MDB and establish an interim limit on permanent trade out of water irrigation areas of 4 percent per annum by June 2005			Regular meetings and workshops are being held with Irrigation Corporations (ICs) to progress this action. The National Water Commission has also been involved in recent discussions with the ICs. The ICs are in the process of identifying mechanisms to implement the 4% threshold limit and deal with stranded assets.	
Preparation of a draft Heads of Agreement (HoA) between the Government and ICs on trade reform In principle agreement with management of ICs regarding stranded asset concerns		June 2004 Ongoing	ICs have agreed to take the HoA to their members. NSW has reached in principle agreement with ICs on using a suite of tagging, exit fees, access fess and/or long term contracts to address stranded assets.	
ICs develop preferred method for establishing interim threshold and addressing stranded assets		31 May 2005		
ICs identify necessary changes to their Memorandum of Articles and Association; Customer Contracts and Policies		31 May 2005		
NSW Government public statement on timetable for establishing the interim threshold		30 June 2005		
NWC provides in principle advice on acceptability of IC's proposed exit fees		30 June 2005		
ICs consult with their shareholders/members on the proposed changes	April 2005	September 2005		
ICs formally present their proposals to their members/shareholders for approval		November 2005		
Memorandum of Articles and Association; Customer		December 2005		

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Contracts and Policies altered to give effect to the interim threshold and establishment of exit fees.				
If necessary, NSW makes legislative changes to support the establishment of the 4% interim trade threshold and charging exit fees by June 2005		December 2005	Proposed for spring 2005 parliamentary session if necessary	DNR
Review actions to assess whether relevant parties have removed barriers to achieve interim limit by June 2005		30 June 2005	Review to be undertaken by NWI trading Group established by the Department of Prime Minister and Cabinet	Commonwealth
Study into mechanisms necessary to enable interstate trade by June 2005	June 2005	November 2005	Study to be undertaken by NWI Trading Group established by the Department of Prime Minister and Cabinet	Commonwealth
Review outcomes of actions by NSW regarding IC trade by end 2007			No action yet	NWC
NRMMC, in consultation with the NWC, to establish mechanism for review		September 2008		
NWC monitor impacts of interstate trade			No action to date. NSW will provide any relevant information sought by the NWC	NWC
Review the impact on trade under the interim threshold by end 2009		2009	No action yet. NSW will provide input to the review by NWC on the impact on trade	NWC

Cooperation with other jurisdictions

NSW actively participates in the Murray Darling Basin Interstate Water Trade Project Board and the inter-jurisdictional Water Trade Working Group coordinated by the Department of Prime Minister and Cabinet.

Link to NWI outcomes

This action helps achieve:

NWI objective 23 (vii)

vii) 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.

NWI outcomes 58 (i), (ii) & (iii)

i) Facilitate the operation of efficient water markets and the opportunities for trading, within and between States and Territories, where water systems are physically shared or hydrologic connections and water supply considerations will permit water trading;

ii) Minimise transaction costs on water trades, including through good information flows in the market and compatible entitlement, registry, regulatory and other arrangements across jurisdictions;

iii) 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;

Link to relevant performance indicators

NSW will provide links to the relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 3: Best Practice Water Pricing

Action 1: Complete implementing COAG pricing policies IGA Para 65

Actions

i) Complete commitments under the 1994 COAG Water Reform Framework to bring into effect pricing policies for water storage and delivery in rural and urban systems, including through the use of:

- Consumption based pricing
- Full cost recovery for water services to ensure business viability and avoid monopoly rents, including recovery of environmental externalities, where feasible and practical
- Consistency in pricing policies across sectors and jurisdictions where entitlements are able to be traded.

IGA Date: end 2004

Context

Consumption based pricing has been achieved on regulated rivers and metropolitan water suppliers. For non-metropolitan urban water suppliers consumption based pricing has been substantially achieved with over 95% of the non-metropolitan urban population subject to such pricing. For unregulated rivers and groundwater, it is being progressed where appropriate and in other cases achieved by a mix of tariff structures and water trading. DNR's September 2005 pricing submission will provide detailed costing information reflecting the full costs of providing water resource management services. IPART is expected to set water resource management charges that achieve full cost recovery levels for those systems currently under-recovered in the price path period 2006/07 to 2009/10. The price path is expected to be known when IPART releases a determination in June 2006.

Full cost recovery has been achieved for the majority of regulated rivers and metropolitan water suppliers. For non-metropolitan urban water suppliers, full cost recovery has been substantially achieved with 99% of the non-metropolitan urban population providing such cost recovery (disclosure of the level of cost recovery by each non-metropolitan urban water utility is provided in the *2003-04 Water Supply and Sewerage Performance Monitoring Report*, a copy of which is sent to all utilities). A path to full cost recovery for unregulated rivers and groundwater is being developed. A medium term pricing submission to IPART in late 2005 will provide updated information on water resource management costs for these water sources as well as for regulated rivers.

Pricing policy is already consistent between all valleys in NSW. Consistency in pricing policies where entitlements are traded will be progressed in NSW. NSW will cooperate with any inter-jurisdictional studies aiming at achieving consistency between states.

In NSW, IPART determines bulk water prices in a transparent manner. Relevant legislation requires reports by IPART, and all submissions to IPART, to be made public – these can be accessed on the IPART website: www.ipart.nsw.gov.au

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Complete commitments under the 1994 COAG Water Reform Framework to bring into effect pricing policies for water storage and delivery in rural and urban systems		End 2004	NSW is committed to full cost recovery, consumption based pricing and consistency in pricing policies.	DNR DEUS
Consumption based pricing for:				DEUS
Regulated rivers			Complete	
Metropolitan water suppliers			Complete	

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Non-metropolitan water supply			18 non-metropolitan urban water suppliers abolished their water allowance in June 2004. 15 of the existing 98 water suppliers still have a water allowance. DEUS is working with the remaining 15 suppliers to abolish their water allowance and move to best-practice pricing by June 2006. Over half of these suppliers are planning to abolish their water allowance by June 2005. (Refer also to Element 6, Action 1 for requirements under the *Best-Practice Management Guidelines*).	
Unregulated rivers Groundwater	In progress In progress		For unregulated rivers and groundwater, it is being progressed where appropriate and in other cases achieved by a mix of tariff structures and water trading. The next submission to IPART is due in September 2005.	DNR
Full cost recovery	Ongoing		Achieved for most regulated rivers and metropolitan water suppliers. Achieved by 93 of the 98 non-metropolitan urban water suppliers. The remaining 5 suppliers are phasing in full cost recovery by June 2006. State Water bulk water charges are determined by IPART	
Establishment of lower bound pricing in regulated valleys			Substantially complete	
Consistent pricing policies by end 2006		In progress	Consistent policies are being applied across valleys within NSW. NSW will cooperate with any study into pricing consistency across State borders.	
NWC convenes a meeting with jurisdictions and regulators to develop a strategy to assess current approaches and facilitate consistency of pricing across jurisdictions		August 2005		
NRMMC NWI Working Group provides comments on strategy		October 2005		
Steps required to achieve consistency in pricing incorporated into jurisdictions' implementation plans		December 2005		

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
NRMMC NWI Working Group reports to NRMMC on jurisdictions' implementation of IGA 65 (iii)		April 2006		

Cooperation with other jurisdictions

Recognising the requirement under IGA 77 (ii), the NWC, in consultation with the NRMMC NWI Working Group, will in the first instance consult with jurisdictions and independent pricing regulators to develop a strategy to facilitate consistency in pricing policies across jurisdictions. NSW will participate in this consultation.

Link to NWI outcomes

This action helps achieve:

NWI outcomes 64 (i), (ii), (iv) and (v)

i) Promote economically efficient and sustainable use of: a) water resources; b) water infrastructure assets; and c) government resources devoted to the management of water;

ii) Ensure sufficient revenue streams to allow efficient delivery of the required services;

iv) 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;

v) Avoid perverse or unintended pricing outcomes;

Link to relevant performance indicators

NSW will provide links to NRMMC indicators and NRC targets when they are available

NWI Element No 3: Best Practice Water Pricing

Action 2: Metropolitan pricing IGA Para 66

Actions

i) Continued movement towards upper bound pricing

ii) Development of pricing policies for recycled water and stormwater that are congruent with pricing policies for potable water, and stimulate efficient water use no matter what the source

iii) Review and development of pricing policies for trade wastes that encourage the most cost effective methods of treating industrial wastes, whether at the source or at downstream plants

iv) Development of national guidelines for customers' water accounts that provide information on their water use relative to equivalent households in the community.

IGA Date: (i) end 2008, (ii), (iii) and (iv) end 2006

Context

IPART continues to review and set prices with regard to full cost recovery commitments and principles. This has been achieved for metropolitan urban water service providers (recognising that incorporation of water planning costs and externalities are ongoing issues under the NWI). For non-utility licensed extractors in metropolitan areas (defined by the NWI as areas of more than 50,000 extractions), prices are set through bulk rural water determinations as part of pricing determinations for rural users.

These pricing policies are broadly in line with pricing policies for potable water, including full cost recovery and consumption based pricing. The cost elements subject to recovery may vary given the disparate services, for example, water quality is a major cost component of potable water supply but not bulk water. In addition, consumption based pricing is most effectively achieved for water resources management (WRM) services through water trading rather than WRM charges. On the other hand, for urban (generally potable) water, which has a significantly higher cost threshold, consumption based pricing is a more viable tool for demand management.

IPART has specifically been requested to investigate and report on using pricing structures to reduce demand for water in the Sydney basin. The final report of this investigation is available on the IPART website: www.ipart.nsw.gov.au

The above actions are also being addressed in NSW through an inquiry by IPART into possible pricing principles and alternative arrangements, including private sector involvement, for the delivery of water and wastewater services in the greater Sydney metropolitan area.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Continued movement towards upper bound pricing by end 2008		Dec 2005	Already achieved for all metropolitan utilities	
Development of pricing policies for recycled water and stormwater		Dec 2005		DNR
Review and development of pricing policies for trade wastes		Dec 2005		DNR
Development of national guidelines for water accounts			NSW will participate in the development of Guidelines. Sydney Water bills already show water usage and a comparison with comparable households.	DEUS

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
NRMMC NWI Working Group, in consultation with EPHC, to convene an expert group from metropolitan water providers to draft national guidelines for water accounts				
NRMMC NWI Working Group, in consultation with the EPHC, to prepare Terms of Reference and convene expert group		December 2005		
Draft national guidelines prepared		March 2006		
Draft national guidelines released by NRMMC for stakeholder comments		May 2006		
NRMMC NWI Working Group seeks approval for national guidelines from NRMMC		October 2006		

Cooperation with other jurisdictions

Not applicable.

Link to NWI outcomes

This action helps achieve:

NWI objective 23 (viii)

viii) Policy settings which facilitate water use efficiency and innovation in urban and rural areas

NWI outcomes 64 (i), (ii), (iv) and (v)

i) Promote economically efficient and sustainable use of:

- water resources;
- water infrastructure assets; and
- government resources devoted to the management of water;

ii) Ensure sufficient revenue streams to allow efficient delivery of the required services

iv) 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;

v) Avoid perverse or unintended pricing outcomes;

Link to relevant performance indicators

NSW will provide links to relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 3: Best Practice Water Pricing

Action 3: Rural and Regional IGA Para 66

Actions

i) Full cost recovery for all rural surface and groundwater based systems, recognising that there will be some small community services that will never be economically viable but need to be maintained to meet social and public health obligations:

- achievement of *lower bound pricing* for all rural systems in line with existing NCP commitments;
- continued movement towards *upper bound pricing* for all rural systems, where practicable; and
- where full cost recovery is unlikely to be achieved in the long term and a Community Service Obligation (CSO) is deemed necessary, the size of the subsidy is to be reported publicly and, where practicable, jurisdictions to consider alternative management arrangements aimed at removing the need for an ongoing CSO.

IGA Date: ongoing

Context

Full cost recovery has been achieved for the majority of the regulated river systems. With respect to unregulated rivers and groundwater systems, water charges are based wholly on expenditure incurred for provision of water resources management (WRM) services. Periodical pricing submissions are made to IPART which have resulted in a steady improvement in cost recovery from a very low base. NSW recently made an interim pricing submission to IPART, covering the year 2005/06. Now that the NWI is in place, preparation of subsequent pricing submission containing fresh WRM estimates will be completed in late 2005.

Given minimal infrastructure in these systems, upper bound pricing, incorporating a cost of capital, has not been relevant for unregulated and groundwater systems. This is because unregulated and groundwater systems have few assets on which it is sensible to recover the cost of capital (i.e. return on physical assets). In theory, all water sources would target upper bound pricing, but unregulated and groundwater may be "notional upper bound" given their lack of capital.

All CSOs are reported transparently in submissions to IPART and in IPART's determinations. IPART has allowed for a steady increase in WRM charges in recent determinations. However, in several valleys there is still a substantial shortfall from full cost recovery. Full cost recovery for these valleys would result in WRM charges rising almost exponentially due to the small number of water users relative to the valley cost base. In these instances, removal of an ongoing subsidy would not be practicable.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Full cost recovery for all rural surface and groundwater based systems		In progress	Full cost recovery has been achieved for the majority of the regulated river systems. The next submission to IPART is in September 2005	DNR – for WRM on regulated rivers, unregulated rivers & groundwater; State Water - for water delivery on regulated rivers; DEUS – for non-metropolitan urban water suppliers.
Achievement of lower bound pricing per NCC commitments		In progress	The next submission to IPART is September 2005 will meet the major lower bound pricing requirements. As noted under Action 1, non-metropolitan urban water suppliers have substantially achieved full cost recovery. These suppliers have also achieved lower bound pricing.	

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Continued movement towards upper bound pricing per NCC commitments - ongoing		In progress	Following release of the *Best-Practice Management of Water Supply and Sewerage Guidelines* in May 2004, non-metropolitan urban water suppliers who comply with best-practice criteria in the guidelines are now permitted to pay a dividend from the surplus of their water supply or sewerage businesses. Such suppliers would be moving towards upper bound pricing.	
Reporting of CSOs		Complete	All CSOs are reported transparently in pricing submissions to IPART & in IPART's determinations.	

Cooperation with other jurisdictions

Not applicable.

Link to NWI outcomes

This action helps achieve:

NWI outcomes 64 (i), (ii), (iv) and (v)

i) Promote economically efficient and sustainable use of:

- water resources;
- water infrastructure assets; and
- government resources devoted to the management of water;

ii) Ensure sufficient revenue streams to allow efficient delivery of the required services;

iv) 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;

v) Avoid perverse or unintended pricing outcomes;

Link to relevant performance indicators

NSW will provide links to relevant NRMMC performance indicators and NRC targets when they are available.

NWI Element No 3: Best Practice Water Pricing

Action 4: Cost recovery for planning and management IGA Para 67

Actions

Consistent approaches to pricing and attributing costs of water planning and management by 2006, involving:

i) the identification of all costs associated with water planning and management, including the costs of underpinning water markets such as the provision of registers, accounting and measurement frameworks and performance monitoring and benchmarking;

ii) the identification of the proportion of costs that can be attributed to water access entitlement holders consistent with the principles below:

   a) charges exclude activities undertaken for the Government (such as policy development, and Ministerial or Parliamentary services); and

   b) charges are linked as closely as possible to the costs of activities or products.

IGA Date: end 2006

Context

DNR is reviewing and refining its WRM activities for inclusion in its September 2005 submission to IPART. This will include activities related to administration of water consents, trading, registers and accounting/measurement frameworks, etc. When complete, the share of costs for each activity attributable to water users - costs to be recovered - will be reviewed. NSW already achieves consistent cost recovery methodology across regions. Consideration is also being given to a state-wide uniform (single) tariff structure. NSW will provide a report on cost recovery for water planning and management as required.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Consistent approaches to pricing and attributing costs of water planning and management – ongoing		Ongoing	NSW will cooperate with inter-governmental processes that may be established to achieve this.	DNR
Redefine DNR's WRM activities		Jun 2005	In progress	
Review and develop user cost shares – cost recovery levels – for each WRM activity		Aug 2005	To be commenced	
The NWC, in consultation with the NRMMC NWI Working Group, will facilitate development of principles for inclusion in the costs of water planning and management in water prices				
NWC, in consultation with NRMMC NWI Working Group, prepare Terms of Reference to develop principles		December 2005		
Draft principles prepared		April 2006		
NRMMC NWI Working Group		June 2006		

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
NRMMC NWI Working Group seeks approval for national principles from NRMMC		October 2006		

Cooperation with other jurisdictions

NSW will cooperate with other relevant jurisdictions on this action where required.

Link to NWI outcomes

This action helps achieve:

NWI outcomes 64 (i), (ii), (iii) & (iv)

i) Promote economically efficient and sustainable use of:
   a) water resources;
   b) water infrastructure assets; and
   c) government resources devoted to the management of water;

ii) Ensure sufficient revenue streams to allow efficient delivery of the required services;

iii) Facilitate the efficient functioning of water markets, including inter-jurisdictional water markets, and in both rural and urban settings;

iv) 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;

Link to relevant performance indicators

NSW will provide links to relevant NRMMC performance indicators and NRC targets when they are available

NWI Element No 3: Best Practice Water Pricing

Action 5: Water Infrastructure IGA Para 69

Actions

i) The Parties agree to ensure that proposals for investment in new or refurbished water infrastructure continue to be assessed as economically viable and ecologically sustainable prior to the investment occurring (noting paragraph 66 (v)).

IGA Date: Ongoing

Context

This is an ongoing practice to assess any investment proposal against a set of criteria to make sure that the proposed investment is economically viable. At the same time, for ecological sustainability of an investment, expected impacts on the environment/ecology needs to be assessed to make sure that the proposed investment does not degrade the environment/ ecology in any way.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status /Comments	Lead Agency
Investment in new or refurbished water infrastructure to continue to be assessed as economically viable and ecologically sustainable before being approved	Ongoing	Ongoing	Projects on new and/or refurbished water infrastructure initiated by State Water will be assessed by DNR. Projects will also be checked through price setting by IPART.	State Water, DNR
	Ongoing	Ongoing	For non-metropolitan water supply and sewerage, new and/or refurbished infrastructure is being developed in accordance with the Best-Practice Management Guidelines (Element 6, Action 1 refers). In addition to economic viability and ecological sustainability, this involves full cost recovery for each utility's water supply or sewerage business.	DEUS

Cooperation with other jurisdictions

When investments in new or refurbished infrastructure projects are initiated by State Water, DNR will consult with jurisdictions to ensure assessment of economic viability and ecological sustainability of proposed investments that cross jurisdictional boundaries.

NSW will cooperate with other relevant jurisdictions on this action where required.

Link to NWI outcomes

This action helps achieve:

NWI objective 23 (viii)

viii) Policy setting which facilitate water use efficiency and innovation in urban and rural areas

NWI outcomes 64 (i) (b), (iii), (iv) & (v)

i) Promote economically efficient and sustainable use of:

   b) water infrastructure assets;

iii) Facilitate the efficient functioning of water markets, including inter-jurisdictional water markets, and in both rural and urban settings;

iv) 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;

v) Avoid perverse or unintended pricing outcomes.

Link to relevant performance indicators

NSW will provide links to the relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 3: Best Practice Water Pricing

Action 6: Release of unallocated water - IGA Para 70-72

Actions

i) Release of unallocated water will be a matter for States and Territories to determine. Any release of unallocated water should be managed in the context of encouraging the sustainable and efficient use of scarce water resources.

ii) If a release is justified, generally, it should occur only where alternative ways of meeting water demands, such as through water trading, making use of the unused parts of existing entitlements or by increasing water use efficiency, have been fully explored.

iii) To the extent practicable, releases should occur through market-based mechanisms.

IGA Date: Ongoing

Context

WSPs identify where additional water licences can be made available without prejudicing the environment or existing water users. Of the 36 gazetted WSPs, the Kulnura Mangrove Mountain, Tomago Tomaree Stockton and Dorrigo Basalt groundwater WSPs have identified additional water available for release. The other plans have indicated that no unallocated water is available within the system. The mechanism for the release of this unallocated water is currently under development. Future management planning will also consider and identify sources where unallocated water is available for release. Under the WMA, the Minister for Natural Resources may grant new access licences, subject to the requirements of the Act and provisions of a water sharing plan. The right to apply for an access licence for a specified area is to be acquired by auction, tender of other market mechanisms.

NSW does not consider that IGA paragraphs 70-72 refer to anything other than water from natural water sources, and so policies for the release of unallocated water are not required to cover stormwater and recycled water.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status /Comments	Lead Agency
Development of Policy for release of unallocated water	May 2005	Dec 2005		DNR
Implementation of policy for release	Jan 2006	Dec 2006		
Controlled allocation order made	As needed		Will be undertaken prior to any release of unallocated water	
Communication programme to inform the community of release	As needed		Will be undertaken prior to any release of unallocated water	

Cooperation with other jurisdictions

Not applicable.

Link to NWI outcomes

This action helps achieve:

NWI objectives 23 (v), (vi) & (viii)

v) 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;

vi) Clarity around the assignment of risk arising from future changes in the availability of water for the *consumptive pool*;

viii) Policy settings which facilitate water use efficiency and innovation in urban and rural areas;

NWI outcomes 64 (iii) & 58 (ii)

The States and Territories agree that their water market and trading arrangements will:

iii) Facilitate the operation of efficient water markets and the opportunities for trading, within and between States and Territories, where water systems are physically shared or hydrologic connections and water supply considerations will permit water trading;

ii) Minimise transaction costs on water trades, including through good information flows in the market and compatible entitlement, registry, regulatory and other arrangements across jurisdictions

Link to relevant performance indicators

NSW will provide links to relevant NRMMC performance indicators and NRC targets when they are available

NWI Element No. 3: Best Practice Water Pricing

Action 7: Environmental externalities managed through a range of regulatory measures IGA Para 73

Actions

i) Continue to manage environmental externalities through a range of regulatory measures (such as through setting extraction limits in water management plans and by specifying the conditions for the use of water in water use licences);

ii) Continue to examine the feasibility of using market based mechanisms such as pricing to account for positive and negative environmental externalities associated with water use; and

iii) Implement pricing that includes externalities where found to be feasible.

IGA Date: Ongoing

Context

In NSW, the WMA requires WSPs to establish an extraction cap and to allocate water to the environment as a priority. IPART includes expenditure to mitigate the impacts of known externalities in estimates of water resource management costs. IPART determines charges for urban and irrigation water to include operating and maintenance expenses, administrative costs, replacement-cost depreciation, the opportunity cost of capital, and costs entailed in managing the environment and natural resources. IPART uses an avoidance-cost approach to addressing externalities. That is, an inclusion in water charges of direct environmental costs that water suppliers incur. Under the avoidance-cost approach, a proxy or estimate for externalities that arise from using water is provided for factoring in to cost-recovery price determinations. The National Competition Council in 2003 found this approach to be consistent with COAG requirements.

Implementation Table

Steps/ Deliverables	Start date	End date	Status/ Comments	Lead Agency
Incorporate extraction caps for water plans and the priority of environmental water	1 July 2004		As part of WMA and Plans under the Act. Extraction caps will be included in WSPs under development for commencement in the future	DNR
Study of market based mechanisms to assist in managing environmental externalities, as required by IGA Para 61 (iii)		2006	Under the Commonwealth/State Water Trade Working Group	DNR
Development of IWCM strategies to include prices that take into account the cost of environmental flows and recycling schemes	Development of IWCMs began May 2004	June 2006		DEUS
Cost of expenditure to mitigate the impacts of known externalities included in the price of metropolitan and non-metropolitan sewage.		Ongoing		DEUS

Cooperation with other jurisdictions

A number of WSPs will deal with cross border resources, such as the Border Rivers, Upper Murray, Snowy Rivers and Googong. Cross-jurisdictional consultation, including relevant Intergovernmental Agreements, will be undertaken in the development of these plans.

Link to NWI outcomes

This action helps achieve:

NWI objectives 23 (iii) & (iv)

iii) Statutory provision for environmental and other public benefit outcomes, and improved environmental management practices; and

iv) Complete the return of all currently over-allocated or overused systems to environmentally-sustainable levels of extraction.

NWI outcomes 64 (i)

i) Promote economically efficient and sustainable use of:

   a) water resources

Link to relevant performance indicators

NSW will provide links to the relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 3: Best Practice Water Pricing

Action 8: Benchmarking efficient performance IGA Para 75 & 76

Actions

The States and Territories will be required 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 will be made on the basis of a nationally consistent framework to be developed by the Parties by 2005, taking account of existing information collection including:

i) the major metropolitan inter-agency performance and benchmarking system managed by the Water Services Association of Australia;

ii) the non-major metropolitan inter-agency performance and benchmarking system managed by the Australian Water Association ; and

iii) the irrigation industry performance monitoring and benchmarking system, currently being managed by the Australian National Committee on Irrigation and Drainage.

Costs of operating the above performance and benchmarking systems are to be met by jurisdictions through recovery of water management costs

IGA Date: Ongoing and 2005 for report framework.

Context

DNR's pricing policy is under close scrutiny by IPART. The NSW water delivery business, State Water, is required to meet its performance indicators in its service delivery to its customers. The input from DNR and State Water to IPART's pricing regimes will provide a basis for input to a nationally consistent framework.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status /Comments	Lead Agency
Independent, public, annual reporting of performance benchmarking for all metropolitan, non-metropolitan and rural water delivery agencies – ongoing			DEUS will continue to publish the annual NSW Water Supply and Sewerage Performance Monitoring Report disclosing the performance of all urban water supply and sewerage utilities in NSW over the last 5 years. The 2003-04 and 2002-03 reports are available on DEUS website (www.deus.nsw.gov.au/water)	DEUS
Develop nationally consistent report framework by 2005	2005	2005	A nationally consistent report framework for rural water delivery benchmarking is yet to be developed. For bulk water, the September 2005 pricing submission to IPART will make provision to report, by valley and water source, water resource management expenditure on annual basis. NSW is participating in the interstate working group to develop a nationally consistent urban reporting framework	State Water
NWC, in consultation with NRMMC NWI Working Group, prepare Terms of Reference for consultancy		June 2005		DEUS

Steps/ Deliverables	Start date	End date	Status /Comments	Lead Agency
to develop a draft national framework				
NWC manage consultancy to deliver final report		September 2005		
NRMMC NWI Working Group provides comment on national framework		October 2005		
NRMMC NWI Working Group seeks approval for a national framework from NRMMC		April 2006		

Cooperation with other jurisdictions

The NWC, in consultation with NRMMC NWI Working Group, will facilitate development of a national framework for benchmarking and pricing service quality for water delivery agencies, considering the benchmarking systems currently in use (e.g. Australian Water Association) and how these can be incorporated into the national framework.

Link to NWI outcomes

This action helps achieve:

NWI objectives 23 (viii)

viii) Policy settings which facilitate water use efficiency and innovation in urban and rural areas

NWI outcomes 64 (i) (a) & (iii)

i) Promote economically efficient and sustainable use of:

   a) water resources;

iii) Facilitate the efficient functioning of water markets, including inter-jurisdictional water markets, and in both rural and urban settings.

Link to relevant performance indicators

NSW will provide links to the relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 3: Best Practice Water Pricing

Action 9: Independent Regulator IGA Para 77

Actions

The Parties agree to use independent bodies to:

i) set or review prices, or price setting processes, for water storage and delivery by government water service providers, on a case-by-case basis, consistent with the principles in paragraphs 65 to 68 above; and

ii) publicly review and report on pricing in government and private water service providers to ensure that the principles in paragraphs 65 to 68 are met.

IGA Date: Ongoing

Context

IPART, established in 1992 under the *Government Pricing Tribunal Act 1992* (amended in 1996 as the *Independent Pricing and Regulatory Tribunal Act 1992*), is an independent body that now oversees regulation in the water, gas, electricity and public transport industries in NSW.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status /Comments	Lead Agency
Independent pricing bodies to set and review prices or pricing processes for water storage and delivery and publicly report	1995	ongoing	NSW already complies – IPART carries out this function.	Sydney Water, Hunter Water, State Water, Local Governments and the SCA make submissions to IPART

Cooperation with other jurisdictions

Not applicable.

Link to NWI outcomes

This action helps achieve:

NWI outcomes 64 (i) to (vi)

i) Promote economically efficient and sustainable use of:
   a) water resources;
   b) water infrastructure; and
   c) government resources devoted to the management of water

ii) Ensure sufficient revenue streams to allow efficient delivery of the required services;

iii) Facilitate the efficient functioning of water markets, including inter-jurisdictional water markets, and in both rural and urban settings;

iv) 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

Link to relevant performance indicators

NSW will provide links to relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 3: Best Practice Water Pricing

Action 10: Subsidies IGA Para 66, 68 & 74

Actions

i) Where full cost recovery is unlikely to be achieved in the long term and a Community Service Obligation (CSO) is deemed necessary, the size of the subsidy is to be reported publicly and, where practicable, jurisdictions to consider alternative management arrangements aimed at removing the need for an ongoing CSO.

ii) The States and Territories agree to report publicly on cost recovery for water planning and management as part of annual reporting requirements, including:

   a) the total cost of water planning and management; and

   b) the proportion of the total cost of water planning and management attributed to *water access entitlement* holders and the basis upon which this proportion is determined.

iii) The Parties agree that as far as possible, the roles of water resource management, standard setting and regulatory enforcement and service provision continue to be separated institutionally.

IGA Date: Ongoing

Context

Subsidies are already reported publicly in DNR's pricing submissions to IPART and in IPART's pricing determinations. With the full separation of water delivery (State Water) from WRM (DNR), it will now be possible to disclose separately the cost of water delivery and WRM services. A system to report on WRM costs, including annual reporting of WRM costs, is being developed in conjunction with DNR's upcoming pricing submission to IPART.

The development of standards and targets has largely been separated from DNR with the formation of the Natural Resources Commission. WRM and regulatory enforcement operate as discreet functions within DNR as this is the most operationally efficient & cost effective arrangement. Water delivery services are undertaken by State Water as a separate business entity following its corporatisation in 2004.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status /Comments	Lead Agency
Subsidies to be reported publicly where full cost recovery for rural and regional water systems unlikely to be achieved			Complete (reported in IPART determinations)	DNR – for WRM on all water sources. DEUS – for water delivery on regulated rivers. IPART – for all services on all water sources.
Alternative management arrangements aimed at removing subsidy be considered	2006		This will be reviewed following DNR's upcoming pricing submission to IPART.	
Annual public reports on cost recovery for water planning and management	2005	2006	A system to report on WRM costs is being developed in conjunction with DNR's upcoming pricing submission to IPART. This will report on actions (ii) (a) & (b) above	
Roles of water resource management, standard setting and regulatory enforcement and service provision be separated institutionally	2006	2007	Complete. Water delivery services have been separated from WRM, standard setting and regulatory enforcement (licensing). In addition, development of standards and targets has largely been separated with the formation of the Natural Resources	

Steps/ Deliverables	Start date	End date	Status /Comments	Lead Agency
			Commission. The ringfencing of WRM within DNR's financial management system will be implemented subject to review.	

Cooperation with other jurisdictions

Not applicable

Link to NWI outcomes

This action helps achieve:

NWI outcomes 64 (i), (iv) & (v)

i) Promote economically efficient and sustainable use of:
   a) water resources;
   b) water infrastructure assets; and
   c) government resources devoted to the management of water;

iv) 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;

v) Avoid perverse or unintended pricing outcomes;

Link to relevant performance indicators

NSW will provide links to relevant NRMMC indicators and NRC targets when they are available

NWI Element No 4: Integrated Management of Environmental Water

Action 1: Institutional arrangements and water recovery principles IGA Para 79

Actions

i) Effective and efficient management and institutional arrangements to ensure the achievement of the environmental outcomes

ii) Where it is necessary to recover water to achieve environmental outcomes, to adopt the following principles for determining the most effective and efficient mix of water recovery measures:

a) consideration of all available options for water recovery, including:

- investment in more efficient water infrastructure;

- purchase of water on the market, by tender or other market based mechanisms;

- investment in more efficient water management practices, including measurement; or

- investment in behavioural change to reduce urban water consumption;

b) assessment of the socio-economic costs and benefits of the most prospective options, including on downstream users, and the implications for wider natural resource management outcomes (eg. impacts on water quality or salinity); and

c) selection of measures primarily on the basis of cost-effectiveness, and with a view to managing socio-economic impacts.

IGA Date : Immediate and on-going

Context

In NSW, a number of Departments and organisations undertake different water recovery and management activities. These roles and responsibilities are provided in Attachment B.

In line with the NWI, and the COAG Water Agreement before it, NSW has formally recognised environmental water (both planned and adaptive) in its legislation and WSPs. Further work is being carried out on the institutional arrangements for community groups to hold access licences for adaptive environmental water. Pilot studies on the impact of planned environmental water on the health of groundwater dependent ecosystems are also being undertaken.

The security of both planned and adaptive water is assured by the WMA; planned water is protected by the fact that WSPs cannot be amended except by order from both the Minister for Natural Resources and the Minister for the Environment, while adaptive environmental water is held under licence. Licence conditions are approved by the above Ministers.

Water held under adaptive water access licences is tradeable on the temporary water market, in the same way that all other water access licences are tradeable. Adaptive water licences may be held by any individual or organisation, however water set aside in WSPs for adaptive use (such as for the environment) is managed by the relevant CMA under Environmental Water Trusts.

NSW applies as a matter of course the principles set out on paragraph 79(ii) in relation to the recovery of water. For example, the NSW Wetland Recovery Plan (a suite of projects to create water savings and more sustainable wetland management, with a first focus on the Macquarie Marshes and Gwydir wetlands) is a mix of planning, water efficiency, water recovery and water buy-back measures to achieve improved social, environmental and economic outcomes for iconic NSW wetlands.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Immediate effective and efficient management and institutional arrangements to ensure the achievement of the environmental outcomes		2000	WMA requires WSPs to contain specific environmental water provisions and incorporate a series of indicators and targets to measure the environmental performance of the plans.	DNR
Where it is necessary to recover water to achieve environmental outcomes, to adopt the principles for determining the most effective and efficient mix of water recovery measures		Ongoing	The NSW Wetland Recovery Plan will make use of planning, water efficiency, water recovery and water buy-back measures to achieve improved social, environmental and economic outcomes for iconic NSW wetlands.	

Cooperation with other jurisdictions

A number of WSPs will deal with cross border resources, such as the Border Rivers, Upper Murray, Snowy Rivers and Googong. Cross-jurisdictional consultation, including relevant Intergovernmental Agreements, will be undertaken in the development of these plans.

Link to NWI outcomes

This action helps achieve:

NWI outcomes 25 (i), (iv), (x)

i) Provide a statutory basis for environmental and other public benefit outcomes in surface and groundwater systems to protect water sources and their dependent ecosystems;

iv) Provide for adaptive management of surface and groundwater systems in order to meet productive , environmental and other public benefit outcomes;

x) Identify and acknowledge surface and groundwater systems of high conservation value, and manage these systems to protect and enhance those values;

Link to relevant performance indicators

NSW will provide links to relevant NRMMC indicators and NRC targets when they are available

NWI Element No 5: Water Resource Accounting

Action 1: Benchmarking of Accounting Systems IGA Para 81

Actions

Benchmark jurisdictional water accounting systems on a national scale by June 2005, including:

i) state based water entitlement registering systems;

ii) water service provider water accounting systems;

iii) water service provider water use/delivery efficiency; and

iv) jurisdictional/system water and related data bases.

IGA Date: Mid 2005

Context

NSW has established a robust water accounting system for its regulated river water sources and some of its unregulated and groundwater sources. These systems are housed on the corporate databases. Individual licence data will be accessible via internet, Interactive Voice Recognition (IVR) and other electronic means by mid 2006 for individual licence holders. The remainder of the water sources will be included in the program as measuring of water extraction and data gathering systems are progressively installed. Registers of entitlements, extractions, transfers and water availability are accessible on the Internet.

State Water will be required to report on the efficiency of its delivery service.

The NRMMC NWI Working Group will benchmark jurisdictional water accounting systems, taking into account existing benchmark reports (IGA 81). The NRMMC NWI Working Group will then develop accounting system standards (IGA 82), drawing on the work of the jurisdictions, the Executive Steering Committee on Australian Water Resource Information, MDBC, the Bureau of Rural Sciences and linking in with the National Land and Water Resources Audit Water Theme, and the Australian Bureau of Statistics, and incorporating principles for environmental water accounting (IGA 84).

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
NRMMC NWI Working Group finalises project scope and timetable for benchmarking of accounting systems		June 2005	NSW is an active participant in the inter-jurisdictional NRMMC NWI Working Group	DNR
NWC hold accounting workshop		2005		
Stocktake and benchmark of accounting systems completed		October 2005		
NRMMC NWI Working Group develops project scope and timetable for developing accounting standards and process for delivery of standards		November 2005		
NRMMC NWI Working Group considers draft accounting system/template		June 2006		
NRMMC NWI Working Group seeks clearance of accounting system/template from NRMMC		October 2006		
Jurisdictions to implement accounting system/template	July 2006			
NRMMC annual report to COAG in 2006-07 to include jurisdictions' actions to implement accounting system		October 2007		

Cooperation with other jurisdictions

NSW will cooperate with other relevant jurisdictions on this action where required.

Link to NWI outcomes

This action helps achieve:

NWI outcome 80

To ensure that adequate measurement, monitoring and reporting systems are in place in all jurisdictions, to support 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*.

Benchmarking will provide the basis for:

- modification of the existing system to realise improvements demonstrated by other jurisdictions,
- public confidence that the system being adopted within NSW meets acceptable accuracy and efficiency standards and that the information is compatible with that provided by other jurisdictions.
- adopting nationwide standards for accounting and reporting

The details of each jurisdictions systems will provide a transparent platform for user communities to compare states' water management performance.

Link to relevant performance indicators

NSW will provide links to relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 5: Water Resource Accounting

Action 2: Consolidated Water Accounts IGA Para 82 and 83

Actions

1. To develop and implement:
   i) accounting system standards, particularly where jurisdictions share the resources of river systems and where water markets are operating;
   ii) standardised reporting formats to enable ready comparison of water use, compliance against entitlements and trading information;
   iii) water resource accounts that can be reconciled annually and aggregated to produce a national water balance, including:
      a) a water balance covering all significant water use, for all managed water resource systems;
      b) systems to integrate the accounting of groundwater and surface water use where close interaction between groundwater aquifers and streamflow exist; and
      c) consideration of land use change, climate change and other externalities as elements of the water balance.
2. To identify situations of close interaction between groundwater aquifers and streamflow and implement systems to integrate the accounting of groundwater and surface water use.

IGA Date:

1. By 2006
2. To identify by end 2005 and implement by 2008

Context

Development of accounting system standards to cover regulated, unregulated and groundwater systems will be an outcome of the benchmarking required at Element 5 Action 1. Once the new Accounting System Standard is nationally endorsed, NSW will implement the standard for its regulated, unregulated and groundwater systems. In the meantime NSW uses the MDBC to provide compatibility and comparison measures for entitlement and extraction summary data as required for water sources within the Murray-Darling Basin. This is done via Murray-Darling Basin Cap reporting requirements in the whole basin context and River Murray Water (RMW) in the Murray River operational reporting context. The MDBC-type accounting system (which reports, on a catchment and sub-catchment basis, on such components as inflows and outflows, usage, storages, etc.), currently reports on the regulated system, and will be extended to cover unregulated and groundwater components.

A standard robust accounting system within NSW known as Water Ordering and Use (WOU) has been implemented for regulated river water sources and major Murray-Darling Basin aquifers. This system includes the inputting of water order and use data, data archiving within a secure corporate database environment, and a comprehensive information retrieval and reporting facility. Public registers are available on the DNR website at location www.wma.dipnr.nsw.gov.au/wma/index.jsp Data relating to water availability (Available Water Determinations), water trading (and transfer prices) and extractions for water sources are available on the DNR website. This system will be expanded to include unregulated water sources and other inland and coastal aquifers as equipment for monitoring water usage is installed and data becomes available.

The Water Information Exchange (WIX) is currently under development. It will ensure that individual licence usage information will be available via internet, interactive voice recognition systems by mid 2006.

State Water annually provides a water balance covering all significant water use, for all water resource systems it manages.

Integration or compatibility will occur following the commencement of the WSPs for the Ground Water sources identified as having close interaction, some of which will commence in 2007. Locations of significant interaction between groundwater and surface water sources were identified and mapped in July 2004.

As set in the WSPs, the water balance will be amended when there is sufficient information to include the measurable impacts of changes in water use, climate change and other externalities. This includes better data, more accurate models and improved understanding of water processes and science.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Develop and implement robust water extraction accounting by end 2006 Major regulated river sources Remaining surface and groundwater sources	 Progressive	 Late 2004 End 2006	 Complete for regulated rivers Will be completed when WSPs for the remaining surface and ground water sources are completed.	DNR is responsible for the development of robust water extraction accounting systems; State Water is responsible for their implementation
Identify situations where close interaction between surface and groundwater exist by end 2005		July 2004	Broad identification completed. However, the extent and rate of interactions are not yet defined	
Develop capability and evaluate the process and extent of interaction between surface and groundwater systems	Late 2005	Late 2006	Before extraction accounting actions resulting from the linking of extractions from both sources can occur, the knowledge of the process needs to be better understood. The hydrological circumstances of the time and volume connectivity need to be established to determine the impacts on the combined resource of extractions from both sources. This action links strongly to the knowledge and capacity building actions of the NWI paras 98 to 101.	
Implement systems to integrate the accounting of surface and ground water by end 2008	July 2006	July 2008	Accounting can be completed when the extent and connectivity of the interaction between surface and groundwater is determined and groundwater sources are subject to a WSP	DNR
Complete Water Information Exchange (WIX)	March 2005	Sept 2005	Currently under development. This system will allow the input of individual licence extraction data and access to this data by licence holders electronically.	
Consider land use change, climate change and other externalities as elements of the water balance			The level of knowledge on the impacts of changes to these elements on catchments and the hydrologic cycle is very limited. This action links strongly to the knowledge and capacity building actions of the NWI paras 98 to 101	

Cooperation with other jurisdictions

Consultation and data sharing (including integration of water balances) between NSW and other jurisdictions occurs through the Murray Darling Basin Commission and the Border Rivers Commission for relevant river systems.

There will be greater co-operation and interaction in real-time extraction data with the introduction of source-tagged trading within the Murray and Border River systems.

Link to NWI outcomes

This action helps achieve:

NWI outcome 80

To ensure that adequate measurement, monitoring and reporting systems are in place, to support 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*.

Link to relevant performance indicators

NSW will provide links to relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 5: Water Resource Accounting

Action 3: Environmental water accounting - IGA Para 84-85

Actions

i) The Parties agree that principles for environmental water accounting will be developed and applied in the context of consolidated water accounts in paragraph 82.

ii) The Parties further agree to develop by mid 2005 and apply by mid 2006:

   a) a compatible register of new and existing environmental water (consistent with paragraph 35) showing all relevant details of source, location, volume, security, use, environmental outcomes sought and type; and

   b) annual reporting arrangements to include reporting on the environmental water rules, whether or not they were activated in a particular year, the extent to which rules were implemented and the overall effectiveness of the use of resources in the context of the environmental and other public benefit outcomes sought and achieved.

IGA Date: Mid-2005, mid-2006

Context

The WMA provides for two types of environmental water, planned environmental water and adaptive environmental water. Planned environmental water is committed by management plans for fundamental ecosystem health, whilst adaptive environmental water is committed by the conditions of an access licence for specified environmental purposes.

Planned environmental water is specified in WSPs in two ways:

i) water in excess of the long term extraction limit established by the plan

ii) water that is managed by rules in the plan specifically targeting environmental objectives

Although not classed as environmental water rules, there are rules in some WSPs, that, although their prime objective is to limit extraction, were designed to also provide an environmental benefit. The details in these rules, such as limiting supplementary extractions during a flow event, were considered in the context of limiting extractions to the extraction limit and targeting an assessed environmental flow outcome. The water provided by these rules can also be reported within environmental water accounts, although there will be cases when a non-volumetric measure will be needed to assess environmental water allocation and compliance.

The Catchment Management Authorities Act 2003 enables the CMAs to establish Environmental Water Trust Funds should they desire to do so. The Environmental Water Trust Funds thus have to be established at the discretion of the CMAs. If the CMAs decide to establish the trust funds, then the draft Catchment Action Plans are to include provisions on the assets that will be subject to the funds, the actions to protect or improve those assets and the targets for measuring success of environmental water functions. DNR, in cooperation with the CMAs will develop the administrative arrangement for the Environmental Water Trust Funds.

Adaptive environmental water is water committed by the conditions of a water access licence for specified environmental purposes. There are a number of potential source of adaptive environmental water:

- the holder of a perpetual water access licence may commit all or part of that licence as adaptive environmental water;
- a WSP may have reserved water for environmental purposes (by way of an adaptive environmental water condition on a licence). In these instances, the relevant CMA had the responsibility for the management of these licences; and
- adaptive environmental water licences may be created following water savings initiated by DNR. For example, a licence holder transferring all or part of their water access licence to the Minister in return for public funding of on-farm water savings, such as piping of domestic and stock water.

DNR is currently developing a mechanism to provide for the allocation of adaptive environmental water. It is envisaged that an adaptive environmental condition on an access licence will require that a management plan be in place prior to the grant of that licence. The management plan will outline any environmental objectives and the

methods for achieving those objectives. It will also specify annual reporting requirements. This is essential to ensure that the water is committed to its intended primary environmental purpose.

It is proposed that adaptive environmental water access licences will be recorded in an adaptive environmental water register. The register will make publicly available the details of licences that have committed water to the environment via an adaptive environmental water condition (such as volumes, location, purposes etc.). In addition, the management plans, which outline any environmental objectives, will also be accessible via the register.

Temporary trade in adaptive environmental water will be allowed, in accordance with the management plan. Any trades will also be recorded in the adaptive environmental register.

All rules based and access licence environmental water is included in long-term behaviour simulations to assess:

- the environmental outcomes of this water and
- the impact of the management of that water on other water users.

The definition of the environmental water and specification of the environmental outcomes sought which are to be included in the register will require assessment by simulation models.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Determine categories of environmental water made available by WSP and determine accounting methodologies and reporting framework	June 2005	Sept 2005	Initially environmental water and its attributes specified in each WSP will be identified and categorised. Assessment methodologies for each category will be developed.	DNR
Develop by late 2005 and apply by 2007 adaptive environmental water policy	Late 2005	2007	In progress	DNR
Develop by mid-2007, and apply by late 2007, an environmental water register	Mid 2007	Late 2007		DNR
NRMMC NWI Working Group finalises project scope and Terms of Reference and process for delivery of guidelines		August 2005	NSW is actively participating in the Working Group and will consider implementing the recommendations resulting from these studies, where appropriate	
NRMMC NWI Working Group finalises draft national guidelines		February 2006		
NRMMC NWI Working Group seeks approval of national guidelines from NRMMC		April 2006		
Jurisdictions implement reporting arrangements in line with national guidelines form July 2006 and report annually (in association with reporting requirements under IGA 82 (ii)	July 2006			
NRMMC annual report to COAG for 2006-07 to include jurisdictions' actions to implement reporting arrangements		October 2007		

Cooperation with other jurisdictions

The NRMMC NWI Working Group is to develop national guidelines for open reporting, including reporting arrangement for environmental water rules. The environmental water that is jointly managed with other jurisdictions on the Border Rivers and River Murray has been determined in conjunction with other jurisdictions.

In the case of the River Murray, the rules relating to jointly managed environmental water and other environmental water managed independently by NSW have been included in the WSP. Reporting on the management of this water will be co-ordinated with other jurisdictions by the MDBC. In the Border Rivers the WSP being developed will include the rules relating to interstate water sharing that has a beneficial environmental outcome.

Link to NWI outcomes

This action helps achieve:

NWI objective 23

iii) Statutory provision for environmental and other public benefit outcomes, and improved environmental management practices;

vii) 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;

NWI outcome 80

The Parties agree that the outcome of water resource accounting is to ensure that adequate measurement, monitoring and reporting systems are in place in all jurisdictions, to support 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.

Link to relevant performance indicators

NSW will provide links to the relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 5: Water Resource Accounting

Action 4: Information Measures IGA Para 86

Actions

(i) Improve the coordination of data collection and management systems to facilitate better sharing of this information.

(ii) Develop partnerships in data collection and storage.

(iii) Identify best practice in data management systems for broad adoption.

IGA Date: Ongoing

Context

A range of water information is publicly available through DNR's free on-line registers and information systems including information on water use, temporary transfers and storage and river flow data in NSW. To ensure the compatibility of these registers with other States, and to facilitate better sharing of information between jurisdictions, NSW is participating in a National Water Commission Working Group on register compatibility. An anticipated output from this working group will be a report to the NWC on possible shared characteristics for registers.

As a member of the Executive Steering Committee for Australian Water Resources Information (ESCAWRI), NSW is part of a national steering committee and working group for an Australian Water Resource Information system. This is coordinated by the Commonwealth Bureau of Rural Sciences and involves the development a national website for the provision of hydrometric data (such as river flow, salinity) and could be extended to other water data such as extraction, trades, environmental water etc. The aim is to have a working prototype of the hydrometric data base developed by July 2006.

NSW proposes that the membership and terms of reference of ESCAWRI to be modified to enable ESCAWRI to maintain a "watching brief" on NWI IGA paragraph 86, and to report to the NWI Working Group on progress. Action on this item should relate to work under IGA 82 and 84.

NSW will continue to improve data collection and management through its involvement and implementation of the Hydsys / Kisters hydrometric system and standards.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Implement any nationally agreed measures to improve collection, storage and sharing of data on water traded, extracted and recovered and managed for environmental and other public benefit outcomes		Ongoing		DNR
NRMMC NWI Working Group requests ESCAWRI to take action under this item		March 2006		
NRMMC NWI Working Group, working with ESCAWRI, describes project scope and timetable		June 2006		
NRMMC NWI Working Group receives initial report		September 2006		
Ongoing implementation in		Ongoing		

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
jurisdictions and report annually through NRMMC report to COAG				
NWC to assess progress as part of the 2006-07 biennial assessment				
Maintain national standards and consistency through participation in Hydsys / Kisters Users Groups				

Cooperation with other jurisdictions

Consultation and data sharing between NSW and other jurisdictions occurs through the Murray Darling Basin Commission and the Border Rivers Commission for relevant river systems, in addition to specific relationships with ESCAWRI.

Link to NWI outcomes

This action helps achieve:

NWI Objectives 23 (i) and (vi)

i) Clear and nationally-compatible characteristics for secure water access entitlements

vi) 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.

NWI Outcome 80

To ensure that adequate measurement, monitoring and reporting systems are in place in all jurisdictions, to support 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.

Link to relevant performance indicators

NSW will provide links to the relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 5: Water Resource Accounting

Action 5: Metering and measuring actions IGA Para 87 & 88

Actions

i) Develop metering and measurement actions

ii) Develop a national meter specification and associated standards and apply these

iii) Implement metering and measurement actions

IGA Date: end 2006, end 2007

Context

NSW is developing metering standards and procedures (covering water flow meters, and other indirect methods of water-use monitoring) and will incorporate these under national standards when national standards are developed.

NSW water licences are issued on the basis that the licensee can be called upon to install and operate equipment to measure water usage. In the past such measurement has been implemented in the regulated systems to a large extent, but not in the unregulated and groundwater systems. NSW has a draft policy which will see some (but not all) of the licences being metered (while other licences will have less direct methods of measuring usage). By targeting high-usage water-users initially, NSW will be able to get accurate measurements of the majority of water used.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Develop national meter standards and associated standards implementing them by end 2006 and 2007 respectively			NSW will participate in the national process	DNR/DEUS
Develop NSW Water Extraction monitoring Policy	2004	June 2005	Policy has been developed by DNR and State Water. Consultation has been undertaken through WSP process	DNR/State Water
Develop NSW metering equipment and Installation standards		December 2005	Being developed by DNR and State Water	DNR/State Water
Allocate funds to implement NSW Monitoring Policy		December 2004	Complete - Funds have been allocated	DNR
Develop guidelines as to how NSW will implement the Monitoring policy		July 2005	Draft in place	DNR
Develop implementation Plans for DNR Regions		August 2005	Commenced	DNR
Implement the NSW Monitoring Policy	July 2005	June 2008	Majority of unregulated and groundwater usage to be monitored, but not every licence	DNR
Knowledge and capacity building – monitor and analyse performance of flowmeters and related equipment to accurately monitor water usage			May build upon work completed in “Know the Flow” (funded by National Program for Sustainable Irrigation) project	
NRMMC NWI Working Group develops project scope and timetable and		June 2005		

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
establishes metering working group to develop meter standards and specification to meet requirements of IGA 88				
NRMMC NWI Working Group finalises standards		December 2006		
NRMMC NWI Working Group seeks approval from NRMMC		April 2007		
Jurisdictions implement metering standards		December 2007	NSW will implement the nationally endorsed meter standards and specifications, and will link these to NSW requirements	
NRMMC annual report to COAG in 2007-08 to include jurisdictions' actions to implement metering standards		October 2008		

Cooperation with other jurisdictions

DNR has been developing (in conjunction with State Water) a NSW standard for water meters. Some work has commenced on a national standard by the National Measurement Institute (Commonwealth Agency) for NMI M 10-1 (Meters Intended for the Metering of Irrigation Water).

A special working group, comprising water resource managers, in consultation with operators (e.g. State Water, SunWater etc) could be established to facilitate this action, with the engagement of the Australian National Committee on Irrigation and Drainage, National Metering Institute of Australia, and Standards Australia.

Link to NWI outcomes

This action helps achieve:

NWI objective 23 (vii)

vii) 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;

NWI outcome 80

To ensure that adequate measurement and monitoring systems are in place in all jurisdictions, to support 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.

Link to relevant performance indicators

NSW will provide links to the relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 5: Water Resource Accounting

Action 6: National guidelines on water reporting IGA Para 89

Actions

The parties to the NWI agree to develop by mid 2005 and apply national guidelines by 2007 covering the application, scale, detail and frequency for open reporting addressing:

i) Metered water use and associated compliance and enforcement actions

ii) Trade outcomes

iii) Environmental water releases and management actions

iv) Availability of water access entitlements against the rules for availability and use

IGA Date: mid 2005, end 2007

Context

No national guidelines are yet being developed. NSW will participate in the national process. Until national guidelines are developed, NSW will implement this action using its own guidelines.

NSW has information already available on www.dipnr.nsw.gov.au of water use for regulated systems, and as monitoring of unregulated and groundwater systems becomes more advanced, they will be incorporated into the same reporting system. Information of the amount and location of licensed water usage is already available although in different formats and locations. Other Information on water trades, environmental water releases and management actions, and water access entitlements will be developed in a similar format.

Implementation Timetable

Steps/Deliverables	Start date	End date	Status / Comments	Lead Agency
NRMMC NWI Working Group finalises project scope and Terms of Reference and process for delivery of guidelines		August 2005	NSW will participate in the national process	DNR
NRMMC NWI Working Group finalises draft national guidelines		February 2006		
NRMMC NWI Working Group seeks approval of national guidelines from NRMMC		April 2006		
Jurisdictions implement reporting arrangements in line with national guidelines from July 2006 and report annually (in association with reporting requirements under IGA 82 (ii))	July 2006			
NRMMC annual report to COAG for 2006-07 to include jurisdictions' actions to implement reporting arrangements		October 2007		
Apply national guidelines on water reporting by end 2007 in regard to: • Metered water use		2007	Already available in NSW format for regulated river systems	

Steps/Deliverables	Start date	End date	Status / Comments	Lead Agency
• Compliance with requirements and enforcement of guidelines		2007		
• Environmental water releases and management actions		2007		
• Availability of water access entitlement, against the rules for availability and use		2007		

Cooperation with other jurisdictions

NSW will cooperate with other relevant jurisdictions on this action where required.

Link to NWI outcomes

This action helps achieve:

NWI objective 23 (vii)

vii) 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;

NWI outcome 80

To ensure that adequate reporting systems are in place, to support 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.

Link to relevant performance indicators

NSW will provide links to relevant performance indicators and NRC targets when they are available.

NWI Element No 6: Urban Water Reform

Action 1: Demand Management Measures IGA Para 91

Actions

i) Legislation to implement the Water Efficiency Labelling Scheme (WELS) to be in place in all jurisdictions and regulator undertaking compliance activity by 2005, including mandatory labelling and minimum standards for agreed appliances;

ii) Develop and implement a 'Smart Water Mark' for household gardens, including garden irrigation equipment, garden designs and plants;

iii) Review the effectiveness of temporary water restrictions and associated public education strategies, and assess the scope for extending low level restrictions as standard practice; and

iv) Prioritise and implement, where cost effective, management responses to water supply and discharge system losses including leakage, excess pressure, overflows and other maintenance needs.

IGA Date: End 2005, end 2006

Context

The introduction of the Building Sustainability Index (BASIX) into the development approval process aims to reduce drinking water use of new homes by up to 40% and the energy requirements by 25%. From 1 July 2004, development applications and complying development certificates for new single dwelling lodged in Sydney must be accompanied by a BASIX Certificate. From 1 October 2005, a BASIX Certificate must also be lodged for new multi-dwelling developments in Sydney and for all new housing in the remainder of NSW. From 1 July 2006, BASIX will also apply to alterations to residential developments throughout NSW.

Introduction of the National Water Efficient Labelling and Standards Scheme for appliance and fixtures into New South Wales is via complementary legislation which came into effect on 29 April. The Commonwealth is scheduled to implement the labelling scheme by July 2005. The Commonwealth, NSW and Victorian Governments are seeking to advance mandatory standards for the most cost effective appliances and fixtures.

The *Metropolitan Water Plan* has identified a broad range of demand management measures for the Sydney area which are currently being implemented. These include the preparation of water savings plans by government, local government and business to achieve an overall 20% reduction in water use by the top 200 water consumers by September 2007, the establishment of a water savings fund to provide financial assistance for major water users to build water savings projects and fund a public education program, the installation of water efficient devices in existing homes, leakage reduction and appropriate pricing.

The introduction of new operating licence conditions for Sydney Water Corporation will reduce leakage and losses. The new conditions also include a demand management target of a 35% reduction from 1991 levels by 2011 (equating to 329 litres per person per day). The new licence took effect from 1 July 2005.

Best Practice Management Guidelines have been prepared and published for NSW local water utilities (local government water and sewerage businesses) for: (i) strategic business planning and long-term financial planning; (ii) pricing, including best-practice residential and non-residential water supply pricing with full cost recovery, best practice residential and non-residential sewerage pricing with full cost recovery, commercial water supply and sewerage developer charges, trade waste policy, approval of all trade waste discharges and appropriate trade waste fees and charges; (iii) water conservation; (iv) drought management; (v) performance reporting; and (vi) integrated water cycle management. From June 2004, utilities which comply with the guidelines are permitted to pay a dividend from the surplus of their water supply or sewerage business to the council's general revenue.

A Metropolitan Recycled Water Strategy is being developed with a goal of achieving 80 gigalitres of recycled water by 2029. The first stage will commence in 2006.

There are a number of codes and guidelines that must be developed or updated to support the Building Sustainability Index implementation and the recycling strategy. These include the New South Wales *Code of Practice Plumbing and Drainage* and the *Recycled Water Guidelines for Multi-Unit Developments.* There is also a review of the guidelines for greywater diversion and treatment in single dwellings.

In addition, IPART has specifically been requested to investigate and report on using pricing structures for water in the Sydney basin.

A major communications and education campaign, Water for Life, has been launched, and will continue for at least three years, to promote changes in attitude and behaviour among urban water users.

Implementation Timetable

See table below.

Cooperation with other jurisdictions

WELS is a national initiative with strong representation from all states and territories. NSW has enacted supporting legislation.

Link to NWI outcomes

This action helps achieve:

NWI outcomes 90 (i), (ii), (iii) and (v)

i) Provide healthy, safe and reliable water supplies;

ii) Increase water use efficiency in domestic and commercial settings;

iii) Encourage the re-use and recycling of wastewater where cost effective;

v) Encourage innovation in water supply sourcing, treatment, storage and discharge;

Link to relevant performance indicators

NSW will provide links to relevant NRMMC performance indicators and NRC targets when they are available

Implementation Plan

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Introduction of WELS				DEUS
Proclaim complementary legislation	Dec 2004	29 April 2005	The *Water Efficiency Labelling and Standards (New South Wales) Act 2005* was proclaimed on 29 April 2005	
Implement labelling scheme nationally	July 2005	July 2006	National implementation is Commonwealth responsibility in consultation with participating jurisdictions	
Introduce mandatory standards for most cost effective measures	July 2006	July 2007	DEUS has commissioned a study to identify indoor WELS products that would be suitable for being subject to minimum efficiency and performance standards. Agreement must be obtained from the majority of jurisdictions participating in the WELS scheme.	
Integrate with Smart Water Mark for parks and garden water use	July 2005	July 2006	Commonwealth is funding study to examine the feasibility of extending WELS to other water-use products. Jurisdictions will have input to the scope of the study. Expansion of WELS to other water-use products must be approved by the majority of jurisdictions participating in the WELS scheme	

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Development and implementation of Smart Water Mark for garden activities by end 2006				Sydney Water
Promote adoption of labelling system for outdoor water-use appliances – Smart Water Mark	May 2005	30 December 2006	Implement strategy to increase awareness and assist market penetration of labelled Smart Water Mark appliances in consultation with outdoor products industry and related stakeholders	DEUS
Support Smart Water Mark through mandating use of appliances by water users wherever practical	July 2005	September 2005	Incorporate Smart Water Mark products and services into requirements for water saving action plans	
Guidelines for water efficient gardens and plant selection tool on SWC website	January 2005	December 2005	Over 300 plants already listed on SWC website. Around 1000 plants to be listed in time for spring 2005	Sydney Water
Review effectiveness of temporary water restrictions and associated public education strategies, and consider extending low level restrictions to standard practice by end 2006	April 2005	December 2008	The timing of the completion of this review is contingent on environmental circumstances and the end of the drought. Review of the Water For Life Plan advertising campaign contains survey information on the effectiveness of public education strategies to date, including behavioural changes. Water for Life will extend until 2008 – effectiveness will be reviewed regularly	Sydney Water
Prioritise and implement management responses to water supply and discharge system losses including leakage, excess pressure, overflows and other maintenance needs			SWC will inspect the equivalent of over 18,000 km of mains per year for four years	Sydney Water
Amend Sydney Water operating licence to introduce leakage reduction clauses	March 2005	July 2005	New clauses included in revised licence	
Increasing expenditure on mains renewal, leak detection and repair activity	July 2005	July 2010	Target of 25% reduction in leakage	
Establish and administer a water savings fund to provide financial assistance for water conservation measures				DEUS
Amend legislation	January 2005	July 2005	Received assent 18 May 2005	

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Establish fund and operating Project selection and implementation	May 2005	December 2005 July 2009		
Continue Waterwise on the Farm education campaigns for metropolitan agriculture		July 2007	Program activities currently being scheduled. Television advertising has commenced	DPI
Staged implementation of BASIX in the following developments: New residential developments in the metropolitan area New residential developments in regional NSW New multi-unit developments Renovations in existing buildings		 July 2004 July 2005 October 2005 July 2006	 Complete	DNR
Development of a 25 year plan for sustainable and secure water supply for Sydney Water Plan Prepare and publish the Metropolitan Water Plan Undertake detailed engineering and environmental studies on identified options Implement major elements of the Plan	 November 2004	 November 2004 December 2006 December 2008	 Plan published. First annual review will be in September 2005 Engineering, economic, finance and regulatory studies already completed for recycling. Other supply options are being evaluated	DNR
Best practice management by local water utilities Develop and publish Best-Practice Management of Water Supply and Sewerage Guidelines for demand management, drought management and integrated water cycle planning Compliance by local water utilities		 May 2004 July 2007	 Complete LWU compliance with the Guidelines is shown in the 2003-04 NSW Water Supply and Sewerage Performance Monitoring Report. The highest reported water supply compliances are for pay-for-use pricing with full cost recovery (70%) and performance reporting (87%), while the lowest reported	DEUS

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
			compliances are for non-residential charges (35%) and water conservation (35%). The highest reported sewerage compliances are for residential charges (69%) and performance reporting (80%), while the lowest reported sewerage compliances are for non-residential charges (21%) and developer charges (40%).	
Annual performance reporting for local water utilities		Annual	Ongoing. Refer also Element 3, Action 7	DEUS
Reports under operating licence of major utilities			Ongoing	Reviews: IPART; Government response to reviews: DEUS
EPHC to establish a working group to consider the status of the Smart Approved Water Mark (SAWM) scheme and develop options for ongoing engagement to support effective implementation			NSW is actively participating in the EPHC and will undertake implementation in line with agreed schedules.	
EPHC to establish a working group and prepare Terms of Reference (one option would be to expand the role of the WELS Advisory Committee to also advise EPHC ministers on the SAWM scheme)				
Working group to undertake an assessment of the SAWM scheme to determine if there are areas where EPHC support is required	July 2005	December 2006		
EPHC to establish a policy framework to support the implementation of the SAWM scheme in all jurisdictions, including mechanisms for ongoing engagement, by December 2006		December 2006		

NWI Element 6: Urban Water Reform

Action 2: Innovation and capacity building to create water sensitive Australian cities IGA Para 92

Actions

i) Develop national health and environmental guidelines for priority elements of *water sensitive urban designs* (initially recycled water and stormwater) by 2005;

ii) Develop national guidelines for evaluating options for water sensitive urban developments, both in new urban sub-divisions and high rise buildings by 2006;

iii) Evaluate existing 'icon water sensitive urban developments' to identify gaps in knowledge and lessons for future strategically located developments by 2005;

iv) Review the institutional and regulatory models for achieving integrated urban water cycle planning and management, followed by preparation of best practice guidelines by 2006; and

v) Review of incentives to stimulate innovation by 2006.

IGA Date: end 2005, end 2006

Context

Much of the innovation in NSW is covered in the demand management action in Element 6 Action 1 and the pricing actions.

In particular, BASIX, the Integrated Water Cycle Management Guidelines, and work on water sensitive urban design are at the cutting edge of NSW work on sustainable cities.

NSW is also pursuing an innovative approach to provision of water sensitive developments through its public/private partnership program. DNR is preparing a metropolitan strategy for water recycling, and DEUS is developing *Recycled Water Guidelines for Multi-Unit Developments*, which includes greywater use. Guidelines on greywater reuse in single dwellings are being revised.

The Metropolitan Strategy itself, of which the Metropolitan Water Plan is a component, is a unique approach to developing a more sustainable Sydney. The MWP combines all the elements of increasing supply, reducing demand, improving aquatic environments, and increasing recycling to support all of these.

The integration of the main natural resources agency with planning has been specifically done to ensure NRM issues such as water planning are linked more closely with planning reforms and local action (e.g. through linking IWCM concepts with model LEPs).

The preparation and implementation of IWCM is a requirement of the WMA if LWUs are to obtain additional water entitlement for growth. Under the *Local Government Act 1993*, utilities must comply with all Best Practice Management Guidelines if the utility wishes to pay a dividend from the water supply or sewerage business to the council's general revenue. Such compliance is also a pre-requisite for eligibility for financial assistance towards the capital cost of backlog water supply and sewerage infrastructure under the NSW Government's Country Town Water Supply and Sewerage Program (CTWSS).

The Government has requested IPART to undertake an independent review into water pricing (water, sewerage and recycled water), access conditions and governance matters to facilitate competition in the provision of services and to enable opportunities for private sector innovation.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Development and application of national health and environmental guidelines for water sensitive urban designs for recycled water and stormwater				
• Revise NSW single residential greywater	October 2004	August 2005		NSW Health

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
guidelines • Include new guidelines in Metro recycling strategy • Promote as part of IWCM implementation • Promote through model LEPs		June 2005 July 2007 July 2007		DNR DEUS DNR
WCM planning as Best Practice requirement incorporating: • Stormwater and effluent reuse strategies as a potable replacement • Improved resource sustainability and management • Targeted demand management • Improved stakeholder consultation	June 2005	June 2007	Commencement of IWCM Plans to meet Best Practice	DEUS
IWCM workshops	March 2005	June 2005	On target to allow the majority of local water utilities to commence IWCM by June 2005	DEUS
Construction of IWCM web resource	November 2004	Ongoing	Support material to develop IWCM Strategies	
Development of simplified demand management software	March 2005	July 2005	Software tool to assess water use and demand management options	DEUS
Incorporation of state and national water use guidelines under IWCM	November 2005	Ongoing (subject to availability of final documents)	Incorporation of a range of initiatives and guidelines including: Watermark program; water savings plan guidelines for industry; greywater use guidelines; national reuse guidelines; and WELS	
Guidelines for Water Savings Action Plans	February 2005	August 2005	Guidelines for local water utility and industry developed by DEUS	
Development of national guidelines for evaluating options for water sensitive urban developments in both new urban sub-divisions and high rise			NSW will participate in national-level efforts	DEUS, DNR
Evaluation of existing water sensitive urban icon developments by end 2005		December 2005	Through the Stormwater Trust, DEC is developing guidelines for Managing Urban Stormwater, including for water sensitive urban design. These will be published by 2006. Metropolitan Recycled Water Strategy is prepared in the context of, and responding to, existing icon recycling projects (e.g. Rouse Hill and Sydney	DEUS, DNR, DEC

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
			Olympic Park)	
Preparation of Metropolitan Recycled Water Strategy	December 2004	End 2005	Strategy in advanced stages	DNR
Develop recycled water best practice guidelines Review of institutional and regulatory models for integrated urban water cycle planning and management and develop best practice guidelines		End 2006	Review of Best Practice Management of Water Supply and Sewerage Guidelines will evaluate the success of existing incentives for innovation	
Review of incentives to stimulate innovation by public and private sectors	May 2005	July 2005		DEUS
Implementation of BASIX in: New multi-unit developments Renovations in existing buildings		October 2005 July 2006		DNR
Preparation of Water Recycling Guidelines including greywater for multi-unit developments	February 2005	September 2005	Draft released to Government agencies for review and comment	DEUS
Local water utilities to develop and implement integrated water cycle management plans Develop integrated water cycle management guidelines Local water utilities to complete IWCM strategies	July 2002 Oct 2004	Oct 2004 July 2007	Completed Ongoing	
IPART inquiry on pricing, access and governance issues Development of recycled water projects arising out of the Metropolitan Water Plan.	Feb 2005 January 2005	Dec 2005 July 2008	Staged implementation from 2006	DNR

Cooperation with other jurisdictions

Not applicable.

Link to NWI outcomes

This action helps achieve:

NWI outcomes 90 (i), (ii) and (v)

i) Provide healthy, safe and reliable water supplies

ii) Increase water use efficiency in domestic and commercial settings

v) Encourage innovation in water supply sourcing, treatment, storage and discharge

Link to relevant performance indicators

NSW will provide links to relevant NRMMC performance indicators and NRC targets when they are available.

NWI Element No 7: Community partnerships and adjustment

Action 1: Timely consultation and information IGA Para 95 & 96

Actions

States and Territories agree to ensure open and timely consultation with all stakeholders on:

i) pathways for returning overdrawn surface and groundwater systems to environmentally sustainable extraction levels

ii) the periodic review of *water plans*; and

iii) other significant decisions that may affect the security of *water access entitlements* or the sustainability of water use.

States and Territories agree to provide accurate and timely information to all relevant stakeholders regarding:

i) progress with the implementation of *water plans*, including the achievement of objectives and likely future trends regarding the size of the consumptive pool; and

ii) other issues relevant to the security of *water access entitlements* and the sustainability of water use, including the science underpinning the identification and implementation of *environmental and other public benefit outcomes*.

IGA Date: Ongoing, ongoing.

Context

In NSW the process and rules for returning overdrawn surface and groundwater systems to sustainable levels are specified and implemented through WSPs. The initial 31 WSPs were developed through local water management committees which represented the range of interests in the plan. The plans were placed on public display and public submissions considered in the finalisation of the plan. The public consultation on the plans was extensive occurring over the 2 years of plan development and gazettal.

The inland groundwater WSPs were deferred to allow the inclusion of history of use and the allocation of structural adjustment funding, given the very significant reductions required over the ten years of the plans to meet sustainable yields. These negotiations will be undertaken by CMAs and overseen by a Groundwater Adjustment Panel, which includes CMA and irrigator representatives.

As to the development of the 43 macro WSPs covering the rest of the State's water use, regional panels are being established to make initial recommendations on the classification and the water sharing rules for each plan. These panels will include representatives of the Catchment Management Authorities. The CMAs will facilitate consultation on the recommendations of the panel with key stakeholder groups which will inform the draft plans. The CMAs will also undertake public consultation on the draft plans during the public exhibition period. Public submissions will be considered by the regional panels in the final plans.

All WSPs are to be reviewed by the Natural Resources Commission between the fifth and ninth year to assess their achievement of the natural resource management standards and targets. The Natural Resources Commission is to call for and consider public submissions.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Consultation with stakeholders in relation to pathways for returning over-allocated systems to sustainable extraction levels and other significant decisions affecting the		June 2004	Completed - extensive consultation through the water management committee and public exhibition process.	DNR

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
security of water access entitlements within Group A				
Consultation with stakeholders covered by water access entitlements of Group B (6 inland alluvial aquifers) Finalise entitlement reduction method through Groundwater Adjustment Committee (which includes CMA & irrigator reps) Consult with CMAs on amendments to the plans Advise licence holders of amended share component and proposed structural adjustment assistance		 June 2006 June 2006 June 2006	Extensive consultation has already occurred through the water management committee and public exhibition process.	
Consultation with stakeholders covered by entitlements of Group C (43 macro plans) Establish regional panels (with CMA reps) to recommend classification (which will consider socio-economic values and WSP rules) Consult with stakeholders on regional panel recommendations Provide supporting information and place draft plans as developed on public display for public comment (minimum period of 40 days)	 Jan 2005 August 2005	 July 2005 October 2005 December 2005 (majority of plans)	Consultation on the draft plans will be undertaken through the CMAs and public exhibition process.	DNR
Consultation with stakeholders covered by entitlements of Group D (17 individual plans)		December 2007		
Provide supporting information and place draft plans as developed on public display for public comment (minimum period of 40 days)		December 2007	This represents the end date for all plans - many will be completed by Dec 2005.	
Consultation with stakeholders in periodic review of water plans. (Natural Resources Commission to call for public submissions as part of the review process)	June 2009	June 2014	This relates to the review of the initial 31 plans. The remaining plans will also be subject to mid and final reviews.	

Cooperation with other jurisdictions

A number of WSPs will deal with cross border resources, such as the Border Rivers, Upper Murray, Snowy Rivers and Googong. Cross-jurisdictional consultation, including relevant Intergovernmental Agreements, will be undertaken in the development of these plans.

Link to NWI outcomes

This action helps achieve:

NWI objectives 23 (ii), (iv) and (ix)

ii) Transparent, statutory-based water planning;

iv) Complete the return of all currently over-allocated or overused systems to *environmentally-sustainable levels of extraction*;

ix) Addressing future adjustment issues that may impact on water users and communities; and

NWI outcomes 93

i) Improving certainty and building confidence in reform processes;

ii) Transparency in decision making; and

iii) Ensuring sound information is available to all sectors at key decision points.

Link to relevant performance indicators

NSW will provide links to relevant NRMMC indicators and NRC targets when they are available

NWI Element No 7: Community partnerships and adjustment

Action 2: Adjustment issues IGA Para 45 & 97

Actions
Parties agree to address significant adjustment issues affecting water users.

i) States and Territories will consult with affected water users, communities and associated industry on possible appropriate responses to address these impacts, taking into account factors including:

a) possible trade-offs between higher reliability and lower absolute amounts of water;

b) the fact that water users have benefited from using the resource in the past;

c) the scale of the changes sought and the speed with which they are to be implemented (including consideration of previous changes in water availability); and

d) the risk assignment framework.

ii) The Commonwealth Government commits itself to discussing with signatories to this Agreement assistance to affected regions on a case by case basis (including set up costs), noting that it reserves the right to initiate projects on its own behalf.

IGA Date: Ongoing

Context

Significant consultation occurred with the inland groundwater licence holders over adjustment measures as a result of reduced access to water. Adjustment measures in the plans varied but included phasing in of reduction entitlements, access to supplementary water, hotspot or local impact management restrictions and management through available water determinations. A package of financial assistance has been agreed and implementation details are now being negotiated with the Commonwealth Government.

Reduction in water access for licence holders in the regulated river plans was previously limited to a maximum of 10% through the WSP rules. A greater range of water trading or water dealing options are now available to licence holders in these systems to assist them in maximising the use of their water licences.

All irrigators who were affected by the rules in the WSPs had access to the Irrigated Agriculture Water Use Efficiency Scheme, funded by the NSW Government, which provided financial and technical assistance to improve their water use efficiency or to improve their supplies through construction of off-river storages. The Department of Primary Industries Water provides practical adjustment help to irrigators through training in best practice irrigation management techniques (as part of the WaterWise on the Farm program) and development assistance through low interest loans issued by the Rural Assistance Authority.

For the plans still to be developed, the classification method will use a matrix of high, medium and low levels of environmental risk and depending on extraction, the classification will guide the choice of water sharing rules. Limits will be imposed on the degree of change to water users' access.

CMAs will participate on the Regional Panels to develop the WSP rules and will facilitate public consultation on the WSPs.

Implementation Timetable

Steps / Deliverables	Start date	End date	Status / Comments	Lead Agency
Consultation on measures to address reductions in water availability with affected licence holders and communities covered by entitlements in each Group:				DNR
Group A – 31 initial WSPs		June 2004	Complete - achieved through water management committee process and public exhibition of WSPs.	

Steps / Deliverables	Start date	End date	Status / Comments	Lead Agency
Group B – 6 inland alluvial aquifers		June 2006	Will be completed through the Groundwater Adjustment Panel	
Group C – 43 macro plans		Dec 2005 (majority of plans)	Undertaken through the CMAs and public exhibition process	
Group D – 17 individual WSPs		Dec 2007	Undertaken through the CMAs and public exhibition process. This represents the end date for all plans - many will be completed by December 2005.	

Cooperation with other jurisdictions

Consultation ongoing with the Commonwealth on structural adjustment assistance for the inland alluvial aquifers.

Link to NWI outcomes

This action helps achieve:

NWI Objectives 23 (ii), (vi), (viii) & (x)

ii) Transparent, statutory-based water planning;

vi) Clarity around the assignment of risk arising from future changes in the availability of water for the *consumptive pool*;

viii) Policy settings which facilitate water use efficiency and innovation in rural areas; and

ix) Addressing future adjustment issues that may impact on water users and communities;

NWI Outcomes 93

i) Improved certainty and confidence in reform processes;

ii) Transparency in decision making; and

iii) Ensuring sound information is available to all sectors at key decision points.

Link to relevant performance indicators

NSW will provide links to relevant NRMMC indicators and NRC targets when they are available.

NWI Element No 8: Knowledge and Capacity Building

Action 1: Key Knowledge and Capacity Building priorities IGA Para 101

Actions

i) Identify the key Knowledge and Capacity Building priorities to support implementation of the National Water Initiative and where this work is being undertaken

ii) Identify and implement proposals to more effectively coordinate the national water knowledge effort.

IGA Date: Ongoing

Context

The NSW Government is committed to a whole of government approach for developing knowledge and capacity building in support of the National Water Initiative. To achieve this commitment the NSW Government has developed a network which comprises NSW resource management agencies, such as the Department of Natural Resources (DNR), Department of Primary Industries (DPI), the Department of Energy, Utilities and Sustainability (DEUS), the Department of Environment and Conservation (DEC), and research corporations. The NSW Government is facilitating active engagement of this network for the development and implementation of a NSW Knowledge and Capacity Building Plan. An initial scoping of knowledge and capacity building requirements for NSW has been undertaken. The NSW Knowledge and Capacity Building Plan will contribute to the development of national roadmap for water research.

Research corporations involved in the process include: the Grains Research and Development Corporation, Rural Industries Research and Development Corporation, Cotton Research and Development Corporation, the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Cooperative Research Centres (CRC), and NSW catchment management authorities.

The NSW Government is also undertaking a number of other activities that support a whole of government approach for knowledge and capacity building. Examples of these activities include:

- The establishment of an independent Science & Information Board by DNR. This Board is preparing a Knowledge and Capacity Building Strategy for DNR that identifies the need for current, short and long term science, knowledge products, decision tools, data and capacity building to deliver DNR's core business. This strategy is now a project of high priority for DNR. The strategic investments identified in the strategy for the DNR business line of "Facilitate the sustainable use of Water" have given consideration to the NWI elements. The strategy is expected to be approved by the DNR Board of Management by the end of June 2005, at which time it will influence the business planning cycle of DNR.
- The development of a partnership between DNR, DEC and the Sydney Catchment Authority and the new eWater CRC. This new CRC is currently developing a research program, and associated product lines, with input from NSW ensuring priorities are addressed that meet NWI needs.
- The development of partnerships between DPI and the CRC for Irrigation Futures and the new Cotton, Catchments and Communities CRC. These CRCs are developing research strategies that look at water use across a range of scales. A common desired outcome is to achieve the necessary water use requirements whilst achieving beneficial environmental outcomes.
- The development of a Wetland Recovery Plan (jointly prepared by DNR and DEC) under the National Water Initiative for the Macquarie Marshes and Gwydir Wetlands which will identify strategic science requirements to enable successful development and implementation of these plans.

Implementation Timetable

Steps / Deliverables	Start date	End date	Status / Comments	Lead Agency
Identify the key science priorities to support implementation of the National Water Initiative and identify where this work is	May 2005	Decem ber 2006	Ongoing activity	**DPI overall**. DNR for knowledge priorities relating to NWI Elements 1, 2, 3, 5 and 7. DEUS

Steps / Deliverables	Start date	End date	Status / Comments	Lead Agency
being undertaken. This process will include broad consultation with stakeholders and a gap analysis.				for Element 6. DNR, DEC and DPI Element 4. DPI for Element 8
Preparation of DNR's Knowledge & Capacity Building Strategy to identify key investment in knowledge (both short and long term) that address the sustainable management of water resources.	October 2004	July 2005		DNR
Implementation of DNR's Knowledge & Capacity Building Strategy will ensure that future business planning will consider the priorities identified in the strategy.	July 2005	June 2007		DNR
Implementation of any necessary measures to ensure the research effort is well coordinated and publicised, and any gaps are addressed.	July 2005	June 2007	Implementation of DNR's Knowledge and Capacity Building Strategy will result in the co-ordination of DNR's science and knowledge activities. This will be built into business plans.	DNR
Negotiation and implementation of knowledge and capacity building projects to underpin delivery of NWI implementation tasks.	November 2005		Ongoing	DPI, DNR, DEC, DEUS

Cooperation with other jurisdictions

Limited discussion with other jurisdictions has occurred during the development of the Knowledge and Capacity Building Strategy.

Link to NWI outcomes

The Knowledge and Capacity Building strategy will help in addressing the knowledge and capacity building needs in the areas identified in the NWI.

Link to relevant performance indicators

NSW will provide links to the relevant NRMMC indicators and NRC targets when they are available.

NWI Element: Implementation

Action 1: Review the 1992 Murray-Darling Basin Agreement for consistency with the NWI IGA Para 14

Actions

i) Review the 1992 Murray-Darling Basin Agreement, where necessary, to ensure that it is consistent with the NWI; and

ii) A separate agreement to address the over-allocation of water and achievement of environmental objectives in the MDB ("the MDB Intergovernmental Agreement") will operate between the Commonwealth Government and the Governments of New South Wales, Victoria, South Australia and the Australian Capital Territory. The MDB Intergovernmental Agreement will be consistent with the objectives, principles and actions identified in this Agreement.

IGA Date: Immediate

Context

On 25 June 2004, NSW became a signatory to the Intergovernmental Agreement on Addressing Water Over-allocation and Achieving Environmental Objectives in the Murray-Darling Basin. This agreement commits the Murray-Darling Basin Ministerial Council to identifying as soon as reasonably practicable consequential changes to the 1992 MDB Agreement required to implement the 2004 Agreement, which is consistent with the NWI.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status/ Comments	Lead Agency
Sign the Intergovernmental Agreement on Addressing Water Over-allocation and Achieving Environmental Objectives in the Murray-Darling Basin		25 June 2004	Complete. NSW is a signatory	
Initial review of 1992 Murray-Darling Basin Agreement				

Cooperation with other jurisdictions

NSW actively participates in the Murray-Darling Basin Ministerial Council

Link to NWI outcomes

This action helps achieve:

NWI objectives 23 (i)

i) Nationally-compatible system of managing surface and groundwater resources.

Link to relevant performance indicators

Not applicable.

NWI Element: Interpretation

Action 1: Common lexicon IGA Para 17

Actions

i) Consider the adoption of the words and phrases in Schedule B(ii) (i.e. environmental and other public benefit outcomes, over-allocation, overused, reliability, water access entitlement, water allocation) in the State's water management framework.

IGA Date: Ongoing

Context

NSW in the development of the WMA and the 2004 amendments to the WMA placed considerable effort in developing and defining terms that reflected the provisions and intent of the Act. These are generally consistent with the schedule.

Implementation Timetable

Steps/ Deliverables	Start date	End date	Status / Comments	Lead Agency
Consider the adoption of the words and phrases in Schedule B(ii)		June 2006	This review will consider whether any further amendments to Act are needed to include NWI terminology	DNR

Cooperation with other jurisdictions

2004 Act amendments were undertaken to provide consistency with the NWI, signed by COAG.

Link to NWI outcomes

This action helps achieve:

NWI objectives 23 (i)

i) Clear and nationally-compatible characteristics for secure *water access entitlements*;

NWI outcomes

A common lexicon for water use and management.

Link to relevant performance indicators

NSW will provide links to NRMMC indicators and NRC targets when they are available.

ACRONYMS

ACRONYMS

AWT	Aboriginal Water Trust – funding organisation supporting the participation of Aboriginal peoples' businesses in the water market
BASIX	Building and Sustainability Index – NSW planning standards for energy and water use limits for developments
COAG	Council of Australian Governments – meeting of the Prime Minister, State Premiers and Territory Chief Ministers
CMA	Catchment Management Authority – statutory body established under the *Catchment Management Authorities Act 2003*
CRC	Cooperative Research Centre – public / private research partnership
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CTWSS	Country Town Water Supply and Sewerage program
CSO	Community Service Obligation
DEC	Department of Environment and Conservation
DEUS	Department of Energy, Utilities and Sustainability
DNR	Department of Natural Resources
DPI	Department of Primary Industries
EPA	Environment Protection Authority – a statutory body now part of the Department of Environment and Conservation
ESCAWRI	Executive Steering Committee for Australian Water Resource Information
GL	Gigalitre – billion (1,000,000,000) litres
HoA	Heads of Agreement
IC	Irrigation Corporation – corporate entity holding collective water access entitlements; individual irrigators hold shares in the corporation
IGA	Intergovernmental Agreement
IPART	Independent Pricing and Regulatory Tribunal – statutory body established under the *Government Pricing Tribunal Act 1992*
IVR	Interactive Voice Recognition – method of accessing secure licence information in water access licence register
IWCM	Integrated Water Cycle Management
LEP	Local Environment Plan – environmental management plan developed by local governments

LMA	Intergovernmental Agreement on Addressing Water Overallocation and Achieving Environmental Objectives in the Murray-Darling Basin, known as the Living Murray Agreement
LWU	Local Water Utility – corporations providing water supply and delivery services in non-metropolitan areas
MDBC	Murray-Darling Basin Commission – statutory body coordinating inter-jurisdictional management of water resources of the Murray-Darling basin
MRW	Murray River Water – corporation providing water delivery services in the Murray
MWP	Metropolitan Water Plan – NSW Government plan to deal with Sydney's water supply and demand issues
NCC	National Competition Council
NCP	National Competition Policy
NMI	National Measuring Institute – Commonwealth agency dealing with standard measures
NRC	Natural Resources Commission – statutory body established under the *Natural Resources Commission Act 2003*
NRM	Natural resource management
NRMMC	Natural Resource Management Ministerial Council
NWI	Intergovernmental Agreement on a National Water Initiative
NWC	National Water Commission
SAWM	Smart Approved Water Mark
SWC	Sydney Water Corporation
WAL	Water Access Licence – water access entitlement issued under the *Water Management Act 2000*
WELS	Water Efficiency Labelling and Standards
WIX	Water Information Exchange – internet information system for licence holders
WMA	*Water Management Act 2000*
WOU	Water Ordering and Use – water accounting system for regulated river sources and major Murray-Darling aquifers
WRM	Water Resources Management
WSAA	Water Service Association of Australia
WSP	Water Sharing Plan – statutory water management plan under the *Water Management Act 2000*

GLOSSARY OF TERMS

Words and phrases in the NSW NWI Implementation Plan have the same meanings as those used in the National Water Initiative.

In addition, NSW will adopt the nationally-consistent definitions for some water trade terminology currently being developed by the Natural Resources Management Ministerial Council NWI Working Group.

Adaptive environmental water	Water committed for specified environmental purposes by the conditions of water access licences, either generally or at specified times or in specified circumstances.
Available water determination (AWD)	A periodic announcement made during an irrigation season which indicates the quantity of water that equates to unit share of water access. In relation to licences that have not yet been converted to the WMA, an AWD indicates the percentage of a water licence holder's volumetric licence that can be extracted.
Entitlement tagging	A water accounting approach that allows water access entitlements to retain their original characteristics when traded between jurisdictions and/or trading zones.
Environmental flows	Water made available for the environment under rules in Water Sharing Plans.
Extraction component	Part of the water access entitlement which specifies the sections of the water source from which water may be taken. It may also specify the times and rates at which water can be taken.
Extraction limit (for surface water)	The scientifically-determined long term average level of extraction for the sustainable maintenance of the water system.
Floodplain harvesting	The collection, extraction or impoundment for commercial purposes of water flowing across floodplains.
Integrated Water Cycle Management	Local water utilities planning approach incorporating demand management, water sensitive design, reuse and recycling.
Planned environmental water	Water committed to the environment by management plans for fundamental ecosystem health or other specified environmental purposes, either generally or at specified times or in specified circumstances, and that cannot be used for any other purpose.
Regulated river	River that is declared by the Minister for Natural Resources to be a regulated river. Rivers declared to be regulated are those on which licensed water users can order water from a dam and include those rivers with major storages which provide water

	mainly for irrigation. All other rivers are unregulated.
Risk assignment	The method of allocating liability for future reductions in the availability of water for consumptive use between licence holders and government.
Sustainable yield	The equivalent of extraction limit for a groundwater system.
Unregulated river	Any river that is not declared a regulated river by the Minister for Natural Resources.
Water access entitlement	Licence to access an allocated share of the volume of water available for extraction in a given water source.
Water allowance	Previously common pricing system in which town water suppliers allocated volumetric allowances. The majority of water suppliers have abolished water allowances in favour of consumption-based pricing.
Water Sharing Plan	Statutory management plan under the *Water Management Act 2000*.
Water supply work approval	Approval to build and operate water supply works (e.g. pumps) at specified locations.
Water system	System that is hydrologically connected and described at the level desired for management purposes (e.g. sub-catchment, catchment, basin or drainage division and/or groundwater management unit, sub-aquifer, aquifer, groundwater basin).
Water use approval	Approval to use water for a specific purpose on a specific piece of land.
Water year	The twelve months from 1 July to 30 June.

What is a macro water plan approach?

In the first round of water sharing plans for unregulated rivers, water management committees intensively assessed 20 subcatchments. As there are well over 600 remaining subcatchments in New South Wales, it would take more than 10 years to complete further water sharing plans using the same intensive assessment used previously.

In preparing the new plans, the NSW Government is building on the knowledge gained from community consultation during the first round of water sharing plans. Macro water plans will use a more practical approach to assess the remaining subcatchments and will link to catchment and other land-use plans.

Macro plans will be prepared by classifying subcatchments based on their social, economic and ecological values.

A standard set of water sharing rules can then be developed and extended across catchments with similar classifications.

Individual water sources that pose particular environmental or socio-economic issues will also be considered so that water sharing rules can be tailored to their special requirements.

Macro water plans will not include the greater Sydney metropolitan area and some other streams and aquifers, such as the Snowy River where interstate arrangements apply.

Macro water plans are developed under the *Water Management Act 2000* which requires water sharing plans to:

- share water between all water users and the environment
- improve the health of our rivers
- provide security of access for water users
- meet the social and economic needs of regional communities
- facilitate water trading
- Plans must also take into account the State Water Management Outcomes Plan (SWMOP).

Macro water plans will also reflect the following priorities for access to water:

- the environmental health of the river
- basic landholder rights – domestic and stock rights and native title rights
- town water and licensed domestic and stock use
- other extractive uses including special purpose licences for irrigation, farming, industry, Aboriginal cultural, education and research purposes (in certain rivers), mining and recreation (eg watering of a golf course)

Macro water plans will set long-term annual extraction limits and in some cases daily extraction limits on the amount of water that can be extracted. For unregulated rivers in the Murray-Darling Basin, the long-term annual extraction limit will also meet the cap limits set by the Murray-Darling Basin Ministerial Council for water extraction.

Towns will not need to change their existing licensing arrangements unless their current infrastructure (eg a dam) is unable to meet their water needs and requires upgrading. In this case, town water utilities will need to meet conditions specified in the macro water plans to ensure there is enough water flowing to protect the environment. Town water utilities will also need to demonstrate that the *Best-Practice Management of Water Supply and Sewerage Guidelines* published by the Minister for Utilities are being implemented.

How are macro water plans being prepared?

Technical assessments and development of rules for the initial draft plans have been undertaken by Regional Panels of staff from the Department of Natural Resources, the Department of Environment and Conservation and the Department of Primary Industries. Catchment Management Authorities have also contributed to Regional Panels. Recommendations from Regional Panels will form the basis of draft macro water plans.

Working in partnership with agencies, Catchment Management Authorities will ensure draft plans are consistent with Catchment Action Plans and provide progress updates to keep the community informed.

Groundwater plans will also be developed by a Groundwater Panel of staff from the Department of Natural Resources, the Department of Environment and Conservation and the Department of Primary Industries.

Groundwater plans will provide water for environmental protection and the remaining water – the 'sustainable yield' – will indicate what water is available for extraction. Ecosystems that are dependent on groundwater, such as some wetlands, will be protected as a priority.

Recommendations from Regional Panels and the Groundwater Panel will form the basis of draft macro water plans that will be placed on exhibition for comment in 2006.

Catchment Management Authorities will actively involve the community in reviewing the draft plans and providing feedback.

More information on preparation of the plans is available in the manuals for preparing the surface water and groundwater macro plans.

How will the macro water plans link with the existing plans?

Water sources addressed in existing water sharing plans will be excluded from the macro water plans and the two plans will operate in parallel until the initial plan expires in 2014. At that time, there may be a case to merge the plans together. Trading will be allowed between the existing unregulated water sharing plans and the macro plans where it is consistent with the objectives of both plans.

When will the plans take effect?

The plans are expected to be completed by 1 July 2006. The plans will commence following the conversion of licences and will be rolled out during 2007/08.

How can you contribute to the plans?

Consultations run by Catchment Management Authorities around the state will ensure opportunities to comment and provide feedback on the draft plans. All issues raised in submissions will be considered before plans are finalised.

The NSW Government Water Reforms

Providing for healthy waterways and groundwater and sustainable development

The rivers and aquifers of New South Wales provide life to unique environments and are fundamental to supporting healthy ecosystems and cultural values. They contribute to the vitality of many communities and provide a place for recreation. They also generate income through agriculture, fishing and tourism, support employment in rural areas, and support the supply of food and fibre for the state and for growing exports.

In a country with unreliable rainfall and long periods of drought, we need smart and innovative ways of managing water. To ensure water is used sustainably for the future, the NSW Government has undertaken the biggest overhaul of water management in Australia's history.

The introduction of the *Water Management Act 2000* was the culmination of a series of reforms which heralded a new approach to water management in New South Wales, including the preparation of water sharing plans across the state. Water sharing plans are ten year plans which set rules for sharing water between the environment and water users. They provide for healthier rivers and water dependent ecosystems and introduce clearly defined entitlements to shares in the available water, separate from land ownership.

After consultation with regional communities, water sharing plans for most of the regulated rivers and some unregulated rivers and groundwater came into effect on 1 July 2004. These plans account for about 80 per cent of water extraction in the state and cover the most stressed water sources.

The *Water Management Amendment Act 2004* further built on these reforms, to establish the rights of the environment and water users in perpetuity and a water market which encourages water conservation. With perpetual licences, farmers can plan and invest for the future with strong levels of certainty and security of access.

These amendments also clarified the role of Catchment Management Authorities in environmental management, with the capacity to address issues such as water quality through catchment action plans.

Setting rules for macro water plans

For macro water plans, water sharing rules will be developed for broad areas after classifying subcatchments or aquifers based on their social, economic, cultural and ecological values.

Where people or regional economies are highly dependent on water extraction, macro water plans will aim to affect that use as little as possible. Where valuable ecosystems are dependent on stream flows or groundwater, and likely to be affected by extraction, plans will aim for more control of water extraction. Where both needs apply, they will be carefully balanced.

Existing management rules such as those adopted by current water user groups will also be taken into account. Where special conditions may apply, the Department of Natural Resources will work with water user groups and individual licence holders to achieve a practical and balanced outcome.

The matrix on the next page is a simplified version of the actual more detailed matrices used to develop water sharing rules for unregulated rivers. The intention is to balance the water needs of the environment with water for social and economic needs.

For example, economic values such as the importance of irrigation to a community are shown along the horizontal axis. Ecological values such as the importance of river water to threatened species of fish are shown on the vertical axis.

Rules for a river with an important irrigation industry and very few ecological values would be applied from the bottom right box of the matrix. Rules for a river with high conservation values and little local irrigation would be applied from the top left box of the matrix.

	Low socio-economic value	Medium socio-economic value	High socio-economic value
High instream values	Rules to protect instream values Reduce entitlement via trading.	Rules to encourage extraction to shift from high environmental impact to lower impact. Reduce entitlement via trading.	Rules to encourage extraction to shift from high environmental impact to lower impact *(e.g. timing of extraction to allow first flush to pass)*. Reduce entitlement via trading.
Medium instream values	Rule to reduce impacts on important instream values. Encourage development through trading of water entitlements and allocations into management unit up to defined limits.	Rules to encourage extraction to shift from high environmental impact to lower impact Encourage development through trading of water entitlements and allocations into management unit up to defined limits.	Rules to encourage extraction to shift from high environmental impact to lower impact. Rule to prevent net increase in entitlement via trading.
Low instream values	Stop any further degradation of instream values. Encourage development through trading of water entitlements and allocations into management unit up to defined limits.	Stop any further degradation of instream values. Encourage development through trading of water entitlements and allocations into management unit up to defined limits.	Rules to encourage extraction to shift from high hydrological stress to lower stress *(ie. moving extraction to less stressed parts of the flow regime provided there is no increase in environmental impacts).* Rule to prevent net increase in entitlement via trading.

Roles and Responsibilities of Agencies in Managing Environmental Water

Element 4 – Action 1 – Institutional arrangements for water recovery

In NSW it has been agreed that:

- DNR, will develop, in consultation with Catchment Management Authorities and other agencies, State-wide principles and policies for management of environmental water;

- Catchment Management Authorities will produce catchment-wide Environmental Water Management Plans under their Catchment Action Plans and manage, in partnership with DNR, parcels of adaptive environmental water to meet the outcomes specified in these plans; and

- in the case of multi-catchment or multi-jurisdictional initiatives such as The Living Murray initiative, DNR will coordinate the management of environmental water between catchments and jurisdictions to meet the objectives of those initiatives.

DNR is responsible for the operation and management of planned environmental water. It is responsible for the "growth in use" process that ensures that the long-term extraction limit is not exceeded, thereby safeguarding the water set aside for environmental health. DNR undertakes the assessment and applies remedial action, when necessary, via its allocation process.

Planned environmental water that relates to managing an account and specifying releases is also the responsibility of DNR. This management may also include the establishment and maintenance of an advisory reference group as specified in the relevant water sharing plan to provide advice on releases and account management. The group is generally composed of community environmental interests, other agencies (such as Department of Primary Industries, Department of Environment and Conservation), State Water and users groups.

Management of adaptive environmental water is the responsibility of Catchment Management Authorities.

The audit and review of the management of planned environmental water is the responsibility of the Natural Resources Commission. It will review the plans in the context of catchment health after the first five years operation of the water sharing plans.

Cross border environmental water management is co-ordinated through the MDBC in the case of the Murray Valley. In the Border Rivers, a new intergovernmental agreement is being developed with Queensland, specifying the joint environmental water management. These provisions will be included in each state's statutory water management plans.

Systems where surface and groundwater are highly connected have been identified and provisions included in the water sharing plans to manage both sources in a combined manner. Combined management occurs for the regulated Hunter River and the unregulated Wybong Creek. Similar approaches will be implemented with the macro plans where applicable.

All licences committed for adaptive environmental purposes are permitted to be temporarily traded, subject to certain criteria being met. The criteria will be developed and maintained by DNR in conjunction with the relevant Catchment Management Authority. The criteria will ensure that trading only occurs when the water is not required to meet the environmental object of the commitment. A register of trading of adaptive environmental water will be established and maintained.

There are a number of groups and forums operating in NSW which contribute to decision making related to water recovery:

- the NWI – Living Murray Senior Executives Committee coordinates agency input to and implementation of the National Water Initiative and oversees the development of potential AWF bids for consideration by Government and submission to the NWC;

- the Water Innovation Project Control Group. This is a multi-agency group convened by DNR to oversee development and coordination of policy, water recovery and water application under the major initiatives to which NSW is a party. An Operational Group is also regularly convened to achieve more effective agency cooperation and coordination at a water recovery project level; and

- Murray Darling Basin Commissioners and Deputy Commissioners. The NSW Commissioners and Deputy Commissioners regularly meet prior to Commission and Ministerial Council meetings to coordinate the NSW response to actions related to Commission business including development and investment in water recovery measures. NSW Commissioners, Deputy Commissioners and agency staff also participate in and contribute to decisions made by working groups and committees set up by the Commission under the Living Murray initiative.

In NSW the roles and responsibilities of government agencies in water recovery and environmental water planning and application are:

- The Department of Natural Resources will determine water availability and water resource allocation, sponsor and government funded water recovery and innovation projects in NSW and link project proponents and projects with the most appropriate source of government funds. DNR is also responsible for evaluating the water made available by the projects and determining and managing the water accounting relating to each project.

  The Department will develop state-wide policy and rules for management of environmental water and establish licensed water entitlements from the recovered water (to be managed by Catchment Management Authorities). They will establish and maintain accounting and audit systems for water savings and recovery and diversions of water to meet environmental targets, and provide specialist technical and policy advice;

- Catchment Management Authorities will coordinate the development of an environmental water plan for each respective catchment, establish environmental water trust funds for the purpose of market based purchase of water for the environment and investing in improved environmental water management. They will manage licensed environmental water entitlements, propose water recovery and innovation projects under the interstate initiatives, and provide advice to the Minister on innovative ways to recover and use environmental water;

- The Natural Resources Commission recommends State-wide standards and targets to guide Catchment Management Authorities and agencies in managing natural resources. The NRC is responsible for recommending the accreditation of Catchment Action Plans (prepared by Catchment Management Authorities) that are consistent with the standards and targets, and auditing the implementation of these plans. The NRC also has a function under the Water Management Act 2000 to review water sharing plans after their fifth year of operation and making recommendations to Government on whether they should be extended (rolled over) or a new plan be made;

- State Water (being a corporate entity reporting to the Minister for Utilities) is responsible for the operation and maintenance of major dams and weirs and other water supply infrastructure in NSW;

- The Department of Environment and Conservation (DEC) will provide specialist environmental and policy advice to water innovation projects and the management of environmental water, particularly in the area of wetland and riparian floodplain management. DEC also advises the Minister for the Environment on the exercise of his concurrence role in approving water sharing plans (and amendments to plans), contributes technical advice on environmental water priorities and use, and on the implementation of NSW river flow objectives and water quality objectives; and

- The Department of Primary Industries will provide specialist technical and policy advice in relation to water innovation projects and the management of environmental water, particularly in the area of on-farm water use efficiency, floodplain, forest and wetland management, and fisheries management.