

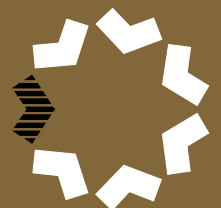


Assessment of Governments' Progress in Implementing the National Competition Policy and Related Reforms

MURRAY - DARLING BASIN COMMISSION WATER REFORM

June 2001

NATIONAL
COMPETITION
COUNCIL



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The National Competition Council

The National Competition Council was established on 6 November 1995 by the *Competition Policy Reform Act 1995* following agreement by the Commonwealth, State and Territory governments.

It is a federal statutory authority which functions as an independent advisory body for all governments on the implementation of the National Competition Policy reforms. The Council's aim is to 'help raise the living standards of the Australian community by ensuring that conditions for competition prevail throughout the economy which promote growth, innovation and productivity'.

Information on the National Competition Council, its publications and its current work program can be found on the internet at www.ncc.gov.au or by contacting NCC Communications on (03) 9285 7474.

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Abbreviations

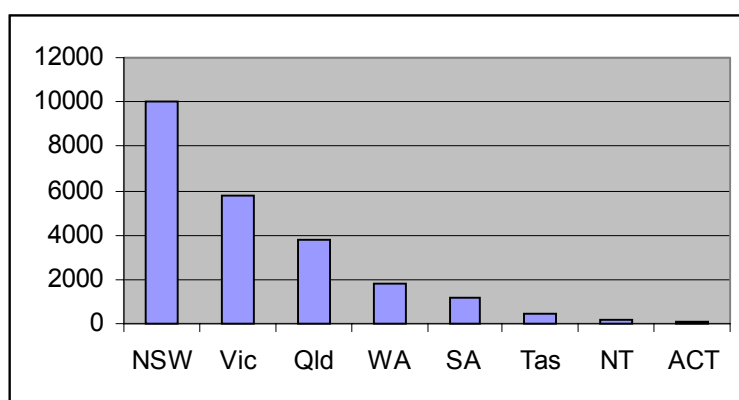
ANCID	Australian National Committee on Irrigation and Drainage
ANZECC	Australian and New Zealand Environment and Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
CoAG	Council of Australian Governments
CSO	Community Service Obligation
EC	Electrical conductivity
HLSGW	High Level Steering Group on Water
MDBC	Murray-Darling Basin Commission
NCC	National Competition Council
NCP	National Competition Policy
NWQMS	National Water Quality Management Strategy
WSAA	Water Services Association of Australia

Introduction

For the last seven years governments across Australia have been implementing the strategic framework for the reform of the Australian water industry. As the reform program is progressing, there has been a growth in both the understanding of the complexity of these reforms and the level of national recognition of the importance of change.

Australia's water use is growing. Water use grew by 59 per cent between 1983-84 and 1996-97, mostly due to increases in irrigated agriculture. Chart 1 illustrates the level of water use for each State and Territory in 1996-97.

Chart 1: Mean annual water use 1996-97 (GL)



Source: National Land and Water Resources Audit (2001)

There has been significant progress since governments first agreed to the reform framework.

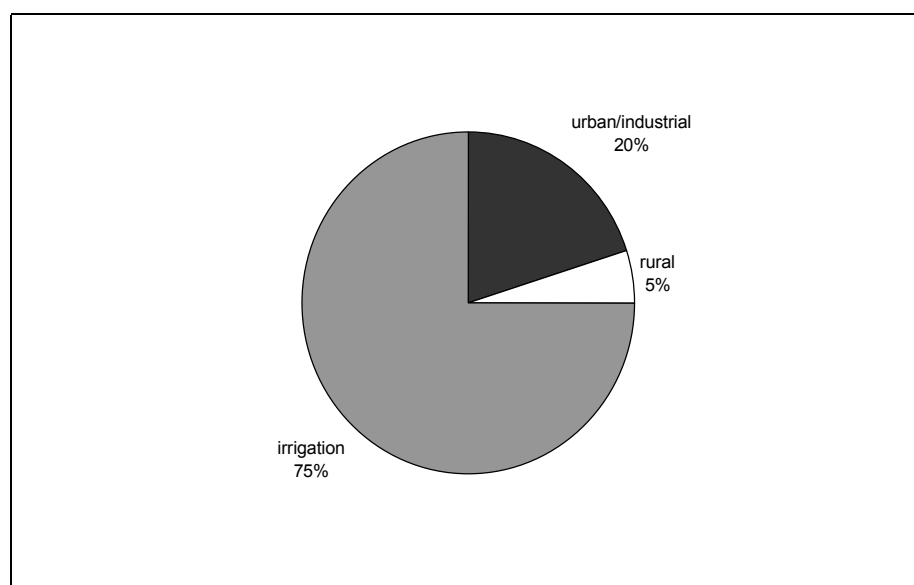
- Metropolitan water businesses have shifted from being part of a larger government bureaucracy to customer focussed commercial operations. This has generated benefits such as a real reduction in customer bills of nearly five per cent over the last four years, with improvements in drinking water quality and effluent treatment.
- Most urban Australians face water prices that reflect the amount of water they use and to create an incentive to conserve water.
- The need for water to be allocated to the environment is legally recognised across Australia.
- Regional planning processes on natural resource management issues have started in all States and Territories and communities are heavily involved in consultation on these processes.

- All governments recognise the difficulties that are arising from incomplete scientific information on the ecology and hydrology of water systems, particularly groundwater systems. Governments are addressing this by adopting a precautionary approach to any further allocations of water and increasing the level of monitoring and research.

This is the National Competition Council's second major assessment of the implementation of water reform. The first (the second tranche assessment in June 1999) focussed on the passage of legislation and urban water reform. The June 1999 assessment identified a number of issues that needed to be progressed further before the Council could conclude that all of the States and Territories had met their water reform commitments. Consequently, following the June 1999 assessment there were four follow-up or supplementary assessments that addressed outstanding issues from the 1999 assessment.

The 1999 assessment process saw the passage of legislation that provides the overarching framework for many of the water reforms. The current assessment starts the process of reviewing how these frameworks are being implemented and whether, in practice, they are delivering appropriate reform outcomes. Previous assessments also focussed on the implementation of reforms in the urban sector because the timeframes in the CoAG water reform agreements envisaged urban reforms occurring first. However, as illustrated in chart 2, rural and irrigation water makes up the majority of water use in Australia.

Chart 2: Mean annual water use by category 1996-97 (gigalitres)



Source: National Land and Water Resources Audit (2001)

The Council's 2001 NCP assessment has a much broader focus. While it discusses outstanding urban pricing issues its primary emphasis is on the rural sector covering, pricing, property rights, water trading and environmental issues. This is the first assessment in which the agreements call for the Council to examine the detail of rural reform.

The 2001 NCP assessment has also recognised the importance of establishing clear property rights and allocating water to the environment through a transparent process of community based planning. The key elements of these processes are:

- governments setting timetables and supporting the development plans;
- community consultation and involvement in the planning process;
- the development of scientific information on which to base the plans; and
- finalised plans that provide:
 - sufficient information for stakeholders to understand the plan and its implications for irrigators, the environment and the community generally;
 - water for the environment in a way that reflects the current understanding of environmental needs; and
 - well defined water allocations that provide irrigators with predictability in their property rights.

Assessment

In its assessment the Council has identified that an important issue for New South Wales is the development of well defined property rights, including an appropriate registry system, while for Victoria the assessment raises issues about the process for allocating water for the environment. Both States have provided substantial responses to the Council detailing how they intend to deal with these issues both over the next twelve months and into the future. These will be important issues in the Council's 2002 NCP water assessment. New South Wales is consulting with stakeholders and will review its policy on the water rights registry system before November 2001. The Council will reassess New South Wales's approach to the water rights registry in December 2001.

Overall the Council's 2001 NCP assessment has concluded that all States and Territories have made sufficient progress to receive their 2001-02 NCP payments. However, while the Council found that the Queensland Government has taken a positive and active approach to encouraging reform among local governments, one local government, Townsville City Council has failed to explain why introducing reform of water pricing within its jurisdiction is not in the public interest. In this assessment, the Council recommended a permanent reduction of \$270 000 in Queensland's NCP payments from 2001-02 (reflecting the remaining money available to Townsville Council for water reform through the Queensland Competition Authority's Financial Incentive Scheme). This reduction relates to the failure

by Townsville City Council to take a rigorous approach to considering consumption-based price reforms. The Council will reconsider Townsville's approach to two-part tariffs in the 2002 NCP assessment. It will look at both the progress made by Townsville and the State Government's efforts to resolve the issue. At that time, the Council will reconsider whether a continued reduction in competition payments is warranted and the appropriate size of any such reduction.

Finally, Queensland has acknowledged that the Condamine-Balonne is now a stressed river system. Consequently, the establishment of water allocations for the environment and consumptive use is now overdue. The Council will address this issue in its 2002 assessment. The Council is not satisfied that any of the options for setting environmental allocations specified in the draft water resources plan would be adequate to meet the environmental needs of the lower Balonne basin and the internationally listed Narran Lakes wetlands. More generally, the Council is not satisfied with the transparency of current reporting arrangements of the Government's final decisions for setting allocations. Queensland has agreed to address this concern over the next 12 months.

Local and national approaches to reform

The reform framework is a comprehensive approach that addresses the environmental, economic and social issues associated with water reform. It covers both surface and groundwater and recognises that while water reform is primarily a State responsibility some issues need to be addressed by coordination and cooperation between state initiatives. The approach to the Murray-Darling Basin is an obvious example.

State and Territory governments recognise the need for a more coordinated approach and are increasingly looking at water reform issues jointly. While some of these processes are in their early stages, it is the Council's view that they need greater emphasis if water reform generally is going to deliver the outcomes all stakeholders recognise as necessary. The following are examples where national approaches have been initiated to address important reform issues.

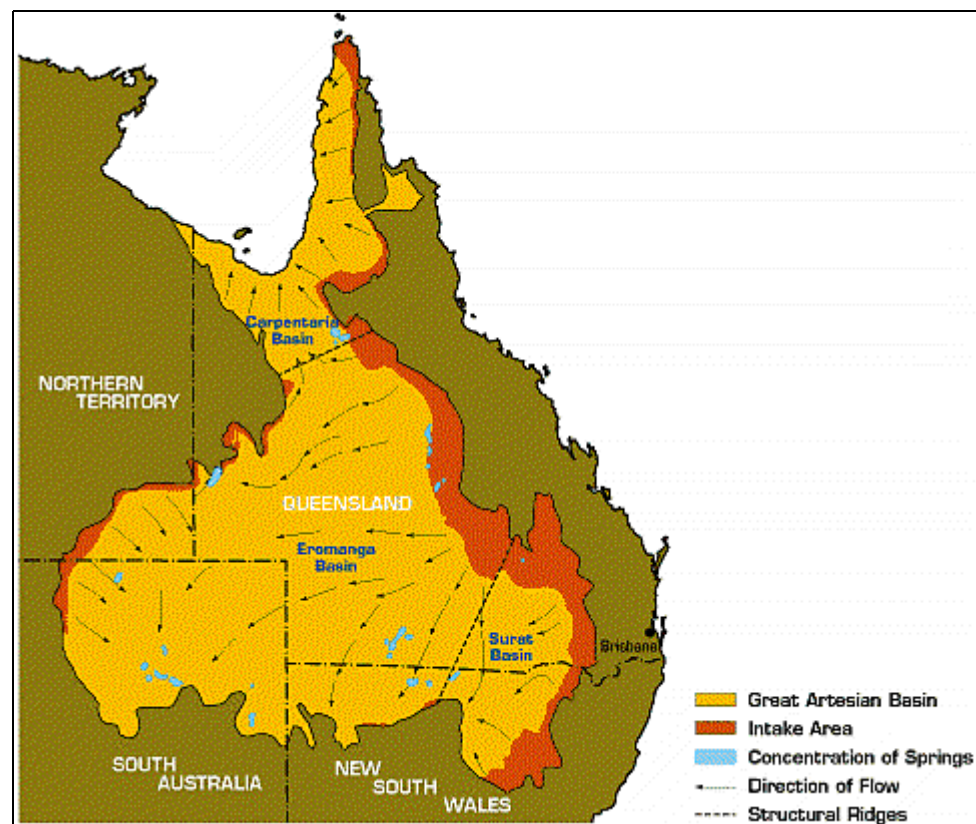
Managing groundwater basins cooperatively

The Great Artesian Basin is the largest artesian groundwater basin in the world. It underlies approximately one-fifth of Australia and extends beneath the arid and semi-arid parts of Queensland, New South Wales, South Australia and the Northern Territory, stretching from the Great Dividing Range to the Lake Eyre depression. The Basin covers a total area of over

1 711 000 square km and it has an estimated total water storage of 8 700 million megalitres (a megalitre is one million litres and is equivalent to about half the water in an Olympic swimming pool).

Many bores initially flowed at rates of over 10 megalitres per day. However, the majority of flows are now flowing between 10 000 litres and six megalitres per day. Total flow from the Basin reached a peak of over 2 000 megalitres per day around 1915, from approximately 1 500 bores. Since then, artesian pressure and water discharge rates have declined, while the number of bores has increased. The total flow from the basin during 1995 was in the order of 1 200 megalitres per day.

Figure 1: Great Artesian Basin



Source: www.gab.org.au (accessed July 2001)

The Great Artesian Basin Strategic Management Plan is a good example of a cooperative approach to managing groundwater resources. This plan was released in September 2000 after agreement by the Commonwealth, New South Wales, South Australia and Northern Territory Governments.

The plan proposes the following strategies to address basin management issues:

- a commitment to resource management partnerships to accelerate change;
- programs to encourage and achieve agreed understanding of the worth of the water resource;

- expanded infrastructure renewal programs, underpinned by public investments to:
 - stimulate private investments to minimise water losses and wastage; and
 - provide a platform for further investments in meeting environmental, social and economic objectives;
- changes to institutional arrangements and water entitlement systems to provide security of access to water (including water supply to priority groundwater-dependent ecosystems). Opportunities for new higher-value uses and clear responsibility for maintaining bore and reticulation systems maintenance;
- promotion of the socio-economic, environmental and heritage values of the basin;
- an emphasis on the need to sustain commitments to infrastructure renewal, maintenance and improved management;
- programs to improve knowledge and the technology underpinning improved management; and
- monitoring and evaluation to assess progress towards specific natural resource management outcomes sought through the plan.

These strategies provide guidance for governments, water users and other stakeholders on policies, programs and actions necessary to attain optimum economic, environmental and social benefits from the existence and use of basin groundwater resources.

This Great Artesian Basin Strategic Management Plan is expected to be implemented over the next 15 years at a cost of \$286 million.

Interstate Trading

The CoAG water agreements explicitly recognise interstate trading as an important component of water reform. This view is reinforced by the observations made by the CSIRO that while ‘..intrastate trading is driving the market for water, interstate trading arrangements are keeping the various markets in place.’ (CSIRO 2000, p.2)

The Murray-Darling Basin Commission’s Pilot Interstate Water Trading Project was established to promote interstate water trading within the basin. The objective of the pilot is to facilitate and promote interstate trade of high-security water in the Mallee region of South Australia, Victoria and New South Wales as shown in figure 2.

Figure 2: The pilot interstate water trading project area

Source: CSIRO (2000)

The pilot, in operation since 1998, has resulted in:

- the increased value of water use in the basin by allowing water to move to higher value uses;
- the expansion of the number of traders able to participate in the water trading marketplace by allowing permanent trade to occur across State boundaries; and
- the movement of water out of degraded or areas of high environmental risk. (CSIRO 2000)

The Murray-Darling Basin Commission keeps a register of all transfers and calculates exchange rates for each trade. It must also assess each trade on the basis of any environmental damage it may cause and the physical capability of the system to deliver the water. The exchange rates are designed to account for transmission system losses in the river channel and for changes in the level of water supply security. The security can fall in response to the decreased ability to retain water within storages as the water moves upstream.

According to the review, the pilot enabled 51 trades — accounting for more than 9.3 gigalitres — between 1998 and September 2000. The total value of these trades was more than \$9.9 million, with three trades individually worth more than \$1 million. More than 90 per cent of the water traded (more than 8.8 gigalitres) was transferred to South Australia.

The pilot was assessed in a two-year review of interstate trading (reported by the MDBC 2000). The review examined the net effect of the pilot and noted areas where progress or improvement could be made. The review findings included:

- that arrangements for interstate trade are improving;
- that administrative arrangements are an impediment to efficient trade and need to be streamlined;
- that interstate trading is increasing the value of water use in the Murray-Darling Basin;
- that interstate trade has had no measurable adverse social impact during the pilot;
- that environmental impacts are mixed. The environmental flow impact has probably been positive, while the salinity impact is expected to be negative;
- that exchange rates are poorly understood; and
- that mechanisms for enforcement need to be improved.

While going a long way to promote interstate trade, the Murray-Darling Basin Commission trial is restricted in both the area covered and the type of water rights that can be traded. Consequently, there are three issues governments will need to focus on in the future.

First, different types of water property rights exist within the basin. In some instances, inconsistent property rights could impeded interstate trade. A consistent approach to the key components of property rights, for example, security of tenure and security of water — is needed. Also needed is an exploration of opportunities to better define and specify the water property rights across the basin and to improve the exchange rate arrangements to reflect fully the extent of overallocation, security of tenure and the salinity impact. The Council notes the effort of the Murray-Darling Basin Commission in attempting to resolve some of these issues. In the 2002 NCP assessment, the Council will review the progress made in addressing concerns about property rights and, where relevant, check whether all jurisdictions have cooperated to resolve difficulties.

Second, the broader environmental impacts of trading will depend on the degree to which individual States set and enforce irrigation and drainage plans. The Murray-Darling Basin Commission and the member States need to consider further the best means by which to address environmental impacts of interstate trade.

Third, as the previous two issues are addressed, consideration needs to be given to expanding the pilot both in the area covered, and the types of licences that can be traded. For example, consideration is currently being given to the

creation of a second pilot zone between New South Wales and Queensland in the Border Rivers catchment.

Restoration of the Snowy River

The Snowy River is an Australian icon which has been degraded over the last 50 years as a result of the Snowy Mountains Hydro-electric Scheme. Its cultural, social and environmental values to the Australian community are immense and thus Governments have agreed that it is the top priority for restoration. The Victorian, New South Wales and Commonwealth Governments have agreed to restore this river with a combination of flow improvements generated by water saving projects and habitat improvements. The three governments have agreed to provide \$375 million over 10 years to achieve this.

National Benchmarking

States and Territories have established a national process to extend inter-agency comparisons and benchmarking. Benchmarking systems are in place for the non-metropolitan urban and rural sectors, *WSAA Facts* is to be used to benchmark major urban service providers.

All States and Territories are participating in benchmarking projects.

The Water Services Association of Australia has been benchmarking major urban water service providers for 6 years. The most recent report covers 1999-2000 data. *WSAA Facts* (2000) covers 21 water businesses and provides information on:

- customer profiles and water volumes;
- service performance including, health, environment, service delivery and pricing;
- infrastructure; and
- economic and financial performance.

For the non-metropolitan urban sector, a report is compiled by the Australian Water Association under the direction of the Non Major Urban Water Utilities Working Group. The second national benchmarking report for the non-metropolitan urban service providers covered 1998-99 data and was released early in 2000. The report provides information covering 67 utilities from all States and the Northern Territory. It includes information on:

- customer and utility profiles;
- prices and revenues;

- energy consumption for water supply and environment (for waste water);
- levels of service;
- operating costs; and
- whole of business performance summary.

In total the non-metropolitan urban and *WSAA Facts* benchmarking reports cover water services to 83 per cent of the Australian population.

For rural schemes the second industry benchmarking report, covering 1998-99 data was prepared by the Australian National Committee on Irrigation and Drainage and released in February 2000. The report provides comparisons of performance in four key areas:

- systems operation;
- environmental issues;
- business processes; and
- financial aspects.

The Australian National Committee on Irrigation and Drainage is continuing to improve and refine their approach to benchmarking. The report notes, however, that data collection and reporting processes are still being developed and, therefore, this limits the ability to compare information between the 1997-98 and 1998-99 reports. It appears that the industry has a strong commitment to this project, as there was a 40 per cent increase in the number of rural service providers participating in the rural benchmarking project.

National Land and Water Resources Audit

The audit is a program of the Natural Heritage Trust. It was set up in 1997 to help improve decision-making on land and water resource management in Australia. In 2000, the fourth water resources assessment was undertaken in partnership with Commonwealth, State and Territory agencies.

The national audit provides summary information at national, State and Territory and surface water basin and groundwater management unit levels. It also identifies gaps and monitoring requirements which need to be addressed in order to make more effective water resource management decisions.

The key outputs of the water resources audit are to better define Australia's surface and groundwater management areas. The audit also attempted to quantify the amount of water being used and how it is being used and allocated.

The audit found that:

- of Australia's surface water resources, 84 of 325 basins (25 per cent) are either fully allocated or overallocated in terms of sustainable flow regimes. Of the 325 surface water basins, 44 have formal allocations for the environment;
- of Australia's groundwater resources, 161 of 538 groundwater management areas are either fully allocated or overallocated in terms of the sustainable yield assessments;
- water use efficiency, recycling, trading and pricing are increasingly becoming priorities and provide opportunities for development. To support this shift in development emphasis, improved information on water use is essential;
- water availability is at the centre of economic development and environmental management; and
- it is essential that Australia capitalise on the data collection investment of States and Territories and the audit and put in place Australia wide assessment and reporting systems.

The National Land and Water Resources Audit also produced a *Dryland Salinity Assessment 2000* in collaboration with the States and Territories which defines the distribution and impacts of dryland salinity across Australia.

The dryland salinity assessment concluded:

- approximately 5.7 million hectares of Australia are within regions mapped to be at risk or affected by dryland salinity. It has been estimated that in 50 years time the area of regions with a high risk may increase to 17 million hectares (three times as much as now);
- some 20 000 kms of major road and 1600 kms of railways occur in regions mapped as high risk. Estimates suggest these could be 52 000 kms and 3600 kms respectively by 2050;
- salt is transported by water. Up to 20 000 kms of streams could be significantly salt affected by 2050;
- Areas of native vegetation (630 000 hectares) and associated ecosystems are within regions with areas mapped to be at risk. These areas are projected to increase by up to 2 000 000 hectares over the next 50 years; and
- Australian rural towns are not immune: over 200 towns could suffer damage to infrastructure and other community assets from dryland salinity by 2050.

National Action Plan for Salinity and Water Quality

On 3 November 2000, CoAG endorsed the Commonwealth's proposal for an action plan to address salinity, particularly dryland salinity, and deteriorating water quality issues. These issues are of major national significance and are appropriately handled through a national action plan.

Salinity and deteriorating water quality are seriously affecting the sustainability of Australia's agricultural production, the conservation of biological diversity and the viability of our infrastructure and regional communities. At least five per cent of cultivated land is now affected by dryland salinity – this could rise as high as 22 per cent. One third of Australian rivers are in extremely poor condition, and land and water degradation, excluding weeds and pests, currently costs approximately \$3.5 billion per year.

The Action Plan builds on the achievements of the Natural Heritage Trust, initiatives by individual State and Territory governments, the CoAG water reforms, and the work of the Murray-Darling Basin Commission.

The goal of the Action Plan is to motivate and enable regional communities to use coordinated and targeted action to:

- prevent, stabilise and start to reverse trends in dryland salinity affecting the sustainability of production, the conservation of biological diversity and the viability of our infrastructure; and
- improve water quality and secure reliable allocations for human uses, industry and the environment.

The national Action Plan will involve six elements, all of which are necessary to achieve lasting improvements over dryland salinity and deteriorating water quality:

1. targets and standards for salinity, water quality and associated water flows, and stream and terrestrial biodiversity agreed either bilaterally or multilaterally, as appropriate;
2. integrated catchment/regional management plans developed by the community and accredited jointly by Governments, in the 20 agreed catchments/regions that are highly affected by salinity, particularly dryland salinity, and deteriorating water quality;
3. capacity building for communities and landholders to assist them to develop and implement integrated catchment/region plans, together with the provision of technical and scientific support and engineering innovations;

4. an improved governance framework to secure the Commonwealth, State and Territory investments and community action in the long term: including property rights; pricing; and regulatory reforms for water and land use;
5. clearly articulated roles for the Commonwealth, State, Territory, local government and community to provide an effective, integrated and coherent framework to deliver and monitor implementation of the action plan; and
6. a public communication program to support widespread understanding of all aspects of the action plan so as to promote behavioural change and community support.

The action plan involves new expenditure by Commonwealth, State and Territory governments of \$1.4 billion over the next seven years. The Commonwealth's financial contribution of \$700 million for regional implementation of the action plan will be matched by new State and Territory financial contributions.

CoAG agreed that compensation to assist adjustment where property rights are lost will need to be addressed in developing catchment plans. While any such compensation is the responsibility of the States and Territories, the Commonwealth is prepared to consider making an additional contribution, separate from the \$700 million announced to implement the action plan.

National Objectives for Biodiversity Conservation

In June 2001, the Commonwealth, New South Wales, Victoria, South Australia, Western Australia and the ACT endorsed an overarching policy document that sets targets and objectives for national biodiversity conservation in Australia.

The objectives cover such areas as:

- protection and restoration of native vegetation and terrestrial ecosystems;
- freshwater ecosystems, marine and estuarine ecosystems;
- control of invasive species;
- integration of measures for dryland salinity;
- promotion of ecological sustainable grazing;
- minimisation of the impact of climate change on biodiversity;
- maintenance of the biological knowledge held by indigenous people;

- improvement in scientific knowledge and access to scientific information; and
- introduction of institutional reform in integrated regional management and review and remove any legislative impediments to biodiversity conservation.

High Level Steering Group

The High Level Steering Group on Water provides a good example of intergovernmental cooperation in water reform. The group is set up under the Agriculture and Resource Management Council of Australia and New Zealand and comprises representatives of the agriculture and environment agencies of the Commonwealth and Australian State Governments.

This group's role is to help maintain the impetus of the CoAG water reforms, by reporting to the Agriculture and Resource Management Council of Australia and New Zealand and the Australian and New Zealand Environment and Conservation Council on progress in implementing reform. Importantly, the High Level Steering Group is also involved in valuable work to assist in implementation of the water reforms. This has included commissioning research on key reform issues such as costing and charges for externalities, establishing a consistent national approach to water trading, institutional approaches to water resource management, water for the environment and opportunities for improved management of groundwater. It is intended that, once finalised, these papers will be available on the Commonwealth Department of Agriculture Fisheries and Forestry website.

The Council's approach to assessing progress

The Council's approach to assessing the water component of the 2001 NCP assessment has recognised the complexity of the issues and the level of detail and breadth of the agreements. This assessment needs to accommodate the fact that each State and Territory faces different problems and has started with different sets of environmental and institutional characteristics.

The Council based its 2001 assessment on information provided by State and Territory Governments, its own research, and other reports including:

- The Australian Urban Water Industry (WSAA Facts);
- The National Land and Water Resource Audit Assessment of Water Resources 2000; and

- work by the High Level Steering Group on Water.

Stakeholders have also had a substantial input into this assessment. The Council received 10 submissions from irrigators and environmental groups. None of these submissions questioned the need for reform, or the underlying objectives of the water agreements. Generally, the submissions discussed the process and speed of reform and which aspects of the reform package should be given priority. However, there is universal recognition that appropriate water reforms are fundamental to Australia's future.

To facilitate a broad understanding of the Council's approach and to enable interested stakeholders to provide submissions the Council released a framework for the 2001 NCP assessment in February 2001.

The CoAG water reform agreements generally provide very broad descriptions of the water reform obligations. Because of this, the framework developed a more detailed explanation and interpretation of the water reform obligations. The framework did not redefine the commitments determined by CoAG, rather it's aim was to:

- provide a clear, transparent basis for assessment particularly in relation to matters considered in previous assessments;
- identify the type of information that jurisdictions should provide to demonstrate compliance; and
- provide a basis for early identification and bilateral discussion of areas where achieving reform outcomes is proving difficult.

The assessment framework is at appendix A to this document.

To further assist informed debate the Council also released seven discussion papers (see box 1). The discussion papers are available on the Council's website.

In this report the Council has provided comprehensive coverage of the water reform assessment issues identifying current and future issues and providing sufficient information to inform stakeholders of the reasons for the assessment.

Box 1: Background information papers on water reform commitments

Rural water pricing - covers full cost recovery in the rural sector including CSOs and positive rates of return.

New investment in rural water infrastructure - discusses a methodology to assess the economic viability and ecological sustainability of new investments in this area.

Institutional reform issues in the water industry - discusses why regulation is important and examines the potential for conflicts of interest between regulation and service provision and arrangements to deal with these.

Environmental requirements of the CoAG Water Reforms (paper prepared with the assistance of Environment Australia) - outlines the national agreements on the environment that may be useful as a guide in reporting progress against the environmental requirements of the water framework.

Implementing the National Water Quality Management Strategy (paper prepared by Environment Australia and the Department of Agriculture Fisheries and Forestry Australia in consultation with State and Territory government agencies) - the Commonwealth, after consultation with States and Territories, has proposed that implementation of the guidelines should be assessed through a two yearly review process. This paper provides a list of the component modules of the National Water Quality Management Strategy guidelines and their current status. The Council will be looking to jurisdictions to show how the guideline principles have been adopted in the 2001 NCP assessment and subsequent assessments.

Defining water property rights - discusses the specification of water property rights so as to promote efficient and sustainable investment and trade.

Water reform and legislation review - outlines the status of legislation reviews of relevant water legislation for each jurisdiction based on a stocktake report conducted by Marsden Jacob consultants.

Murray–Darling Basin Commission

The Murray–Darling Basin is Australia’s largest and most developed river system. It covers more than one million square kilometres of land from southern Queensland through to the River Murray mouth in South Australia. It incorporates 75 per cent of Australia’s irrigation and underpins more than 40 per cent of Australia’s gross value of agricultural production.

The Murray–Darling Basin Commission manages the River Murray System and advises the Murray–Darling Basin Ministerial Council on matters related to the use of water, land and other environmental resources of the Basin. It provides bulk water services to New South Wales, Victoria and South Australia through its business-oriented internal unit, River Murray Water. The Ministerial Council consists of Ministers for land, water and the environment of each of the contracting governments: the Commonwealth, New South Wales, Victoria, Queensland, South Australia and the ACT.

Progress on reforms

Pricing and cost recovery

The Murray–Darling Basin Commission has completed an internal review of its revised cost-sharing arrangements across New South Wales, Victoria and South Australia. The revised cost-sharing arrangements were first adopted in 1998-99 and will continue through 2000-01. They are expected to reflect the level of services provided to these States and thus reduce the cross-subsidies in the pricing structure. The internal review of the revised cost sharing arrangements is due for an independent audit, which is expected to be completed before the end of 2001. In the 2002 NCP assessment, the Council will look at the recommendations of the audit and the response of the Murray–Darling Basin Commission and the Murray–Darling Basin Ministerial Council to these recommendations.

River Murray Water recovers the operational, maintenance and administration costs of providing water to New South Wales, Victoria and South Australia under the Murray–Darling Basin Agreement. The Council considers that the cost of asset refurbishment and replacement, to be consistent with agreed CoAG pricing guidelines, would need to be included within the costs of service provision of River Murray Water. River Murray

Water also recovers 75 per cent of the costs of refurbishment and replacement from the three States. The Commonwealth pays the remaining 25 per cent as part of its contribution. The treatment of asset consumption is less than ideal and should be more explicit and transparent in River Murray Water costs.

The Council is satisfied that the Murray–Darling Basin Commission has complied with minimum water pricing and cost-recovery commitments for the 2001 NCP assessment. The Council will further assess cost recovery, particularly the treatment of asset consumption, in light of the proposed independent audit of the internal review of cost-sharing arrangements.

Institutional reform

The Council concluded in its second tranche NCP assessment that the Murray–Darling Basin Commission had met the institutional reform commitments, with the creation of River Murray Water as a ring-fenced business unit within the Commission. However, the Council noted the strong need for independent prices oversight. Progress on this issue has been slow. Although, the independent pricing audit will assist in the Murray–Darling Basin Commission meeting these commitments.

In future assessments the Council will look at the outcomes of the independent pricing audit and for pricing audits to occur periodically to ensure the transparency and rigour necessary for efficient pricing-setting arrangements. The Council will also continue to monitor the appropriateness of the current ring-fenced arrangements in the light of ongoing changes in the structure and regulation of the water industry in general. The Council is satisfied that the Murray–Darling Basin Commission has complied with institutional reform commitments for the 2001 NCP assessment.

Allocation

The cap on diversions from the basin continued to make an important contribution to ensuring environmental flows. The Ministerial Council formally adopted the cap on diversions in August 2000 as part of the Murray–Darling Basin Agreement. The cap is now legally enforceable. Under the Agreement, States' water allocations are independently audited each year and any breaches of the cap are declared by the Commission and referred to the Ministerial Council.

New South Wales, Victoria and South Australia have continued their commitment to implementing the cap. Queensland is expected to adopt the cap by June 2001. The ACT cap is being negotiated.

The Murray–Darling Basin Commission recently completed the first five-yearly review of the operation of the cap. According to the review, the current cap on diversions does not reflect a sustainable level of diversions and may

not guarantee the river ecosystem health. The Council notes a strong case for the cap to be tightened over time, based on the findings of the review. The continuing analysis and scientific studies on the cap, environmental flows and the river ecosystem health will shed more light on these issues.

According to the National Land and Water Audit 2000, all rivers in the basin (except the Ovens River in Victoria) are stressed. The Murray–Darling Basin Commission advised that it is committed to providing environmental flows as opportunities arise and on the basis of the best scientific advice on the potential impacts. It commenced a project — the environmental flows and water quality objectives for the river Murray — aimed at establishing water quality and environmental flow objectives and a flow regime to achieve them. The Council will continue to monitor the progress of this and similar projects in future assessments.

In its second tranche NCP assessment the Council noted the work of the Murray–Darling Basin Commission and the Murray–Darling Basin Ministerial Council in progressing interstate trade through the pilot project. The Council was satisfied that the second tranche reform commitments had been met.

Trading

After two years of operation of the pilot water-trading project, the project recently underwent a review. The review focused on two major areas: the administration of the project and the economic, environmental and social impacts of trading. It also highlighted the need for improvements in the administrative arrangements of the pilot project. Improvements to licence registration arrangements and record-keeping procedures and the separation of volumetric trading from access or environmental consideration are examples of where efficiency gains could be found, according to the review. Further, the buyers and sellers in the market poorly understand exchange rates, so there is a need for improved communication.

From an economic perspective, the review confirms that interstate trading is increasing the value of water use in the basin. From a social perspective, interstate trading during the two-year trial period had no measurable adverse social implication for the districts that sold water interstate. From an environmental perspective the review findings are qualified: the environmental flow impact of trading was probably positive but very small. Progress is required in three key areas in relation to water allocation and trading — namely, ensuring the consistency of property rights, managing the environmental impact of trading, and improving the administrative aspects of the pilot project.

Different types of water property rights exist within the basin. In some instances, inconsistent property rights could impede interstate trade. A consistent approach to the key components of property rights, for example, security of tenure and security of water — is needed. Also needed is an

exploration of opportunities to better define and specify the water property rights across the basin and to improve the exchange rate arrangements to reflect fully the extent of overallocation, security of tenure and the salinity impact. The Council notes the effort of the Murray–Darling Basin Commission in attempting to resolve some of these issues. In the 2002 NCP assessment, the Council will review the progress in addressing concerns about property rights and where relevant, check whether all jurisdictions have co-operated to resolve difficulties.

The broader environmental impacts of trading will depend on the degree to which individual States set and enforce irrigation and drainage plans. The Murray–Darling Basin Commission and the member States need to consider further consider the best means by which to address environmental impacts of interstate trade. The Council will reconsider the issue of the environmental impacts of water trade in future assessments.

Concerns have been raised regarding the administration of water trade, particularly the time taken to effect trade. This is another area where administrative improvements are required to facilitate efficient and timely functioning of the pilot trading project. Overall, the Council is satisfied that the Commission has complied with water allocation and trading reform commitments for the 2001 NCP assessment.

Environment and water quality

The Murray–Darling Basin Commission released an *Integrated Catchment Management Policy Statement* (June 2001), that sets a 10-year agenda and outlines a strategy to set targets for catchment health and build the capacity of the community and governments to achieve those targets. The targets will cover water quality (salinity and nutrients), water sharing (consumptive and environmental flows), riverine system health and terrestrial biodiversity. The Council applauds the vision encapsulated in the policy statement.

The Commission continues to implement the National Water Quality Management Strategy standards and procedures associated with nutrient pollution in the Basin. It is also moving from a facilitation role to setting salinity targets for every end-of-valley in the Basin. The Council is satisfied that the Murray–Darling Basin Commission has complied with environment and water quality reform commitments for the 2001 NCP assessment.

Consultation and education

The Murray–Darling Basin Commission undertook extensive consultation and education in relation to various aspects of natural resource management issues, including water reforms. More recent areas of wider consultation and communication relate to the development of the Integrated Catchment

Management Strategy and the Basin Salinity Management Strategy. The ongoing consultation involves all relevant stakeholders.

In all major initiatives the Commission has adopted a generic communication strategy involving stakeholder/government partnerships and ongoing stakeholder participation. As part of the pilot program on interstate water trading, the Commission has promoted trading and its benefits through publications and media coverage. The Council is satisfied that the Murray–Darling Basin Commission has complied with public education and consultation reform commitments for the 2001 NCP assessment.

Assessment

The Council is satisfied that the Murray–Darling Basin Commission has met reform commitments required for the 2001 assessment. The Council acknowledges the Commission’s high degree of commitment to, and progress in water reforms.

Rural water services

For the purposes of water pricing the Council has defined the rural supply sector to include all water supply services other than those supplied to urban or non-metropolitan urban customers. A broad definition has been adopted to achieve a comprehensive application of pricing reform across the Australian water and wastewater industry. Under this definition, CoAG rural water pricing commitments apply to such activities as:

- services provided by government-owned irrigation schemes and government-owned bulk water supply services to users in non-urban areas, such as private irrigation schemes, power stations and processing/mining plants; and
- licence fees set for commercial users extracting surface water or groundwater using their own infrastructure.

The Murray–Darling Basin Commission provides bulk water services to States through its business oriented internal unit, River Murray Water. The total budget of River Murray Water was \$35.8 million in 1999-2000, increasing to \$42.3 million in 2000-01 (MDBC 2000a). The budget is based on contributions from New South Wales, Victoria and South Australia on an agreed funding formula. The Commonwealth contributes to the investigation and construction of new and existing infrastructure, for example, Home Remedial Works, but not to the operations and maintenance of existing infrastructure.

During 1999–2000 a range of options were considered to improve the operation of River Murray Water. The aim was to address the volatility of annual capital expenditure inherent in the present annual cash operations of the Murray–Darling Basin Agreement and to improve arrangements to recognise and account for the asset consumption of the substantial asset base.

Full cost recovery

Governments have agreed to set prices so that water and wastewater businesses earn sufficient revenue to ensure their ongoing commercial viability but to avoid monopoly returns. To this end governments agreed that prices should be set by a jurisdictional regulator (or its equivalent) to recover:

- at most the operational, maintenance and administrative costs, externalities, taxes or tax equivalent regimes, provision for the cost of asset consumption and cost of capital, the latter being calculated using a weighted average cost of capital; and
- at least, the operational, maintenance and administrative costs, externalities, taxes or tax equivalent regimes (not including income tax), the interest cost on debt, dividends (if any) and make provision for future asset refurbishment/replacement. Dividends should be set at a level that reflects commercial realities and stimulates a competitive market outcome.

Asset values should be based on the deprival methodology unless an alternative approach can be justified and an annuity approach should be used to determine medium to long term cash requirements for asset replacement/refurbishment. Governments can still provide assistance to special needs groups through community service obligations but this should be done in a transparent way (clauses 3a and b).

MDBC arrangements

Under the terms of the Murray–Darling Basin Agreement, the Commission recovers the costs of operating, maintaining and upgrading and acquiring assets. Current arrangements ensure that the costs borne by the States relate to the level of service received from River Murray Water and effectively are a surrogate for a price-for-service concept based on full cost-recovery principles.

River Murray Water also recovers 75 per cent of the costs of refurbishment and replacement from the three States. The Commonwealth pays the remaining 25 per cent as part of its contribution. The cost of any major new assets, such as dams and weirs, would be excluded from costs and recovered through an agreed funding formula.

Commercial viability

River Murray Water operates on a budget funded by the Murray–Darling Basin Commission member Governments. It does not aim to earn a profit, but does aim to ensure the ongoing viability of its activities. The budget contributions for 1999–2000 and 2000–01 were \$35.8 million and \$42.3 million respectively.¹

¹ These amounts include \$1.5 million in 1999–2000 and \$1.6 million in 2000–01 for other income (for example, interest and income from hydro-generation).

Tax-equivalent regimes

The Murray–Darling Basin Commission is exempt from all forms of taxation except fringe benefit tax and the goods and services tax. Income or company tax is generally not payable, because River Murray Water does not make a profit. As such, River Murray Water does not make an allowance for a tax-equivalent regime.

The Murray–Darling Basin Commission has advised that the main reason for River Murray Water not paying tax is because it is exempt under provisions of the Murray–Darling Basin Agreement. Even though it aims to break even, it could be subject to tax if asset consumption were measured on the basis of historical cost depreciation.

Externalities

The River Murray Water does not recover any external costs (or benefits) associated with the provision and operation of water supply infrastructure and services. However, projects such as salt-interception schemes and the Commission's expenditure on basin sustainability and natural resource management could be considered as a means to internalise externalities, to the extent that these costs are passed on to the end users.² For example, River Murray Water recovers the costs of river channel management and maintenance, forest water management, protection of cultural heritage works and the costs of construction, operation and maintenance of salinity mitigation schemes.

Costs that are not passed on to end-users could be considered to be an investment made in the interests of the wider community. If government expenditure on external costs is greater than what is reflected in the gains to the wider community, then end users do not receive a clear price signal that reflects the full cost of water use. While this pricing arrangement does recover the cost of addressing the broader effects of water use, it does not alter the practices that may have caused the externality in the first place. The degree to which each of the States passes these costs through to the end users is considered under the pricing sections of the individual state assessments.

Assets

Infrastructure assets used for the storage and distribution of bulk water and for related activities were constructed with funds provided by the Commonwealth and the States. The value of these assets was determined during 2001 to have a current replacement cost of \$1.6 billion.

² The Commission's expenditure on basin sustainability and natural resource management was \$21.3 million in 1999–2000 and 2000–01.

River Murray Water does not own these assets; rather, the constructing authority holds them in trust on behalf of the Commission. Consequently, River Murray Water's accounts reflect neither their value nor their consumption. Rather, River Murray Water provides financial reports to its owners that include notional values for these assets and their consumption.

While River Murray Water does not own the assets, it is responsible for their maintenance and operation, which it contracts to the State constructing authorities. It makes explicit provision for maintenance and operating costs but does not include explicit provision for renewals. However, the Murray–Darling Basin Commission stated that an internal review found that the Commission's revenue and investment in maintenance was sufficient to cover a renewals annuity. The Murray–Darling Basin Commission advises that River Murray Water makes provision for renewals through the recovery of investigations and construction expenditure. Amounts collected by River Murray Water for Investigations and Construction are currently in excess of the amount that would be required for a renewals annuity.

River Murray Water also has in place measures for the long-term management of water supply assets, including:

- an asset register;
- detailed descriptions of services to be provided by constructing authorities;
- component-level valuations for all infrastructure assets, including estimated residual life;
- a 100-year capital works profile based on these condition assessments and estimated life-cycle capital costs;
- an asset management software information system to store and integrate the data, to produce the required reports and to generate a renewals annuity; and
- a preliminary portfolio risk assessment.

These tools will be refined over coming years to ensure accuracy and reliability.

Rate of return

The Murray–Darling Basin Commission does not aim to earn a rate of return on the value of assets. However, the amount by which investigations and construction expenditure exceeds that required for a renewals annuity represents a return on assets.

Dividends

The Murray–Darling Basin Commission is a non-profit organisation and does not aim to provide a commercial dividend or return to the funding Governments. In 1999–2000 it recorded a surplus of \$298 000, which will be refunded to the contracting Governments.

Discussion

The Council notes the Murray–Darling Basin Commission’s progress in the application of full-cost recovery principles. Consistent with the lower band of the agreed pricing guidelines, River Murray Water recovers operational, maintenance and administration costs. River Murray Water also recovers investigation and construction expenditure. It has no debt, so there are no interest costs and there is no provision for dividends.

The Council considers that River Murray Water’s current treatment of asset consumption is less than ideal. The provision for asset replacement or refurbishment is a clear requirement of clause 3(d)(vi), which states:

... in the case of the Murray–Darling Basin Commission, to the Murray–Darling Basin Ministerial Council putting in place arrangements so that, out of charges for water, funds for the future maintenance, refurbishment and/or upgrading of the headwork’s and other structures under the Commission’s control be provided; (CoAG 1995)

However, the consumption of the Murray–Darling Basin Commission’s water supply assets has not been explicitly included in determinations of River Murray Water’s costs. With the Murray–Darling Basin Commission’s water supply assets valued at \$1.6 billion in 1999–2000, the depreciation of these assets is a significant cost to the business that is not included within the pricing structure. This potentially places the Murray–Darling Basin Commission in breach of the above requirement.

As indicated above, River Murray Water does include the costs of replacement and refurbishment in its pricing structure. All costs incurred directly by River Murray Water are recovered from the customer States after taking account of the Commonwealth contribution to investigation, construction and administration expenditure.

The Council notes that the internal review found that although there is no annuity, the Murray–Darling Basin Commission’s revenue was sufficient to cover a renewals annuity. It also notes progress by River Murray Water in improving asset management procedures and tools. These tools allow River Murray Water to gain an accurate understanding of the likely value for future refurbishment and replacement needs. However, the Council considers that asset consumption should be given a more explicit, proactive and transparent treatment in River Murray Water’s costs.

As noted in the second tranche NCP assessment, the Council believes that the Commission should have more transparent price regulation and that the Ministerial Council should not act as a price regulator. As such, the Council strongly supports the decision of the Commission to have an independent audit of funding arrangements for water supply services. The Council understands that there has been a delay in the implementation of this audit due to restrictions on the availability of the selected independent auditor. However, the audit is expected to commence in June 2001 and the results are likely to be available for report to the Ministerial Council at its meeting later in 2001. The Council will make a further assessment of this issue in 2002.

The Council will examine whether the independent audit, as noted above, considers asset management issues. It will also check whether appropriate mechanisms for the financial management of River Murray Water assets are established following this audit. Further, the Council will look for the independent audit to consider River Murray Water's treatment of taxation.

Assessment

To bring the River Murray Water into line with the agreed pricing principles, the costs of asset refurbishment and replacement would need to be included within the costs of service provision. The Council notes that independent audit of the funding arrangements of River Murray Water should go a long way to resolving these issues. The Council also notes that River Murray Water recovers sufficient funds to provide for an asset annuity. As such, the Council finds that the Murray–Darling Basin Commission has met the minimum requirements of the 2001 assessment. However, the Council will re-examine this issue in June 2002 to ensure the proposed independent audit of cost-sharing arrangements occurs and that the issue of future asset financial management is addressed in a transparent manner.

Consumption-based pricing

Governments have endorsed the principle that prices should reflect the volume of water supplied so that prices encourage more efficient water use and to give customers more control over the size of their water bill. For urban water providers using surface or groundwater, two-part tariffs (comprising a fixed access component and a volumetric cost component) are to be introduced where cost effective (clauses 3a and b).
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MDBC arrangements

From 1 July 1998 a new pricing system was adopted to link more closely payment with service provided. In terms of operations and maintenance, River Murray Water calculated the proportion of costs that each jurisdiction is to meet, based on the deliveries of water to each State and the security of these deliveries. Table 1 outlines this breakdown.

Table 1: State proportions of River Murray Water costs

<i>State</i>	<i>Percentage of costs</i>
New South Wales	40
Victoria	36
South Australia	24

Source: NCC 1999

The Murray–Darling Basin Commission noted that the revised system is based on the long-term outcome of a two-part tariff-based pricing system. The current Murray–Darling Basin Agreement does not provide for the implementation of such a tariff.

In the case of investigation and construction of new infrastructure, the Commonwealth contributes 25 per cent of costs, with the remaining 75 per cent funded under the above funding formula. Cost shares for salt-interception schemes are shared equally.

Discussion

The Council commends the objective identified by the Murray–Darling Basin Commission (and noted in the second tranche assessment) of moving towards a two-part tariff-based pricing system. Such a system will allow for the correct pricing signals to be sent to the member States and for simple translation into State-based pricing systems of the same design. However, the Council notes that the introduction of a two-part tariff pricing system will require a change to the Murray–Darling Basin Agreement.

In the interim, the Murray–Darling Basin Commission and River Murray Water have implemented a charging system that reflects the overall proportion of water delivered to each State. This system is a distinct improvement on the previous system of equal shares for the States and more closely reflects the cost of services received.

Assessment

The Council concludes that the Murray–Darling Basin Commission has made significant progress in meeting this commitment for the 2001 assessment. The current arrangements demonstrate a commitment to consumption-based pricing, with an objective of a two-part tariff. The Council will revisit this issue in June 2002 to assess progress towards this objective.

Community service obligations

Where service deliverers are required to provide water services to classes of customers at less than full cost this cost be fully disclosed and ideally be paid to the service deliverer as a CSO. Governments have agreed that the Council would not make its own assessment of the appropriateness of any individual CSOs but would review information provided by governments in totality to ensure that these CSOs do not undermine the objectives of the agreed water reform framework (clause 3a).

MDBC arrangements

The Murray–Darling Basin Commission provides water services on a cost-recovery basis. The Murray–Darling Basin Commission and River Murray Water’s only clients are the member States. No community service obligations are provided for River Murray Water services.

Assessment

The Murray–Darling Basin Commission has met this reform commitment for the 2001 assessment.

Cross-subsidies

Cross-subsidies should be transparently reported and ideally removed where they are not consistent with efficient service provision and use (clause 3a).

MDBC arrangements

As noted above, from 1 July 1998 the Murray–Darling Basin Commission adopted a new pricing system that more closely reflected the service received. This system, and the formula to determine State contributions, is discussed in the section on consumption-based pricing.

Assessment

By adopting arrangements that result in prices more accurately reflecting the service received, the Commission has reduced the cross-subsidies in the pricing structure. The adoption of a two-part tariff is the next logical step in the removal of cross-subsidies. The Council is satisfied that the Commission has met this reform commitment for the 2001 NCP assessment.

Institutional reform

Structural separation

As far as possible the roles of water resource management, standards setting and regulatory enforcement and service provision should be separated institutionally by 1998 (clauses 6c and d).

MDBC arrangements

As noted in the Council's second tranche NCP assessment the Murray–Darling Basin Ministerial Commission established a ring-fenced water business by creating River Murray Water as an internal business division.

River Murray Water is responsible for directing the operation, management and renewal of River Murray Water and lower Darling system water management works and the joint salt interception schemes of the Murray. Its prime function is to provide shares of water to New South Wales, Victoria and South Australia under the Murray–Darling Basin Agreement.

River Murray Water controls assets valued at \$1.6 billion, which the basin States hold on its behalf. It contracts out the operations and maintenance of these assets back to the constructing authorities in each of the States. The River Murray Water also contracts refurbishment, replacement and construction of new facilities to the State constructing authorities.

The Murray–Darling Basin Commission has also focused on the means of achieving effective transparency in price setting. It undertook an internal review of its cost-sharing arrangements for headworks operations. As a result of this internal review, at the March 2001 meeting, the Ministerial Council decided to continue revised cost-sharing arrangements for 2001–02. These arrangements commenced in 1998–99 and changed the cost distributions between New South Wales, Victoria and South Australia to match more closely the level of service provided to each of these States. The Murray–Darling Basin Commission indicated that it intends to have this internal review independently audited. This audit has been delayed but is expected to commence in June 2001 (see the section on full cost recovery).

Discussion

The Council has considered two broad areas of regulation when looking at institutional arrangements for the Murray–Darling Basin Commission:

- economic regulation and service standards; and
- resource allocation, water management and environmental regulation.

The ring-fencing of River Murray Water addressed the issues of separating resource allocation, water management and environmental regulation from service provision. The Council's second tranche NCP assessment concluded, given the unique role of the Murray–Darling Basin Commission in providing water services to New South Wales, Victoria and South Australia, that the ring-fencing of service provision from the functions of the Murray–Darling Basin Commission was just sufficient to meet commitments under the CoAG water framework. Also, in the second tranche NCP assessment the Council noted the need for independent prices oversight and concluded that it is insufficient for the Ministerial Council to operate as the price regulator. The Council indicated that it would consider this issue further in its 2001 assessment.

The Murray–Darling Basin Commission has committed to a process that could allay the Council's concerns about price setting. The independent audit will need to provide a transparent system of analysing the Murray–Darling Basin Commission pricing to give stakeholders confidence in the rigor and objectivity of the price-setting process. However, it is difficult to assess transparency because the accounts of River Murray Water are not publicly reported separate from the Murray–Darling Basin Commission's other activities. River Murray Water results are reported separately to the owners of the business (who are also the direct customers).

Assessment

The Council considers that the Murray–Darling Basin Commission progressed price-setting issues with the internal review, but not sufficiently to meet water reform commitments. While the Murray–Darling Basin Commission has mechanisms in place that may address these issues. Progress has been slow. Therefore, by the 2002 assessment, the Council will expect the independent audit to be completed. The Ministerial Council to have addressed any issues raised in that audit, and sufficient information to be available to stakeholders to understand the audit's recommendations and how the Murray–Darling Basin Commission responded to those recommendations. In this context, the Council will also examine transparency in reporting River Murray Water's accounts.

In future assessments, the Council will continue to review whether the ring-fenced structure is still appropriate, given the outcomes of the independent audit and changes in the structure and regulation of the water industry generally. Also, the Council will look for pricing audits to occur periodically to continue to provide the transparency and rigor necessary for strong price setting arrangements.

Allocation

Water allocations and the environment

Jurisdictions must establish a sustainable balance between the environment and other uses, including formal provisions for the environment for surface water and groundwater consistent with the ARMCANZ/ANZECC national principles.

Best available scientific information should be used and regard should be had to the intertemporal and interspatial water needs of river systems and groundwater systems.

For the third tranche, States and Territories have had to demonstrate substantial progress in implementing their agreed and endorsed implementation programs. Progress must include at least allocation to the environment in all river systems that have been overallocated, or that are deemed to be stressed. By 2005, allocations and trading must be substantially complete for all river systems and groundwater resources must be identified in implementation programs.

Jurisdictions are to consider environmental contingency allocations, with a review of allocations five years after they have been initially determined (clauses 4b to f).

MDBC arrangements

The cap

In response to the continuing growth on diversions and declining river health in the basin, the Ministerial Council agreed in 1997 to a cap on diversions from the basin. The cap sets an upper limit on the amount of water that could be taken from the river system. It is the volume of water that would have been diverted under 1993–94 levels of development. In unregulated rivers, the cap may be defined as an end-of-valley flow.

The primary objectives of the cap are to maintain and, where appropriate, improve existing flow regimes, to protect and enhance the riverine environment and to achieve sustainable consumptive use by developing and managing basin water resources to meet ecological, commercial and social needs. The cap is an essential first step in establishing management systems to achieve healthy rivers and sustainable consumptive uses. It represents a balance between the significant economic and social benefits that have been obtained from the development of the basin's water resources on one hand and the environmental uses of river water on the other.

The Ministerial Council formally adopted the cap on diversions in August 2000, as schedule F to the Murray–Darling Basin Agreement. The member Governments have tabled this schedule in their respective parliaments and the cap is now legally enforceable. Under schedule F, the States' water allocations are independently audited each year and any breaches of the cap are declared by the Murray–Darling Basin Commission and referred to Ministerial Council. The 'make good' provisions have been revised in the

schedule. New South Wales, Victoria and South Australia operate under the cap now, and Queensland indicated its intent to finalise the cap by June 2001 and to enter into the same compliance arrangements as those of the other States by December 2002. The ACT has also indicated its intention to finalise the cap.

The 1999–2000 review of cap implementation (MDBC 2001) was completed, finding that:

- South Australia’s diversions in 1999–2000 were within the cap;
- Victorian diversions in 1999–2000 were below the climate adjusted cap, and cumulative diversions were in credit for all systems;
- New South Wales exceeded the cap in 1999–2000. The Border Rivers and Gwydir Rivers catchments have exceeded the climate-adjusted cap in these valleys in that year. The excess above the cap in the Barwon–Darling was balanced by the below cap results for the Lower Darling. Because the cap is now a schedule attached to the Murray–Darling Basin Agreement, those regions where New South Wales is over the cap will need to come back into balance over the next year, so on average the State complies with the cap;
- the 1999–2000 report for Queensland noted further growth in on-farm storages, with the lower Balonne alone increasing by 340 gigalitres (including an estimated 140 gigalitres previously unaccounted for). A moratorium notice was issued under the *Water Act 2000* for the Condamine–Balonne and Border Rivers catchment, which limits growth in diversions and the construction of new storages. Additional assessments are underway to address issues previously identified by the Independent Audit Group of the Murray–Darling Basin Commission. This includes Queensland Environmental Protection Agency assessment of the Condamine–Balonne Environmental Flows technical report and draft Water Resource Plan and the modelling of downstream impacts of the Condamine–Balonne and Moonie Water Resource Plans;

Queensland will apply the cap before the Condamine–Balonne Water Resource Plan is finalised in September 2001. The cap will be Queensland’s policy on diversion targets for the Murray–Darling Basin Commission catchments. The Water Resource Plans for the Condamine–Balonne and the Border Rivers will be finalised under the cap policy statement; and

- while no cap exists for the ACT, net diversions of 26.5 gigalitres in 1999–2000 were below the long term average usage of 30 gigalitres and a possible cap of 38 gigalitres. The Internal Audit Group suggested that consideration be given to an interim cap of 61 gigalitres of non-tradeable entitlement. Once the trading rules are agreed for the Murrumbidgee to the satisfaction of the ACT, the Independent Audit Group recommended a final fully transferable cap of 38 gigalitres. Trading rules should be developed by mid-2001 to enable finalisation of the ACT Cap.

Assessment

Review of the operation of the cap

The Council has continued to monitor implementation of the Murray–Darling Basin Commission cap and has previously noted the contribution of the cap to ensuring environmental flows.

The Murray–Darling Basin Commission recently completed the first five-yearly review of the operation of the cap, which concluded:

The Commission saw no evidence to provide them with certainty that the cap on diversions at its current level represents a sustainable level of diversions. The current level for the cap on diversions is just the level that existed at the time it was decided that a limit needed to be introduced...While the cap does not necessarily provide for a sustainable Basin ecosystem, it has been an essential first step in achieving this outcome... The Commission realises that the consequences of the current levels of diversions under the cap may not be known for several decades. As such, the Commission concludes that the degradation caused by the current level of diversions (the cap) may well become more severe than is now apparent. (MDBC 2000a, p.14)

Subsequently, the Murray–Darling Basin Commission has advised that it accepted the findings from the five-year review that the current level of allocation is not necessarily sustainable and may not guarantee river ecosystem health. The Murray–Darling Basin Commission is handling this matter in several ways:

- continuing to support the scientific studies that will provide the knowledge for future decisions on the level of consumptive use;
- embarking on a long term program of setting targets for river ecosystem health, and auditing progress against them, under the Ministerial Council Integrated Catchment Management Policy Statement (see the section on environment and water quality);
- starting a project on environmental flow management and water quality objectives and advising the Ministerial Council on options for the River Murray and lower Darling;
- employing an environmental manager to work within the Murray–Darling Basin Commission to advise on options to best manage environmental water and to work with River Murray Water in delivering those outcomes; and
- developing and implementing a sustainable rivers audit to independently evaluate and report changing river conditions over time.

In October 2001, the Ministerial Council will consider options arising from the environmental flows and water quality objectives project. These options may include cap reduction but, importantly, will also include other operational and structural options for improving environmental outcomes at different cap levels.

While the review concluded that the cap is an important intervention and can be credited with significant economic and social benefits, it also noted that other water resource issues need to be effectively managed to ensure the integrity of the cap. The issues identified are farm dams, plantation forests and groundwater management.

To address these issues, the Murray–Darling Basin Commission commissioned studies to examine the impacts of land use changes (including plantation forests) on water resources. The Murray–Darling Basin Commission can intervene where such developments may impact on the water resources of Murray and lower Darling rivers. The Murray–Darling Basin Commission is also evaluating the case for a groundwater management strategy, by gathering information and reporting on the status of groundwater resources.

While the Council has applauded the considerable contribution of the cap to ensuring environmental flows, it has continued to raise the concerns noted by the Independent Audit Group with jurisdictions in assessing individual compliance with the cap. However, the Council also notes the conclusion of the five-year review that there is no reason to believe the present level of the cap is sustainable, and considers there is a compelling case for the cap to be tightened over time. The Council is satisfied that the Murray–Darling Basin Commission has met its commitments for this assessment.

Provision for the environment

Environmental flows for the Murray River

The National Land and Water Audit 2000 showed that all rivers in the Murray–Darling Basin (exception of the Ovens River in Victoria) are stressed. Within the terms of the Murray–Darling Basin Agreement and in addition to the environmental flow initiatives of the States, the Murray–Darling Basin Commission commenced a project to establish water quality and environmental flow objectives and a flow regime to achieve them for the shared resources of the River Murray and the lower Darling. The policy is expected to have future ramifications for environmental allocations and is likely to involve changes in flow management, modifications to structural works, changes to river operations, and the establishment of flood easements.

The Ministerial Council is considering the serious degradation issues affecting the mid and lower Murray, along with options for delivering more

water to the environment as part of this project. The Ministerial Council adopted the first round of actions at its meeting in March 2001 and agreed to develop an options paper for consideration at the meeting of October 2001. At this meeting, the Ministerial Council will have to consider the level of trade-off between environmental allocation and consumptive use that it is prepared to accept, before the project enters a further stage with widespread community consultation in 2002.

The Barmah–Millewa Forest and the lower Murray

Taking full advantage of the moderate flood on the River Murray in October – November 2000, the Murray–Darling Basin Commission augmented that flood with environmental allocations to the Barmah–Millewa Forest and to the lower Murray. The Barmah–Millewa allocation drew on three years of stored water in the Hume Dam and totalled 340 gigalitres. The Barmah–Millewa Forest has now been given sufficient water for a significant flood, with observable benefits for bird breeding and flow-on effects to other forests and wetlands downstream. The flood can be attenuated to extend the watering of the forest to sustain bird breeding cycles and other biological processes. Monitoring of this special watering is likely to give a valuable indication of the magnitude of future changes required in the River Murray flow regime.

Long term changes in ecological character in Barmah–Millewa Forest are primarily attributed to changes in water regimes, timber harvesting and cattle grazing. The forest evolved on land that under natural conditions is flooded in the spring months of most years but rarely flooded in the summer months.

At the March 2001 meeting, the Ministerial Council agreed to a clear set of principles for the States to share water allocations for the Barmah–Millewa Forest. These included proposed operating rules and triggers to be applied to watering the Barmah–Millewa Forest. Key outcomes of the new rules are to achieve, on average three medium-sized, long-duration floods every 10 years between September and January. The rules are also to ensure no more than five years pass between these events, which are to inundate 50 per cent of the forest.

The lower Murray flow allowed South Australia to provide some flooding into key wetlands such as Chowilla. The flows to the lower Murray took advantage of the same flood, including the Barmah–Millewa water and releases on the Darling, to elevate the River Murray and weir pools sufficiently to allow targeted flooding of wetlands in South Australia.

RAMSAR Murray–Darling wetlands

The RAMSAR wetlands³ on the Murray system have been clearly identified by the Murray–Darling Basin Commission and are part of a list of indicator wetlands for which all environmental flow and water quality options will be assessed. In short, the outcomes of the environmental flow plan and water quality objectives for the River Murray will reflect the estimated benefits to RAMSAR wetlands including Coorong. Further, other projects ranging from a detailed study of the geomorphology of the region to options for revised operations or relocation of barrages, are designed specifically to address the issues arising in the Lower Murray lakes and the Coorong.

Native fish

The Murray–Darling Basin Commission Ministerial Council at the March 2001 meeting agreed to two initiatives to make immediate improvements in native fish habitats.

- First, the Murray–Darling Basin Commission will begin planning and undertaking feasibility studies for the construction of fish passages on all locks and weirs. The \$10 million five-year program will allow fish movements to extend over 2000 kilometres from the Hume Dam to the sea.
- Second, the Murray–Darling Basin Commission will investigate options at Hume Dam for reducing the effect of ‘cold water pollution’ which occurs when extremely cold water is released from the bottom of a dam. This water has been shown to reduce the breeding success of many native fish species.

Discussion and Assessment

The need to ‘Save the Murray’ from environmental degradation is an issue that has received national media attention in recent times. The River Murray is now at a point where the level of diversions has significantly reduced flows in the lower Murray, so median annual flows from the basin to the sea are only 21 per cent of natural flows. The reduction in flow has most notably affected the small to medium-sized flood events. The frequency of these floods has been substantially reduced and many are now completely harvested. Consequently, the lower reaches of the Murray now experience severe drought-like flows in over 60 per cent of years compared with 5 per cent of years under natural conditions.

The changes to the flow regime have had a significant impact on river health, including a contraction in the areas of heavy wetlands, a fall in native fish

³ The RAMSAR wetlands are those listed under the Convention on Wetlands (1971) as wetlands of international importance.

numbers in response to the reduction in flow triggers for spawning, rising salinity levels and an increase in the frequency of algal blooms in line with the increased frequency of periods of low flow. A number of RAMSAR wetlands are under threat. These wetlands on the Murray River system are important water bird breeding and refuge areas, and may contain other significant fauna and flora. Numerous other wetlands of national importance are also associated with the Murray River system and would be expected to be subject to flow-related stresses similar to those on the RAMSAR wetlands. The following are examples of the problems facing the RAMSAR wetlands on the Murray:

- **Coorong, Lakes Alexandrina and Albert, South Australia:** Salinity has increased due to lack of peak flows from the Murray River as a result of water controls, and due to regional land clearing and drainage schemes;
- **Riverland, South Australia:** Flows and flooding regimes have changed due to water regulation, and salinisation has increased as a result of irrigation and land clearance;
- **Hattah–Kulkyne, Victoria:** Flooding frequency has been reduced due to regulation on the Murray River for irrigation supplies. Reduced flood frequency can kill or reduce the vigour of riparian red gums, alter tree distributions, and decrease breeding opportunity for water birds; and
- **Gunbower, Victoria:** The regulation of the Murray River reduced the frequency, intensity and duration of flooding in Gunbower Forest, which has implications for river red gums and other species whose survival is flood dependent.

The Murray–Darling Basin Commission advised that it is committed to providing environmental flows as opportunities arise and according to the best scientific advice on potential outcomes. It is worth noting that environmental flows in the Murray–Darling Basin are not only a matter for the Murray–Darling Basin Commission. The bulk entitlement policy of Victoria and the environmental flow program of New South Wales both achieve environmental allocations and could contribute to better outcomes for the River Murray.

The Council recognises that this is a significant issue and, due to the complexity of the issues as well as the number of governments involved that progress has been very slow. Some initial decisions at least may be imminent as the Ministerial Council considers the options generated by the project on environmental flows and water quality objectives for the River Murray.

Given the national significance of this issue, the Council will be looking for robust progress in this area in later assessments.

Water trading

Governments have agreed that water trading arrangements should be in place so as to maximise water's contribution to national income and welfare, within the social, physical and ecological constraints of catchments (clause 5).

The Murray–Darling Basin represents only 14 per cent of Australia's land surface, yet accounts for 41 per cent of the gross value of agricultural production. Consequently, compared with demand, water is in short supply in the basin. Trading in water rights provides a means of maximising the sustainable returns on the basin's limited water resources.

Interstate trading between New South Wales, Victoria and South Australia is now relatively well established but was rare prior to 1998. The Murray–Darling Basin Commission's Pilot Interstate Water Trading Project was established to promote interstate water trading within the basin. The pilot is a major development that expands the water market in the southern Murray–Darling Basin and aims to facilitate the movement of water to higher value uses, subject to environmental, social and physical constraints.

The pilot, in operation since 1998, has resulted in the:

- increased value of water use in the basin by allowing water to move to higher value uses (CSIRO 2000);
- expansion of the number of traders able to participate in the water trading marketplace by allowing permanent trade to occur across State boundaries; and
- movement of water out of degraded or areas of high environmental risk.

Interstate trade within the Murray–Darling pilot

The objective of the pilot is to facilitate and promote interstate trade of high-security water in the Mallee region of South Australia, Victoria and New South Wales.

Figure 3: The pilot interstate water trading project area

Source: CSIRO (2000)

The pilot allows the trade of water allocations that are supplied from the River Murray between Nyah and the barrages at the mouth of the Murray. Also included are River Murray licences that are supplied from the weir pool at Lock 10 (just downstream of the junction of the Murray and Darling rivers). Allocations other than high-security water allocations cannot be traded under the pilot scheme, although the project provided for temporary transfers.

The schedule that set up the pilot establishes that the pilot should not result in increased levels of salinity, reductions in environmental flows or degradation of the natural environment. To this end, the schedule notes that transfers should occur only if the proposed transfer is not inconsistent with the Murray–Darling Basin Commission’s policies on environmental flow management. All interstate trades are also subject to the relevant State regulatory provisions and environmental considerations.

The pilot can be suspended or limited if environmental degradation has risen as a result of the trades or if any one of the States involved has made inadequate progress towards full-cost pricing.

In recognition that interstate trades will affect the cap, State allocations and deliveries, the pilot provides for adjustment of these levels following a trade. Interstate water transfer needs to be approved by the water licensing authorities in both States involved in the trade and by the Murray–Darling Basin Commission. The transfer requirements of each State differ, so the actual details and requirements of each application to trade will vary

depending on which two States are involved. The relevant provisions for interstate trade within each of these States are discussed in the assessments on these States.

The Murray–Darling Basin Commission keeps a register of all transfers and calculates exchange rates for each trade. It must also assess each trade on the basis of any environmental damage it may cause and the physical capability of the system to deliver the water. The exchange rates are designed to account for transmission system losses in the river channel and for changes in the level of water supply security. The security can fall in response to the decreased ability to retain water within storages as the water moves upstream.

Within the pilot area, transmission gains or losses resulting from transfers are calculated to be insignificant. As a result, no exchange rate for transmission losses has been set. With regard to a ‘security’ exchange rate, the only variation applies to trades from South Australia to New South Wales and Victoria, which are conducted with an exchange rate of 0.9 to account for the fact that water supplies to South Australia are guaranteed. A transfer of 10 gigalitres of permanent, high-security entitlement from a seller in South Australia to a buyer in Victoria, for example, would result in the receipt of only 9 gigalitres in Victoria.

The pilot was assessed in a two-year review of interstate trading (CSIRO 2000). The review examined the net effect of the pilot and noted areas where progress or improvement could be made. The review findings included that:

- arrangements for interstate trade are improving;
- administrative arrangements are an impediment to efficient trade and need to be streamlined;
- interstate trading is increasing the value of water use in the Murray–Darling Basin;
- interstate trade has had no measurable adverse social impact during the pilot;
- environmental impacts are mixed. The environmental flow impact has probably been positive, while the salinity impact is expected to be negative;
- exchange rates are poorly understood; and
- mechanisms for enforcement need to be improved.

Interstate trading to date

According to the review, the pilot enabled 51 trades — accounting for more than 9.3 gigalitres — between 1998 and September 2000. The total value of these trades was more than \$9.9 million, with three trades individually worth more than \$1 million. No trades were refused, although two trades were suspended because the purchaser was in breach of licence conditions.

Trades have moved in all directions (for example, from New South Wales to Victoria and from South Australia to New South Wales) with the exception of South Australia to Victoria.

Table 2: direction, volume and number of water trades under the pilot

Origin	Destination						Total Out	
	New South Wales		Victoria		South Australia			
	Megalitres	Trades	Megalitres	Trades	Megalitres	Trades	Megalitres	Trades
New South Wales			249	1	6556	33	6805	34
Victoria	250	2			2300	14	2550	16
South Australia	100	1	0	0			100	1
Total in	350	3	249	1	8856	47	9455	51

Source: CSIRO (2000)

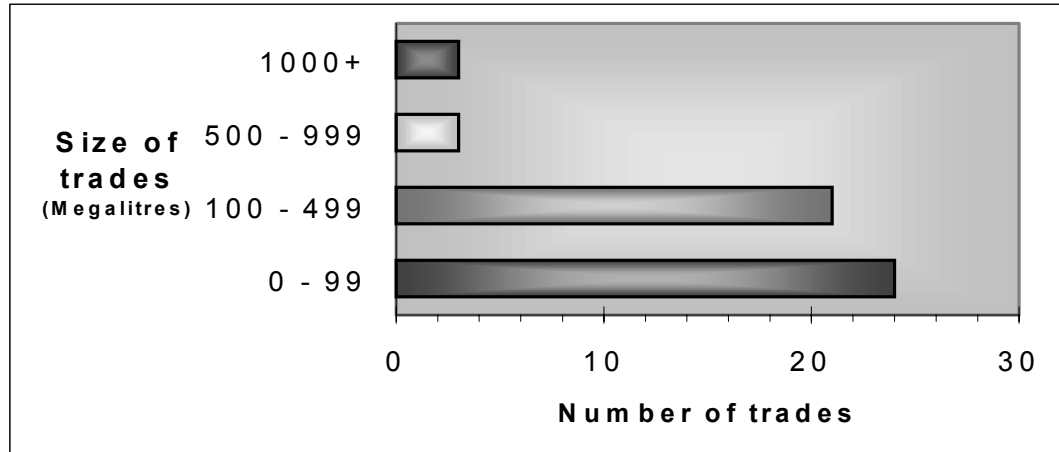
More than 90 per cent of the water traded (over 8.8 gigalitres) was transferred to South Australia. This is largely attributed to the fixed supply of water in South Australia and the relatively high price of water. Increasing demand resulting from the significant growth in the wine industry, combined with the limited availability of additional allocations in South Australia, has led to higher water prices relative to upstream parts of the pilot zone. The review stated that prices of over \$10 000 per megalitre have been recorded for permanent transfers in McLaren Vale and that permanent trades in River Murray licences were in the \$1000 per megalitre to \$1150 per megalitre range at the time of writing. This compared with an upstream range of around \$750 per megalitre to \$1000 per megalitre. This conclusion is further reinforced by the fact that only one trade came from South Australia.

All of these trades were conducted through a broker, usually with different brokers for buyers and sellers. It is thought that less than 1 per cent of this water was being used at its origin, with most water being previously unused 'sleeper' licences. Given that the vast majority of this water was previously unused, it is clear that interstate trading is increasing the value of water use in the Murray–Darling Basin, although the review also noted the importance of effective provisions for ensuring the trade is sustainable. This matter is addressed below.

The size of trades varied significantly in the review period (see figure 4), with an overwhelming proportion of trades being less than 499 megalitres and

more than half of these trades being below 100 megalitres. Only six of the 51 trades were more than 499 megalitres.

Figure 4: The size of trades as a part of the pilot.



Source: CSIRO (2000)

Discussion

Consistent with commitments under the CoAG framework, the objective of water trading is to ensure water is used to maximise its contribution to national income and welfare, subject to the physical, social and ecological constraints of catchments. Interstate trading has been introduced to promote the transfer of water allocations between States to meet this aim. The Murray–Darling Basin Pilot Interstate Water Trading Project is the primary vehicle for interstate trade in the basin and plays an important role in the success of all water trading within the basin. The review noted that ‘Intra-state trading is driving the market for water. Interstate trading arrangements keep the various markets in place’ (CSIRO 2000, p.2).

This discussion focuses on the procedures and practices implemented by the Murray–Darling Basin Commission to enable interstate trade. Individual State mechanisms for interstate trade are discussed in the assessments for each State.

The Council recognises that the pilot is a trial of interstate water trading and that there are justifiable reasons for the restricted area and scope of the trial. However, there is also demand for the pilot to be expanded to both additional areas and different types of water entitlement; for example, some water has been traded intrastate to allow it to be traded within the pilot scheme, generally downstream to South Australia.

In making its assessment, the Council has looked for evidence that trading within the pilot’s existing boundaries is in a manner that maximises the value of the resource, with any restriction on trade being transparent and based on a sound public benefit. The Council sees the expansion of the pilot as

the next logical step in the development of interstate trade in the basin and would be looking for this expansion to occur once the residual problems in the existing scheme are resolved. Expansion could include an increase in the scope of the pilot, such as through the inclusion of lower security entitlements and an expansion in area (for example, extending further upstream to include the Murrumbidgee River and the ACT or including the Border Rivers catchment in New South Wales and Queensland).

In assessing compliance with water reform commitments the Council has assessed each jurisdiction against a common set of key criteria, which are consistent with recent work by the High Level Steering Group on Water.⁴

Trading in most jurisdictions is still in its infancy, so the assessment has focused on the establishment of mechanisms, policies and information that provide a sound foundation for efficient water trading. The focus in this assessment has therefore been on:

- the clear definition of sustainable water rights;
- the adequate specification of appropriate trading rules and zones;
- appropriate market procedures; and
- accessible and equitable market information.

In future assessments, the Council will look for evidence of effective trade where there is demand and measures to increase the depth of the water trading markets.

Definition of water entitlements

Each State and Territory has its own mechanism and regime for the specification of property rights and allocation of water. The Murray–Darling Basin Commission does not set or specify any aspects of the property right regime within member States. However, it has an impact on allocations within member jurisdictions via processes such as the cap on diversions and water delivery through Commission-controlled infrastructure and channels.

As such, the property right regimes of each of the member States determine the impact of property rights on the efficacy of the pilot. The Council notes the effort of the Murray–Darling Basin Commission in trying to better understand and account for differences in water property rights. In particular, the Murray–Darling Basin Commission prepared a document,

⁴ These criteria are based on the findings of the report ‘A National Approach to Water Trading’ (HLSGW 2000). Appendix B provides an outline of the criteria used by the Council.

Definition of Water Property Rights in the Murray–Darling Basin, which identifies all of the different types of property right within the basin.

Exchange Rates

An exchange rate is a mechanism to address differences in characteristics of water entitlements between different regions as water is traded. The two-year trading review noted that:

Exchange rates are required to convert the volume and reliability characteristics of the property right being traded from those of the State of origin to those of the State of destination. (CSIRO 2000)

Exchange rates that impact on buyers and sellers have been established in the Murray–Darling Basin for salinity, security and transmission losses.⁵ If States, in accordance with requirements under the CoAG framework, are to facilitate cross-border trade, and if the pilot is to be broadened geographically and to different types of allocation, then a mechanism to account for differences in the States' property rights will be required.

Work recently completed by the Murray–Darling Basin Commission identified at least 16 different types of property right within the basin, each with varying characteristics (MDBC 2001). Six types have the greatest potential for expansion of interstate trade:

- irrigation district or area — bulk water allocations;
- irrigation district or area — individual holdings and general water allocations;
- regulated streams;
- unregulated streams;
- farm dams; and
- groundwater.

The Council considers that significant differences among these rights would prevent their inclusion in an expanded trading market and that these differences need to be resolved if effective trade is to be developed. The effect of differences in the property rights among different States needs to be considered, particularly in terms of:

- reliability/security;

⁵ However, the transmission losses exchange rate has been set at 1 (that is, no change) for all transactions.

- quality (where appropriate);
- duration or tenure (including compensation provisions);
- clarity of title and ownership; and
- transferability and divisibility.

In making future assessments of interstate trade, the Council will examine whether differences in property rights have an impact on trade in the basin.

Environmental impacts of interstate trade

The vast majority of water traded has gone downstream from New South Wales and Victoria to South Australia. As such, the environmental flow impact of interstate trade has probably been positive. However, the 10 gigalitres traded so far is so small that the gain is probably insignificant and difficult to measure. (CSIRO 2000)

In terms of salinity impact, the review noted that currently interstate trade has had a negative impact on river salinity. It will be necessary for States to enforce salinity controls to ensure the effect of interstate trades is neutral. The review found that the broader impacts of environmental degradation at the destination of each trade depend on the degree to which the State sets and enforces irrigation and drainage plans. Thus, the review suggested that States improve their enforcement of irrigation management plans and that licenses record salinity prevention obligations, with failure to comply resulting in the sale of sufficient water to meet the obligation.

The Council notes that the environmental impacts of water trade are the responsibility of the State of destination to manage. The Council also notes that most of the water traded during the review period was previously unused 'sleeper' and 'dozer' water rights. As such, the trade of these rights presumably resulted in the use of water that previously remained in the river. The Council recognises that a simple solution is not immediately available and that the Murray–Darling Basin Commission and member governments need to consider the best means by which to address the environmental impact of interstate trade. The Council will reassess State's responses to the environmental impacts of water trade in future NCP assessments.

Water trading zones and rules (where and how people can trade)

The Council commends the pilot for attempting to clarify the process and availability of interstate trade. Interstate trade will always remain complicated, because traders must deal with the administrative arrangements of both the originating and receiving States and the Murray–

Darling Basin Commission. In response, the Murray–Darling Basin Commission has produced materials to assist prospective participants in determining their eligibility to participate in the scheme and to clarify how and where trades can occur. This material included information sheets on the pilot projects, including a summary of the necessary steps to conduct a trade, exchange rates, environmental clearance processes and the physical constraints of the pilot system.

Both the two-year review and associated workshop identified that market participants have a poor understanding of exchange rates and that improved communication is needed to resolve this issue. Most of the water trades so far have involved sales downstream, so exchange rates have not had a significant impact. However, if market forces change and, for example, trades from South Australia to New South Wales increase, then the exchange rate will act as a tax on trade. It is important that misunderstandings about exchange rates do not deter trade. Notwithstanding the issue of exchange rates, the Council is satisfied that the Murray–Darling Basin Commission has clearly defined trading zones and rules.

Constraints on trade

Constraints on interstate trade in the jurisdictions are discussed in the assessments for each State. However, given the limited nature of the pilot, these impediments do not so much impede the operation of the pilot as impede its expansion; For example, the limitation on trade out of regulated irrigation districts in New South Wales, Victoria and South Australia prevents the expansion of the pilot to include these rights. These issues, and the degree to which the water right is vested in the end user, will need to be addressed before the pilot can be expanded to these areas.

The Murray–Darling Basin Commission has advised that current blockages are largely procedural, with progress depending on the Murray–Darling Basin Commission’s capacity to model and forecast the impact of policy options (including exchange rates) for consideration by the pilot project board.

Markets and trading procedures

The pilot was developed to facilitate the transfer of water rights between States. However, the Murray–Darling Basin Commission has only a limited official capacity in terms of effecting a trade. Trades through the pilot scheme are conducted by the States and are subject to relevant State laws that set the framework for how water can be traded. The Murray–Darling Basin Commission does:

- confirm the physical capacity of the system to deliver the water;
- determine the exchange rates for the trade in question; and

- provide that the pilot does not result in increased levels of salinity, reductions in environmental flows or degradation of the natural environment.

Individual States also have buyer and seller checks to minimise risk to market participants and third parties. Each State has, for example, the legislative provision for, if not an actual, registry of property rights that either provides clear title or allows third parties to register an interest in a property right. Each State also has environmental clearances to manage the environmental impacts of water trade. Water traded from interstate is generally subject to these provisions.

While it is important to streamline the assessment process, buyer and seller checks minimise the risk and actually encourage participation in the market (because participants have more confidence in the process and market). The Murray–Darling Basin Commission could improve the confidence of market participants by encouraging the establishment of these checks in a consistent manner across States. This could be achieved by, for example, the preparation of consistent forms and documentation to execute a trade and the adoption of basin-wide protocols on buyer and seller checks. The Council will continue to monitor this issue in future NCP assessments to ensure risks to buyers, sellers and third parties (including the environment) are reasonable and do not unduly impede trade.

Market choices

Within the pilot project, the two-year review noted that brokers were involved in all of the interstate trades between legally separate entities with most trades involving different brokers operating for the buyer and seller. Private trade is also permitted within the pilot, but generally has not occurred. This absence of private trade is likely to reflect the administrative complexity of transfers (between two States and involving the Murray–Darling Basin Commission) and the lack of contacts between buyers and sellers in irrigation districts. While a number of water exchanges operate within the pilot region, none of the exchanges has conducted an interstate trade.

While sufficient mechanisms may be available for existing levels of trade, as the demand (in area, volume and scope) for trade increases, further mechanisms would be useful in encouraging trade. One such mechanism that the Murray–Darling Basin Commission may wish to consider to promote trade is the development of a register or schedule of water brokers who conduct trades within the pilot zone. Potential market participants will be able to easily find a water broker and possibly choose from a number of different brokers.

The Council is satisfied that there are sufficient market choices available to conduct interstate trade and that few impediments exist to new methods of interstate trade becoming available.

Market information

The pilot acts as a clearance house for water trade, whereby trades are assessed on the basis of environmental, channel and infrastructure capacity and selected other grounds. It does not provide a brokerage service or operate a water exchange. As such, interstate market information and price discovery,⁶ where available, may be provided through independent brokerage services and water exchanges. These services are discussed in the assessments for each State.

The Council, while recognising the infancy of interstate trade, is concerned that sufficient information is not available to potential market participants to encourage their full involvement in the market. While there are strong concerns among States about the disclosure of price due to the ‘thinness of the market’, it is important that potential traders have sufficient information to encourage their participation. This could be done by releasing indicative prices that provide information for potential participants while protecting the interests and confidentiality of past participants.

With regard to broader market information, such as information on the availability and advantages of trade, the Council is satisfied that there is no significant impediment to trade.⁷ However, the Council is concerned that price disclosure is insufficient in the pilot (and through the member States) and will look for the Murray–Darling Basin Commission to consider means by which this can be improved before the next assessment.

Certainty, confidence and timeliness

The Murray–Darling Basin Agreement allows for States to apply their own exchange rates on interstate trade. The Council understands that no State-based rates exist, although New South Wales is reviewing exchange rates and Victoria is considering their future adoption.

If trading risks are to be minimised, States need to support policies that reduce uncertainty, including the development of registers of water rights and approvals. For interstate trade, potential buyers need to be able to check encumbrances on interstate licences. Consistent registry procedures would facilitate this check.

Appropriate timeliness is essential if trade is to be effective. The two-year review of interstate water trading emphasised this matter, noting that brokers recommended that the pilot should not be expanded until

⁶ Key market information such as price, volume and market participants.

⁷ Exception for the lack of public information and the poor understanding of exchange rates, as discussed previously.

administrative arrangements are significantly improved. The example provided was that trade documents can spend up to 32 days in the post, moving from one location to another. This is clearly not in the interest of efficient trade.

Improvements to the efficiency of administrative procedures are one area where the Murray–Darling Basin Commission and pilot may make immediate improvements. The Council recognises the effort to improve knowledge of administrative practices and procedures, but further improvement or simplification is needed. Improvements to licence registration arrangements and record-keeping procedures are examples of where efficiency gains may be found.

The process may be further streamlined by the separation of volumetric rights from access or environmental considerations. South Australia has adopted arrangements where a holding licence can be obtained to hold a water right without the ability to use that right. The two-year review also suggested the option of deeming all permanent trades to take effect on 1 July after the date of settlement. Temporary interstate trade could be used to effect immediate transfers.

However, in noting these limitations, the Council recognises that they are not limited to the Murray–Darling Basin Commission or the pilot. These problems are State-wide and basin-wide, not interstate specific. (CSIRO 2000)

Capital efficiency

The development of mechanisms to improve the capital efficiency of water rights is largely a responsibility of the States and Territories. The capital efficiency of a water right is defined as much by the features of the right as by the market procedures. Now that temporary interstate trades are possible through the pilot, the Murray–Darling Basin Commission may wish to adopt leasing arrangements for water. However, the Council supports the Murray–Darling Basin Commission's focus on improving existing arrangements before expanding to different regions and rights.

Summary

Interstate water trading is not a simple process. The Murray–Darling Basin Commission's Pilot Interstate Water Trading Project was established to provide a mechanism for the transfer of high-security water rights within a restricted region of the lower Murray–Darling Basin. The Murray–Darling Basin Agreement now allows for the temporary transfer of rights interstate.

While the agreement sets rules for the transfer of water rights, transfers are also subject to the rules of the jurisdictions involved in the trade. A transfer from Victoria to South Australia, for example, would be subject to rules and regulations in the pilot, Victoria and South Australia.

The Murray–Darling Basin Commission has been considering an expansion of the pilot as a part of the two-year review and other processes. The Council supports actions to facilitate interstate trade in other areas or with other rights. However, it also notes problems with the existing scheme and the areas of potential expansion, which will require resolution before the pilot's expansion.

Water property rights is a key issue for the pilot, especially to the extent to which they are inconsistent and form an impediment to trade. The late-season suspension of trade between Victoria and New South Wales is an example of these inconsistencies. The ability to account for differences in rights is essential, especially if the pilot is to expand to rights other than high-security water trade. Thus, the Murray–Darling Basin Commission implemented a system of exchange rates to calculate the conversion rate between jurisdictions.

The environmental clearance process is another area where the Murray–Darling Basin Commission and member governments need to determine how environmental impacts from interstate transfers of water rights can most effectively be minimised. More rigorous assessment and enforcement of salinity prevention obligations and irrigation and drainage management plans is one solution.

The administration of water trades is another area where improvements may be needed before the expansion of the pilot. In particular, the time taken to effect a trade is proving to impede further trade.

These issues should be considered as a priority if trade within the pilot is to be consistent with the objectives of the CoAG agreement. The Council notes that this is not an issue for the Murray–Darling Basin Commission alone and that States will need to work cooperatively to ensure these outcomes are achieved.

Assessment

The Murray–Darling Basin Commission's Pilot Interstate Water Trading Project is a significant advancement in interstate trade in Australia. While still in development, the pilot provides a good basis for the future of interstate trade. However, there are constraints on the expansion of the pilot to different regions and types of right. The Council will make a further assessment in 2002 to assess the extent of progress in resolving property right issues and developing mechanisms to facilitate interstate trade.

Environment and water quality

Jurisdictions must have in place integrated resource management practices, including:

- demonstrated administrative arrangements and decision making processes to ensure an integrated approach to natural resource management and integrated catchment management;
- an integrated catchment approach to water resource management including consultation with local government and the wider community in individual catchments; and
- consideration of landcare practices to protect rivers with high environmental values (clauses 6a and b and 8b and c).

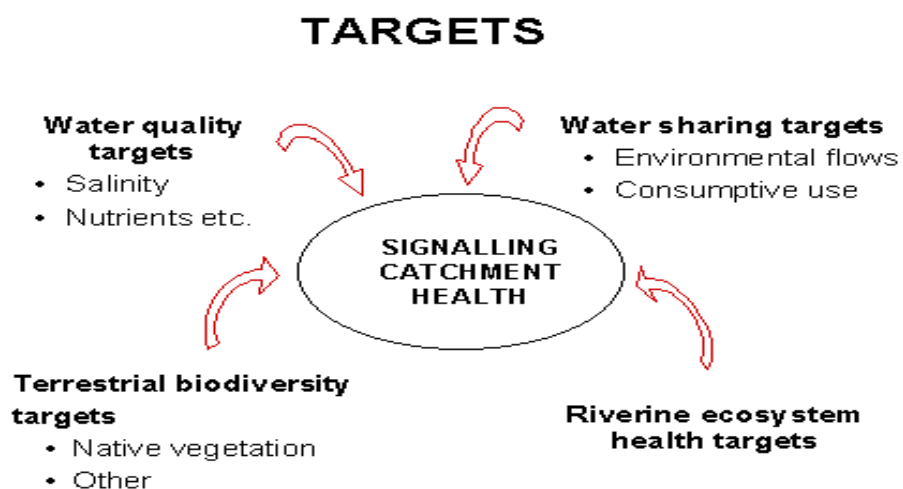
MDBC arrangements

Integrated resource management

In June 2001 the Murray–Darling Basin Commission released an Integrated Catchment Management Policy Statement to set targets for catchment health and build the capacities of the community and government to achieve these targets. The stated goals of the policy are to achieve: healthy rivers; healthy ecosystems and catchments; innovative, competitive and ecologically sustainable industries; and healthy regional communities.

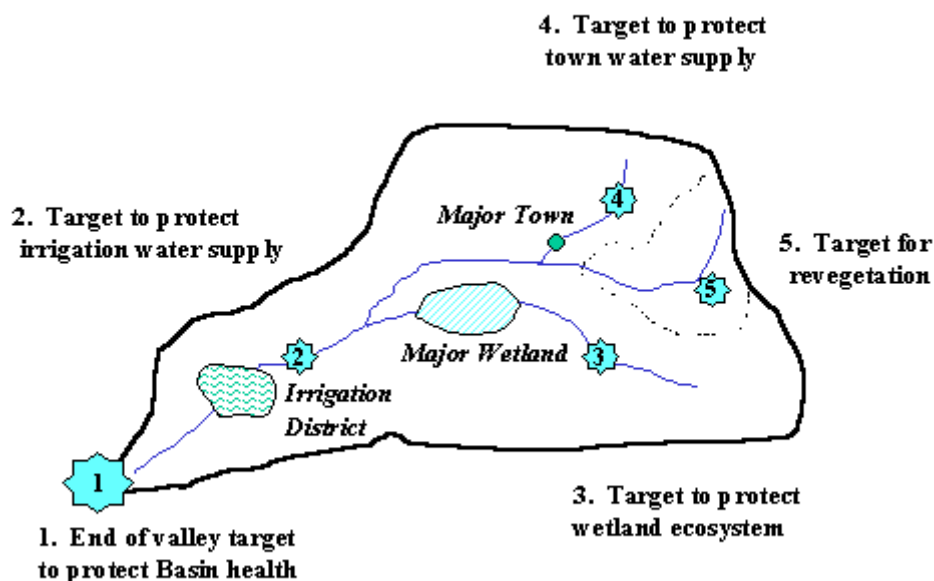
Targets for catchment health will be set in each major catchment of the basin as a 'floor'. They will incorporate targets for water quality (salinity and nutrients), water sharing (consumptive and environmental flows), riverine system health and terrestrial biodiversity as shown in figure 5.

Figure 5: Integrated catchment policy targets



The targets will reflect the environmental, economic and social assets that communities and governments agree to protect. The Murray–Darling Basin Commission provided the following diagram to illustrate examples of targets for a catchment. Setting and achieving end-of-valley targets for each catchment in the basin will be needed to protect the health of the basin as a whole.

Figure 6: Achieving end-of-basin policy targets



The policy statement sets a 10-year agenda for implementing the policy, beginning with salinity targets before moving on to targets for catchment health. The program will establish particular salinity targets now being considered for adoption by July 2001, then progress to water sharing targets (including environmental flows) and culminate in an integrated set of river ecosystem health targets. The Integrated Catchment Management Policy Statement provides the policy framework for all new strategies developed for the basin.

The policy statement outlines initiatives for natural resources management occurring in the basin that are related to and compatible with the integrated catchment management approach. In addition to the separate State and Territory initiatives, the Murray–Darling Basin Commission is responsible for the following initiatives:

- **basin salinity management strategy:** the strategy adopts the principles of the Integrated Catchment Management Policy Statement. These include targets for containing river salinity and new accountabilities on government, with a central role for regional catchment organisations to plan and manage the delivery of salinity control measures such as large-scale land use change and salt interception schemes. The

Murray–Darling Basin Commission is moving from facilitation to setting salinity targets for every end-of-valley in the basin. This will be implemented by modifying schedule C to the Murray–Darling Basin Agreement. The end-of-valley targets are expected to be released in mid-2001. Example plans and documented reviews of targets are not expected to be available until the end of 2001. For further details on this policy, see the section on the National Water Quality Management System;

- **a sustainable rivers audit:** the Ministerial Council agreed to the development of a sustainable rivers audit to provide consistent basin-wide information on the health of rivers. The first use of the audit is planned for 2002. The six-year program of developing salinity targets will be informed by the audit, and the basin Governments will progressively develop and adopt the strategies to meet the targets (see the section on the National Water Quality Management Strategy);
- **a project on the environmental flows for the River Murray:** see the section on allocation; and
- **basin sustainability program:** this program will set up an annual reporting arrangement for natural resource management investment under the Murray–Darling Basin reform program.

Other developments

In the second tranche NCP assessment, the Murray–Darling Basin Commission provided examples of five catchment management plans in the process of implementation. The Murray–Darling Basin Commission advised that the key development since the second tranche assessment has been the requirement of the Murray–Darling Basin Commission States and their catchment communities to prepare ‘second generation’ catchment plans with a focus on salinity and water quality. This requirement was triggered by the National Action Plan for Salinity and Water Quality, the Basin Salinity Management Strategy and the member States’ own salinity management strategies.

The Murray–Darling Basin Commission has advised that it is not directly involved in the development of second generation plans (which are the responsibility of the individual States) but is driving the process through the Basin Salinity Management Strategy.

Assessment

The Council applauds the vision encapsulated in the Murray–Darling Basin Commission’s Integrated Catchment Management Policy Statement. The 10-year strategy recognises that the health of the basin’s rivers and shared resources depends on the health of its catchments, which depend on the decisions made by people in using and managing the land, water and other

environmental resources. The strategy recognises that catchment health is a responsibility shared by the basin community as well as government.

The Council has reviewed the Integrated Catchment Management Policy Statement and notes the following elements of the policy designed to bring about change:

- the focus on making difficult choices about the balance between the use of resources for production and the need to protect environmental health;
- stronger institutional arrangements for catchment management, with clear roles and responsibilities and increased accountability;
- integrated land use planning and catchment planning;
- more targeted use of market-based mechanism to drive change;
- the accreditation of catchment strategies and plans; and
- reporting to the Ministerial Council and the Australian public.

The Council is satisfied that the Murray–Darling Basin Commission has met commitments in this area for this assessment.

National Water Quality Management Strategy

Jurisdictions agreed to support ANZECC and ARMCANZ in developing the National Water Quality Management Strategy, through the adoption of market-based and regulatory measures, water quality monitoring, catchment management policies, town wastewater and sewage disposal, and community consultation and awareness.

Jurisdictions are to demonstrate a high level of political commitment and a jurisdictional response to ongoing implementation of the principles contained in the National Water Quality Management Strategy guidelines, including on-the-ground action to achieving the policy objectives (clauses 8b and d).

The Murray–Darling Basin Commission continues to implement the National Water Quality Management Strategy water quality standards and the Algal Management Strategy procedures for dealing with nutrient pollution in the Murray–Darling Basin. The strategy involves a framework of coordinated planning and management actions.

The extent of salinity is well documented as the greatest issue facing the basin. The Murray–Darling Basin Commission estimated in only eight tributary valleys of the basin that dryland salinity imposes total annual costs of \$247 million. It believes that three to five million hectares of land in the eastern and southern areas of the basin will be affected by salinity within 50–100 years. If left unchecked, salinity could have an annual cost of \$1 billion within one hundred years.

MDBC arrangements

Algal Management Strategy

As reported for the second tranche NCP assessment, the Algal Management Strategy is the vehicle for Murray–Darling Basin Commission implementing the National Water Quality Management Strategy. The Council noted in the second tranche assessment that it would continue to review the implementation of the strategy in the Murray–Darling Basin Commission, including monitoring and compliance.

The Murray–Darling Basin Commission advised that the intended review of the strategy has been deferred while other matters of water quality monitoring and compliance are being addressed. In particular, the Murray–Darling Basin Commission is responding to concerns about the potential impacts of irrigation drainage water on River Murray water quality and concerns about the process of water quality monitoring. The Murray–Darling Basin Commission and the Victorian Department of Natural Resources and Environment conducted a specific review on the matter. The review report is being finalised.

Basin Salinity Management Strategy

In March 2001 the Ministerial Council agreed to a set of salinity management objectives and principles, along with a proposal to develop salinity targets to be met by 2015 for the River Murray and its tributaries. Targets apply at the end of each river valley, as well as for the whole basin, measured at Morgan in South Australia. The shared target of the Murray–Darling Basin Commission is to maintain the River Murray salinity (measured at Morgan) at less than 800EC for 95 per cent of the time. The draft Basin Salinity Management Strategy received strong community support, and the final strategy is expected to be released in July 2001.

To begin the process, and ensure the States can offset rising salinity and keep to the targets in the draft strategy, the Ministerial Council agreed to a new joint works program of salt interception schemes (worth \$60 million) over seven years. Both the Commonwealth and the States will invest in works and programs to counter the impact of salinity resulting from historical activities such as land clearing. The States will be responsible for initiating the salinity interception works needed to offset the impact of any new developments.

The Murray–Darling Basin Commission is considering the development of a vegetation bank, whose task would be to optimise public investment in reforestation and revegetation in the mid to low rainfall zone where salinity control is the focus. The bank would ensure, by targeting its funding within regional catchment management plans, that tradeoffs (including water resources) are minimised.

The governments that make up the Murray–Darling Basin Commission agreed to be jointly accountable in meeting targets, with the implication that if regular monitoring identifies lack of progress then individual governments will need to re-adjust their programs and commitments to meet the targets. In Queensland, where the salinity threat is further into the future, the targets will be decided within three years. Queensland has agreed to enter into the accountability arrangements retrospectively from 1 January 2000.

At the time of writing, the MBDC had yet to agree on the other pillars of the strategy — including targeted reforestation, farming systems development and commercialised use of salined resources — which are expected to be the subject of the National Action Plan for Salinity and Water Quality.

A sustainable rivers audit

In March 2001 the Ministerial Council agreed to the development of a sustainable rivers audit to provide consistent basin-wide information on the health of rivers. This will require the development of a common reporting framework against river health indicators and of triggers for investigation of deteriorating river health. The parameters of the audit are likely to include indicators on water quality, environmental flows, native fish and river condition using macro invertebrates. The Audit has yet to be implemented but, the appointment of the auditors was imminent at the time of writing. The first use of the audit is planned for 2002.

Assessment

The Murray–Darling Basin Commission is moving from a facilitation role to setting salinity targets for every end-of-valley in the basin. The end-of-valley targets are expected to be released at the end of July 2001 and the first example plans and documented reviews of targets are expected by the end of 2001.

The Council notes that the Murray–Darling Basin Commission advised that the intended review of the Algal Management Strategy has been deferred while other matters of water quality monitoring and compliance are being addressed. These matters relate to the potential impacts of irrigation drainage water on River Murray water quality and to concerns about the process of water quality monitoring. The Council also accepts that primary responsibility for implementing the national strategy rests with the individual jurisdictions.

The Council is satisfied that the Murray–Darling Basin Commission has met its commitments in this area for the 2001 NCP assessment. It will monitor further developments in future assessments, including the outcomes of the review on water quality monitoring and further developments in the Algal Management Strategy.

Public consultation and education

Jurisdictions must have consulted on the significant CoAG reforms (especially water pricing and cost recovery for urban and rural services, water allocations and trade in water entitlements). Education programs related to the benefits of reform should be developed (clauses 7a to e).

The Murray–Darling Basin Commission has extensive community education and consultation mechanisms for dealing with natural resource management issues (including integrated catchment management, algal blooms and salinity). It also provides community information on the pilot interstate water trading project.

MDBC arrangements

Public consultation and education

The Murray–Darling Basin Commission conducted an extensive engagement and communication process in the development of the Integrated Catchment Management Policy Statement and the draft Basin Salinity Management Strategy. This included media coverage, regional briefings, focus group workshops, response questionnaires and the targeting of specific stakeholders for submissions.

Extensive public consultation continues to be a feature of the implementation of natural resource management programs. In particular, the development and implementation of environmental flows and water management plans are subject to ongoing consultation of all relevant stakeholders, including all agencies with direct interests, local government, licensees, any holder of prior rights, and the Director of Environmental Management and Public Health in each participating State.

The Murray–Darling Basin Commission adopted a generic communication strategy that is applied to all major initiatives. Communication guidelines are applied primarily through the Integrated Catchment Management Policy Statement and the Basin Salinity Management Strategy. The guidelines and the communication strategy require a community/government partnership and ongoing community participation. These principles are applied to every major project conducted by the Murray–Darling Basin Commission, ranging from the project on the environmental flows and water quality objectives of the River Murray to new projects being initiated on, for example, terrestrial biodiversity.

In relation to the interstate water trading pilot project, the Murray–Darling Basin Commission promoted the benefits and process of trading through

publications and media coverage. This process included coverage by major newspapers and radio. A workshop was conducted in late 2000, bringing together key stakeholders in water reform and trading to review the pilot project and advise on goals for the future. In July 2001 the Murray–Darling Basin Commission will meet with senior executives of irrigation companies to discuss interstate water trading in the future.

Assessment

The Murray–Darling Basin Commission continues to consult with all stakeholders in all aspects of the reforms and has ongoing consultation and education mechanisms for reforms such as the interstate trading pilot project and natural resource management. The Council is satisfied that the Murray–Darling Basin Commission has met this reform commitment for this assessment.

Appendix A: Third tranche assessment framework

Note: originally released in February 2001

Water reform highlights the multifaceted nature of NCP. The reform package put in place by CoAG in 1994 encompasses urban and rural water and wastewater industries and includes economic, environmental and social objectives. The reform program is aimed at improving the efficiency and effectiveness of water service providers and instituting water management planning such that the effect of all water use (by agriculture, industry, households and the environment) is taken into account.

Significant second tranche reform matters included: urban water pricing; approaches to determining the economic viability and ecological sustainability of new investment proposals; timetables for providing environmental allocations in stressed river systems; and frameworks to allow for appropriate institutional structures and the allocation and trading of water.

The third tranche program extends these commitments. It focuses on the 'on-the-ground' outcomes of the reform process in such areas as rural water pricing and cost recovery, environmental allocations or provisions for the environment, water quality issues, trading arrangements and further institutional reforms.

The Council's second tranche assessment for water reform focused on the establishment of the legislative systems and structures to deliver the CoAG water reforms. A key focus of the third tranche and future assessments will be seeking information from jurisdictions that the reforms, structures and systems are generating real benefits. The 1994 CoAG strategic water reform framework (the CoAG Framework) and related documents subsequently endorsed by CoAG provide the basis for the Council's assessments of water reform progress. The CoAG documents provide generally very broad descriptions of the water reform obligations. Because of this, the third tranche framework developed by the Council provides more detailed explanation and interpretation of the water reform obligations. The framework does not redefine the commitments determined by CoAG, but aims to:

- provide a clear, transparent basis for assessment particularly in relation to matters not considered in previous assessments;
- identify the type of information that jurisdictions should provide to demonstrate compliance; and

- provide a basis for early identification and bilateral discussion of areas where achieving reform outcomes is proving difficult.

The Council's interpretation is based on the experience of earlier assessments, discussions with States and Territories and other stakeholders, and other work by the Council and other relevant organisations.

Jurisdictions have also provided input into the material presented in this chapter. The comments made by governments ranged from the need to be more specific in some areas on how the NCC might assess an item, to the view that the approach in areas is too prescriptive. The Council has sought to accommodate specific comments wherever possible.

Jurisdiction-specific matters arising from the CoAG Strategic Framework

The Council recognises that the reforms may be applied in different ways depending upon the specific circumstances faced by jurisdictions. For example, effective resource management is important for all jurisdictions but the manner in which it is applied may vary according to a range of factors including the level and number of stressed river systems within the jurisdiction. Also, some reforms may not be relevant for some jurisdictions. For example, the ACT does not have a rural water sector and hence these reforms are not required.

In the same way it conducted its second tranche assessments, in the lead up to the third tranche water assessment the Council will hold bilateral discussions on jurisdiction-specific matters and any differences in interpretations relevant to the implementation of the 1994 Strategic Framework. Any remaining concerns can be dealt with through bilateral discussions.

Further NCC Background Papers on Aspects of CoAG Water Reforms

In addition to the guidance on each reform commitment provided in this framework, the Council is separately releasing several additional background papers providing more detailed discussion on a number of issues covered by this framework.

These papers provide background information on the rationale underlying some of the Council's interpretations of the CoAG water reform commitments in a number of *hot spot* areas. However, these papers are provided as background material for reference by jurisdictions and interested parties. They do not form part of this assessment framework.

The Papers have been provided to the Commonwealth and all States and Territories and will be available shortly after the release of the third tranche assessment framework. Copies of the papers will be available from the water section of the Council's website at www.ncc.gov.au.

The papers are listed in Box A.1.

Box A.1: Background information papers on water reform commitments

- **Rural water pricing.** This paper covers full cost recovery in the rural sector including CSOs and positive rates of return.
- **New investment in rural water infrastructure.** This paper discusses a methodology to assess the economic viability and ecological sustainability of new investments in this area.
- **Institutional reform issues in the water industry.** This paper discusses why regulation is important and examines the potential for conflicts of interest between regulation and service provision and arrangements to deal with these.
- **Environmental requirements of the CoAG Water Reforms** (paper prepared with the assistance of Environment Australia). This paper outlines the national agreements on the environment that may be useful as a guide in reporting progress against the environmental requirements of the water framework.
- **Implementing the National Water Quality Management Strategy** (paper prepared by Environment Australia and the Department of Agriculture Fisheries and Forestry Australia in consultation with State and Territory government agencies). The Commonwealth, after consultation with States and Territories, has proposed that implementation of the guidelines should be assessed through a two yearly review process. This paper provides a list of the component modules of the National Water Quality Management Strategy (NWQMS) guidelines and their current status. The Council will be looking to jurisdictions to show how the guideline principles have been adopted in the third tranche and subsequent assessments.
- **Defining water property rights.** This paper will discuss the specification of water property rights so as to promote efficient and sustainable investment and trade.
- **Water reform and legislation review.** This paper will outline the status of legislation reviews of relevant water legislation for each jurisdiction based on a stocktake report conducted by Marsden Jacob consultants.

The 1994 CoAG Strategic Framework

Reform commitment: pricing and cost recovery

In relation to pricing:

3(a) in general –

(i) to the adoption of pricing regimes based on the principles of consumption-based pricing, full-cost recovery and desirably the removal of cross-subsides which are not consistent with efficient and effective service, use and provision. Where cross-subsides continue to exist, they be made transparent,

Queensland, South Australia and Tasmania endorsed these pricing principles but have concerns on the detail of the recommendations;

(ii) that where service deliverers are required to provide water services to classes of customer at less than full cost, the cost of this be fully disclosed and ideally be paid to the service deliverer as a community service obligation (CSO);

3(b) urban water services –

(i) to the adoption by no later than 1998 of charging arrangements for water services comprising an access or connection component together with an additional component or components to reflect usage where this is cost-effective;

(ii) that in order to assist jurisdictions to adopt the aforementioned pricing arrangements, an expert group, on which all jurisdictions are to be represented, report to CoAG at its first meeting in 1995 on asset valuation methods and cost-recovery definitions; and

(iii) that supplying organisations, where they are publicly owned, aiming to earn a real rate of return on the written-down replacement cost of their assets, commensurate with the equity arrangements of their public ownership;

3(c) metropolitan bulk-water suppliers –

(i) to charging on a volumetric basis to recover all costs and earn a positive real rate of return on the written-down replacement cost of their assets;

3(d) rural water supply –

- (i) that where charges do not currently fully cover the costs of supplying water to users, agree that charges and costs be progressively reviewed so that no later than 2001 they comply with the principle of full-cost recovery with any subsidies made transparent consistent with 3(a)(ii) above;
- (ii) to achieve positive real rates of return on the written-down replacement costs of assets in rural water supply by 2001, wherever practicable;
- (iii) that future investment in new schemes or extensions to existing schemes be undertaken only after appraisal indicates it is economically viable and ecologically sustainable;
- (iv) where trading in water could occur across State borders, that pricing and asset valuation arrangements be consistent;
- (v) where it is not currently the case, to the setting aside of funds for future asset refurbishment and/or upgrading of government-supplied water infrastructure; and
- (vi) in the case of the Murray-Darling Basin Commission, to the Murray-Darling Basin Ministerial Council putting in place arrangements so that, out of charges for water, funds for the future maintenance, refurbishment and/or upgrading of the headworks and other structures under the Commission's control be provided;

3(e) groundwater –

- (i) that management arrangements relating to groundwater be considered by Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) by early 1995 and advice from such consideration be provided to individual jurisdictions and the report be provided to CoAG;

NCC interpretation and benchmarks for third tranche

Consumption-based pricing (clauses 3(a), 3(b) and 3(c))

Governments have committed to the principle of consumption-based pricing. For urban water providers using surface or groundwater, two-part tariffs (comprising a fixed access component and a volumetric cost component) are to be introduced where cost effective.

Most governments have made progress against commitments for urban water providers to implement two-part tariffs where cost effective. Where the deadline was not achieved at the time of the second tranche assessment, the

Council in its third tranche assessment will look for substantial subsequent progress.

The third tranche assessment will look for assessments of the cost effectiveness of two-part tariffs, to be completed for service providers with greater than 1000 connections. Jurisdictions are asked to provide copies of any reviews which show that implementation is not cost effective, particularly where this involves large service providers.

Where these assessments show two-part tariffs to be cost effective, the Council is looking for jurisdictions to commit to timely implementation. A strong net public benefit justification will need to be provided where implementation is to be phased beyond 2001.

Metropolitan bulk water suppliers should establish internal and external charges that are volumetrically based or are comprised of a two-part tariff with an emphasis on the volumetric component. Metropolitan wastewater charges should reflect the level of services received (volume and pollutant load) where practicable (for example, through effective trade waste charges). Similarly, the Council supports rural water prices including an appropriate volumetric component wherever practicable.

Ideally, all free water allowances should be removed, as these can lead to cross-subsidisation, inhibit incentives for economical water use and undermine the principle of consumption-based pricing. In any instances where low level free water allowances are retained or are to be phased out over time, jurisdictions should provide evidence that a significant proportion of customers and water supplied still face a strong volumetric signal.

Charges based on property values do not necessarily reflect cost of services provided to different customer classes. Where property values are used the Council will look to ensure that they do not undermine the principle of consumption-based pricing.

Full cost recovery – in general (clauses 3(a)(i), 3(b)(iii) and 3(c)(i) 3(d)(i), 3(d)(ii), 3(d)(v) and 3(d)(vi))

Compliance with the CoAG pricing guidelines developed through the Standing Committee on Agriculture and Resource Management (SCARM) Taskforce on CoAG Water Reform and endorsed by ARMCANZ and Senior Officials (see Box A.2) will form the basis of the Council's assessment of progress against CoAG commitments in this area.

Jurisdictions are asked to provide information on the degree to which each aspect of the CoAG guidelines has been met. This should involve, among other things, information on methodologies for assets valuation and provision for asset consumption, as well as information on the treatment of taxes and tax-equivalent regimes (TERs), externalities, dividends and return on capital. Information should be provided on water and wastewater services separately.

Box A.2: Guidelines for the application of Section 3 of the Strategic Framework and Related Recommendations in Section 12 of the Expert Group

1. Prices will be set by the nominated jurisdictional regulators (or equivalent) who, in examining full cost recovery as an input to price determinations, should have regard to the principles set out below.
2. The deprival value methodology should be used for asset valuation unless a specific circumstance justifies another method.
3. An annuity approach should be used to determine the medium to long term cash requirements for asset replacement/refurbishment where it is desired that the service delivery capacity be maintained.
4. To avoid monopoly rents, a water business should not recover more than the operational, maintenance and administrative costs, externalities, taxes or TERs [tax equivalent regime], provision for the cost of asset consumption and cost of capital, the latter being calculated using a WACC [weighted average cost of capital].
5. To be viable, a water business should recover, at least, the operational, maintenance and administrative costs, externalities, taxes or TERs (not including income tax), the interest cost on debt, dividends (if any) and make provision for future asset refurbishment/replacement (as noted in (3) above). Dividends should be set at a level that reflects commercial realities and stimulates a competitive market outcome.
6. In applying (4) and (5) above, economic regulators (or equivalent) should determine the level of revenue for a water business based on efficient resource pricing and business costs. Specific circumstances may justify transition arrangements to that level.
7. In determining prices, transparency is required in the treatment of community service obligations, contributed assets, the opening value of assets, externalities including resource management costs, and tax equivalent regimes.

Source: NCC (1998)

Jurisdictions will need to demonstrate that urban and non-metropolitan urban (NMU) water and wastewater providers are recovering costs consistent with the agreed guidelines and CoAG commitments. For vertically integrated providers, processes should be in place to establish the contribution to total cost of major functional areas such as headworks, bulk water, reticulation and retail services.

In regard to rural water pricing¹, consistent with the outcomes of the 14 January 1999 tripartite meeting,² the Council will assess jurisdictions as having complied with the pricing requirements where jurisdictions:

¹ The Council has defined this to include all water supply services other than those supplied to urban or non-major customers.

- have achieved full cost recovery;
- have established a price path to achieve full cost recovery beyond 2001 with transitional CSOs made transparent; or
- for schemes where full cost recovery is unlikely to be achieved in the long term, have made the CSO required to support the scheme transparent; and
- have made cross-subsidies transparent.

In applying the outcomes of the tripartite meeting to rural water providers, the Council will look for a substantial proportion of schemes to be recovering at least the lower band of the agreed guidelines. Consistent with CoAG commitments, the Council will look for schemes to, wherever practicable, be earning a positive rate of return on assets.

As with its assessment of urban water providers, the Council will look for rural service providers to establish an annuity for upgrading or refurbishing water supply infrastructure but will also accept other approaches where consistent with the objectives of this aspect of the CoAG Framework.

The Council will look for a sound public benefit justification for those schemes that are unlikely to attain the lower bound even in the long run. The Council will also look for the number and materiality of these schemes to be small.

The CoAG water pricing principles call for regulators to take into account externalities in the setting of prices. The Council would consider a proxy for environmental externalities as the costs to water agencies of mitigating environmental problems. While the approach is not ideal, it is the best the Council can do at this stage of the reform process given the embryonic nature of mechanisms for addressing externalities including problems in trying to identify, quantify and attribute externality costs into individual prices.³

Cross-subsidies (clause 3(a)(i))

Clause 3(a)(i) of the CoAG Framework states that cross-subsidies should be transparently reported and ideally removed where they are not consistent

² In January 1999, a tripartite meeting was held between representatives from the NCC, the High Level Steering Group on Water Reform (augmented with representatives from ARMCANZ and ANZECC) and the Committee on Regulatory Reform to discuss concerns surrounding the implementation of the CoAG water reform framework. The recommendations arising from the meeting were subsequently endorsed by CoAG.

³ The reality is there will be environmental costs that will not be reflected in pricing. Of course, another way of approaching the problem is for governments to establish some form of property rights over the environment and establish environmental allocations or contingencies.

with efficient service provision and use. In response to the 14 January 1999 tripartite meeting, governments subsequently agreed that:

In making its assessment the NCC shall not seek to make its own assessment of the adequacy of the justification of any individual CSOs or cross-subsidies but jurisdictions will provide explanations of the intent of the CSOs and cross-subsidies and the NCC will examine how in totality they do not undermine the overall policy objectives of the strategic framework for the efficient and sustainable reform of the Australian water industry.

The Council's third tranche assessment will look for governments to demonstrate that they have identified and transparently reported the objectives and size of all cross-subsidies. Furthermore, where a cross-subsidy has efficiency or effectiveness implications that are sufficient to undermine the overall policy objectives of the CoAG Framework, the Council will look for jurisdictions to justify the rationale for the retention of the cross-subsidy. This information should include the objectives of the cross-subsidy and discussion of why these objectives could not be achieved more effectively by another means. The Council will also consider the mechanisms in place to ensure ongoing effective treatment of cross-subsidies in the future (for example, guidelines, independent regulation, future reviews).

An economic measure which looks at cross-subsidies outside of a Baumol band (which sets prices between incremental and stand alone cost), is consistent with the CoAG objective of achieving economically efficient water usage and investment outcomes. Thus, CoAG commitments do not preclude differential pricing within the bounds of incremental and standalone cost. However, where prices are below incremental cost, any shortfall in total revenue recovered through prices above standalone cost should be transparently reported. Further, where inconsistent with efficient and effective service provision and use, cross-subsidies should ideally be removed or replaced with a transparent CSO.

Community Service Obligations (clause 3(a)(ii))

Where service deliverers are required to provide water and wastewater services to classes of customers at less than full cost, this must be fully disclosed and, ideally, be paid to the service deliverer as a CSO.

As noted above, as a result of the January 1999 tripartite meeting, governments agreed that the Council would not make its own assessment of the appropriateness of any individual CSOs. However, it was also agreed that the Council would review information on CSOs provided by governments in totality to ensure that these CSOs do not undermine the objectives of the agreed water reform framework.

Thus, the third tranche assessment will look for governments to provide information on the size and objectives of CSOs provided by State and local government water businesses. In considering this information the Council

will look for State and local government CSOs to be provided via an effective framework for identifying, costing, funding, delivering and reporting CSOs. The Council will also look for evidence that the application of this framework is leading to CSOs that are clearly defined, have an explicit public benefit objective, are transparently reported and are consistent with the aims of CoAG pricing reforms.

New rural schemes (clause 3(d)(iii))

This provision commits jurisdictions to conducting robust, independent appraisal processes to determine *economic viability* and *ecological sustainability* prior to investing in new rural schemes, existing schemes and dam construction. Jurisdictions are to assess the impact on the environment of river systems before harvesting water. Legislative provisions, institutional arrangements as well as policies and procedures must be in place to ensure the economic viability and ecological sustainability of new investments in rural schemes prior to development.

In undertaking its third tranche assessment the Council will review developments since the second tranche assessment. This will include:

- revisiting matters raised for further consideration;
- review any changes to arrangements since July 1999; and
- ensuring that the viability and sustainability of any new projects has been established prior to their construction.

In considering the above matters the Council will look for assessment processes to provide for appropriate independence and public consultation and scrutiny. Arrangements should also be flexible enough to match the depth of analysis with the size and significance of the project. For large developments in particular, assessments should be based on the best information available with any assumptions and limitations clearly stated.

For assessments of economic viability the Council will look for all relevant economic, social and environmental costs and benefits to be factored into the analysis.⁴ For large developments the Council suggests that a robust cost benefit analysis is an effective way of meeting CoAG commitments.

For assessments of ecological sustainability the Council is interested in information on the nature of the assessment and decision making processes as well as mechanisms to monitor the impacts of the development and compliance with environmental standards.

⁴ Viability assessments should also discount cash flows using an appropriate rate such as a project specific weighted average cost of capital.

Reform commitment: institutional reform

In relation to institutional reform:

6(c) to the principle that, as far as possible, the roles of water resource management, standard setting and regulatory enforcement and service provision be separated institutionally;

(d) that this occur, where appropriate, as soon as practicable, but certainly no later than 1998;

(e) the need for water services to be delivered as efficiently as possible and that ARMCANZ, in conjunction with the Steering Committee on National Performance Monitoring of Government Trading Enterprises, further develop its comparisons of inter-agency performance, with service providers seeking to achieve international best practice;

(f) that the arrangements in respect of service delivery organisations in metropolitan areas in particular should have a commercial focus, and whether achieved by contracting out, corporatised entities or privatised bodies this be a matter for each jurisdiction to determine in the light of its own circumstances; and

(g) to the principle that constituents be given a greater degree of responsibility in the management of irrigation areas, for example, through operational responsibility being devolved to local bodies, subject to appropriate regulatory frameworks being established;

NCC interpretation and benchmarks for third tranche

Institutional role separation (clause 6(c), 6(d))

As far as possible, the roles of water resource management, standard setting and regulatory enforcement and service provision should be separated institutionally. The Council will look for jurisdictions, at a minimum, to separate service provision from regulation, water resource management and standard setting. Jurisdictions will need to demonstrate adequate separation of roles to minimise conflicts of interest.

The January 1999 tripartite meeting found that, while separate Ministers would be an acceptable form of separation, it is not the only acceptable form to demonstrate adequate separation of service provision from other roles to minimise conflicts of interest. If the regulator and service provider are responsible to the same Minister, the Council would require information about how the resulting potential conflict of interest has been effectively

addressed. The CPA gives implicit support to the desirability of independent regulators in its clause 2 provisions concerning independent prices oversight.

Performance monitoring and best practice (clause 6(e))

Jurisdictions have established national processes for inter-agency comparisons and benchmarking. Benchmarking systems have recently been put in place for the NMU and rural sectors while the Water Services Association of Australia reports annually on progress with major urban providers.

The Council views active participation in these initiatives as demonstrating compliance with this aspect of the reform framework. The Council recognises the first reports for the NMU and rural sectors are likely to be a rough cut in the initial years.

Commercial focus (clause 6(f))

Metropolitan service providers must have a commercial focus, whether achieved by contracting out, corporatisation, privatisation, etc, to maximise the efficiency of service delivery. The Council will look for appropriate structural and administrative responses to the CPA obligations, covering legislation review, competitive neutrality and structural reform.

Irrigation scheme management (clause 6(g))

Jurisdictions endorsed the principle that constituents be given a greater degree of responsibility for the management of irrigation areas citing, as an example, the potential devolution of operational responsibility subject to the establishment of an appropriate regulatory framework.

In conducting the third tranche assessment, the Council will look for all impediments to devolution to have been removed and local management arrangements identified in the second tranche assessment to have been implemented. The Council will also look for decisions to be made in regard to whether devolution of irrigation scheme management takes place and, if so, advice on when this will occur. Where reform has been undertaken, evidence should be provided demonstrating that an appropriate regulatory framework has been put in place.

Reform commitment: allocation and trading

In relation to water allocations or entitlements:

4(a) the State government members of the Council, would implement comprehensive systems of water allocations or entitlements backed by separation of water property rights from land title and clear specification of entitlements in terms of ownership, volume, reliability, transferability and, if appropriate, quality;

(b) where they have not already done so, States, would give priority to formally determining allocations or entitlements to water, including allocations for the environment as a legitimate user of water;

(c) in allocating water to the environment, member governments would have regard to the work undertaken by ARMCANZ and Australian and New Zealand Environment and Conservation Council (ANZECC) in this area;

(d) that the environmental requirements, wherever possible, will be determined on the best scientific information available and have regard to the inter-temporal and inter-spatial water needs required to maintain the health and viability of river systems and groundwater basins. In cases where river systems have been over-allocated, or are deemed to be stressed, arrangements will be instituted and substantial progress made by 1998 to provide a better balance in water resource use including appropriate allocations to the environment in order to enhance/restore the health river systems;

(e) in undertaking this work, jurisdictions would consider establishing environmental contingency allocations which provide for a review of the allocations five years after they have been determined; and

(f) where significant future irrigation activity or dam construction is contemplated, appropriate assessments would be undertaken to, inter alia, allow natural resource managers to satisfy themselves that the environmental requirements of the river systems would be adequately met before any harvesting of the water resource occurs;

In relation to trading in water allocation or entitlements:

5(a) that water be used to maximise its contribution to national income and welfare, within the social, physical and ecological constraints of catchments;

(b) where it is not already the case, that trading arrangements in water allocations or entitlements be instituted once the entitlement arrangements have been settled. This should occur no later than 1998;

(c) where cross-border trading is possible, that the trading arrangements be consistent and facilitate cross-border sales where this is socially, physically and ecologically sustainable; and

(d) that individual jurisdictions would develop, where they do not already exist, the necessary institutional arrangements, from a natural resource management perspective, to facilitate trade in water, with the provision that in the Murray-Darling Basin the Murray-Darling Basin Commission be satisfied as to the sustainability of transactions;

NCC interpretation and benchmarks for third tranche

Water allocation (clause 4(a))

Governments have agreed to establish comprehensive systems of water entitlements backed by separation of water property rights from land title and clear specification of entitlements in terms of ownership, volume, reliability, transferability and, if appropriate, quality.

The Tripartite meeting considered 'comprehensive' required:

...A 'comprehensive system' of establishing water allocations to be put in place which recognises both consumptive and environmental needs. The system is to be applicable to both surface and ground water. However, applications to individual water sources will be determined on a priority needs basis (as determined by an agreed jurisdiction-specific implementation program.)

The legislative and institutional framework to enable the determination of water entitlements and trading of those entitlements should be in place. The framework should also provide a better balance in water resource use including appropriate allocations to the environment as a legitimate user of water in order to enhance/restore river health. The Council will also look for appropriate treatment of overland flows.

Water Property Rights

The Council will look for evidence that jurisdictions have in place the necessary legislation, policy, administrative systems and institutional arrangements to implement comprehensive systems of entitlements backed by separation of property rights from land title and clear specification. These arrangements should set:

- the rights and responsibilities of the Crown, users and the environment;
- provide for consultation, community involvement and public education;
- provide a methodology for determining and reviewing a sustainable balance between competing uses (including the environment); and
- deal with intra and interstate consistency where necessary.

The Council is aware there have been some recent concerns by stakeholders concerning what constitutes a water property right for the purposes of the water framework. The Council notes the work done by ARMCANZ in the 1995 paper 'Water Allocations and Entitlements: A National Framework for the Implementation of Property Rights in Water', and by the High Level Steering Group on Water (HLSGW)⁵ in the 2000 paper 'National Approaches to Water Trading' which has recently been released for public consultation.

All jurisdictions have passed legislation to define water rights more clearly, separate water entitlements from land title and establish resource management and trading regimes to promote more efficient and sustainable water use. One of the outcomes of separating water rights from land title has been a perception by financial sector participants that these changes will lead to an increase in risk profiles and lending rates. The HLSGW report has concluded that this effect has the potential to undermine the benefits from the broader water reform agenda.

In reviewing the efficacy of arrangements established in legislation the Council will look for a system of property rights that strikes an effective balance between water users' need for security and the environments need for adaptive resource management. Water property rights regimes should maximise efficient water trade and investment subject to environmental needs.

Factors the Council is considering in relation to water property rights regimes include:

- water property rights should be well specified so as to promote efficient trade within the social, physical and ecological constraints of catchments;
- to achieve the above, property rights should be in demand, well specified in the long term sense, exclusive, enforceable and enforced, transferable and divisible and provide for sustainability and community needs;
- in establishing rights that are well specified in the long term sense there is a need to ensure water users get the highest possible level of security in regard to the nature of the property right, and absolute security on the issue of ownership;
- in relation to ownership, while a 'lease in perpetuity' maximises security, it is not required to meet minimum CoAG commitments;
- compensation may be payable, for instance, where reductions in reliabilities and other relevant parameters are capricious or disproportionate but this is not a CoAG requirement and is the purview of governments;

⁵ The High Level Steering Group on Water (HLSGW) is responsible for intergovernmental coordination of the water reform agenda.

- Part IV of the Trade Practices Act could potentially be applied if the acquisition of water property rights results in a substantial lessening of competition;
- the Council will be examining the efficacy of water property rights systems for the third tranche assessment;
- water rights should be linked to a robust adaptive resource planning system; and
- any constraints on water rights and trade should be based on a sound public benefit justification and be implemented in a way that minimises impacts on efficient trade.

Provision for the environment (clauses 4(b),4(c), 4(d),4(e), 4(f))

Jurisdictions must develop allocations for the environment in determining allocations of water and should have regard to the relevant work of ARMCANZ and ANZECC. The Council will be looking for progress in implementing jurisdictional programs to be consistent with the ARMCANZ and ANZECC *National Principles for the Provision of Water for Ecosystems* (ARMCANZ/ANZECC 1996).

Best available scientific information should be used and regard had to the inter-temporal and inter-spatial water needs of river systems and groundwater systems.

The CoAG Framework requires that where river systems are over allocated or deemed stressed, there must be substantial progress by 1998 towards the development of arrangements to provide a better balance in usage and allocations for the environment.

The tripartite meeting further clarified the requirements and timeframes:

For the second tranche, jurisdictions submitted individual implementation programs, outlining a priority list of river systems and/or groundwater resources, including all river systems which have been over-allocated, or are deemed to be stressed and detailed implementation actions and dates for allocations and trading to the NCC for agreement, and to Senior Officials for endorsement. This list is to be publicly available.

For the third tranche, States and Territories will have to demonstrate substantial progress in implementing their agreed and endorsed implementation programs. Progress must include at least allocation to the environment in all river systems which have been over-allocated, or are deemed to be stressed.

By 2005, allocations and trading must be substantially completed for all river systems and groundwater resources identified in the agreed and endorsed individual implementation programs.

The Council will therefore look to States and Territories to provide information demonstrating that they have:

- considered environmental contingency allocations, including the planning process (allocation, management, operation implementation, and use), monitoring and review mechanisms (the maximum timeframe allowed before review and identification of triggers prior to this time elapsing) after initial determination;
- established a sustainable balance between the environment and other uses, including formal water provisions for surface and groundwater consistent with the ARMCANZ and ANZECC national principles;
- determined and specified property rights, including the review of dormant rights;
- instituted a statewide process in setting environmental allocations, and when issuing new entitlements, have provided for environmental allocations; and
- progressed the implementation of the endorsed allocation programs as published in the Council's second tranche assessment, providing:
 - a report on which river systems (including stressed, and other overallocated systems) identified in the second tranche have fully delivered/ partially delivered/ not yet commenced allocations to the environment, as well as for river systems; and
 - a report on the status of identified stressed rivers which were not addressed in a jurisdiction's endorsed 'roll-out' plan.

The Council agreed to the implementation programs provided by jurisdictions in its second tranche assessment while noting the following relevant matters:

- The National Land and Water Resources Audit, funded under the National Heritage Trust, is currently being undertaken and will provide valuable information to jurisdictions and the Council as to any relevant systems not included in the programs or requiring a higher priority.
- The High Level Taskforce on Water Reform may, prior to the third tranche assessment, undertake to identify some relevant criteria for classifying stressed river systems. This process may result in a modification to implementation programs.
- The implementation programs, by their nature, may need to be amended depending on proposed new developments and other significant events. In particular, the ongoing assessment of unregulated subcatchments may

result in additional High Stressed Catchments being included in the timetable.

The Council therefore concluded that implementation programs may change over time, subject to agreement between the Council and a jurisdiction.

For the third tranche assessment, the Council is seeking information on progress against implementation programs which demonstrates the following outcomes.

1. Regard to the work of ARMCANZ and ANZECC

In their approaches to water planning, allocations and use, jurisdictions will have had regard to the twelve principles embodied in work of the ARMCANZ and ANZECC *National Principles for the Provision of Water for Ecosystems* (ARMCANZ and ANZECC 1996). These are provided in Box A.3.

Box A.3: ARMCANZ National Principles for the Provision of Water for Ecosystems

Principle 1 - river regulation and/or consumptive use should be recognised as potentially impacting on ecological values.

Principle 2 - provision of water for ecosystems should be on the basis of the best scientific information available on the water regimes necessary to sustain the ecological values of water dependent ecosystems.

Principle 3 - environmental water provisions should be legally recognised.

Principle 4 - in systems where there are existing users, provision of water for ecosystems should go as far as possible to meet the water regime necessary to sustain the ecological values of aquatic ecosystems whilst recognising the existing rights of other water users.

Principle 5 - where environmental water requirements cannot be met due to existing uses, action (including reallocation) should be taken to meet environmental needs.

Principle 6 - further allocation of water for any use should only be on the basis that natural ecological processes and biodiversity are sustained (that is, ecological values are sustained).

Principle 7 - accountabilities in all aspects of management of environmental water should be transparent and clearly defined

Principle 8 - environmental water provisions should be responsive to monitoring and improvements in understanding of environmental water requirements.

Principle 9 - all water uses should be managed in a manner which recognises ecological values.

Principle 10 - appropriate demand management and water pricing strategies should be used to assist in sustaining ecological values of water resources.

Principle 11 - strategic and applied research to improve understanding of environmental water requirements is essential.

Principle 12 - all relevant environmental, social and economic stakeholders will be involved in water allocation planning and decision-making on environmental water provisions.

Source: (ARMCANZ and ANZECC 1996)

2. Stressed or over-allocated rivers or aquifers

Jurisdictions will need to show that they have achieved substantial progress in meeting the commitments with regard to stressed or over-allocated systems within the timelines provided in the implementation programs as published in the second tranche assessment.

The Tripartite meeting identified that '*significant progress*' is required for the third tranche assessment and was defined to include at least allocations to the environment in all river systems which have been over-allocated, or are deemed to be stressed. Jurisdictional programs in this area must be substantially complete by 2005.

The issue of environmental allocations in stressed or over-allocated systems will be carefully scrutinised by the Council in the third tranche assessment. Jurisdictions will need to demonstrate progress in setting allocations that are adequate to meet the environmental requirements of water sources and dependent ecosystems. Jurisdictions will also need to demonstrate that there are adequate monitoring and review arrangements in place, such that allocations are able to be revised should monitoring reveal current allocation arrangements are inadequate.

The Council accepts that some jurisdictions have only recently enacted legislation which provides for full recognition of the environment's right to a share of the water resource necessary to maintain ecological values. For third tranche compliance, the Council will expect that planning and implementation mechanisms are substantially in place such that allocations to the environment can be implemented as per a jurisdiction's timetable.

In the second tranche assessment, the Council noted that implementation programs may change over time, provided there is agreement between a jurisdiction and the Council.

3. Systems not defined as stressed or over-allocated

Jurisdictions will need to demonstrate both the capacity and intention to formally provide and use scientifically based environmental allocations for all water dependent ecosystems (as defined in the ARMCANZ and ANZECC principles), thus recognising the environment as a legitimate user of water.

The Council considers that, for all rivers and aquifers not presently declared over-allocated or hydrologically stressed, there should be no impediment to developing a formal allocation for the environment if required. The Council will therefore look for evidence in future assessments that jurisdictions have forward looking mechanisms in place and operating effectively for adaptive natural resource management.

In short, the Council seeks evidence of progress for the third tranche and subsequent assessments to ensure that allocations and trading will be substantially completed for all river systems and groundwater resources by 2005 as identified in the agreed and endorse individual implementation programs.

4. *Review of allocations*

While jurisdictions may have used the best available scientific information to determine initial allocation decisions, they will also need to demonstrate that they have not locked in allocations which over time and in the light of better information, could be seen as being inadequate to meet environmental water requirements.

The Council expects jurisdictions to have in place a clear pathway for review of allocations within the timeframe called for in the CoAG Framework.

Water trading (clause 5)

The objective of water trading is to ensure water is used to maximise its contribution to national income and welfare, subject to the physical, social and ecological constraints of catchments. The CoAG Framework originally looked for trading arrangements in water entitlements to be instituted once the entitlement arrangements have been settled and that this should occur no later than 1998.

Jurisdictions should establish a framework of trading rules, including developing necessary institutional arrangements from a natural resource management perspective to eliminate conflicts of interest, and remove impediments to trade. The Council will consider the adequacy of trading rules to ensure that the scope for efficient trade is maximised. Where restrictions on trade exist, information should be provided on the physical, social or ecological reasons for the restrictions.

The Council will be looking for impediments to trade to be addressed and the further development of interstate trade in water. For the third tranche assessment, the Council is looking for States and Territories to:

- provide information on developments since the second tranche assessment including current trading rules, the legislative and institutional arrangements, as well as the value, volume, location and nature (for example, permanent versus temporary trades, transfers from lower to higher value uses) of inter and intrastate trades;
- Where cross-border trade is possible, trading arrangements must be consistent between jurisdictions and facilitate trade. Where trading across State borders can occur, relevant jurisdictions must review pricing and asset valuation policies to determine whether there is any substantial distortion to interstate trade. Jurisdictions should develop proposals for further extending interstate trading in water, given the framework requirement for cross border trade to be as widespread as possible (for example, the second tranche assessment calls for interstate trade between: New South Wales and Queensland as a priority; the ACT and New South Wales; and Western Australia and the Northern Territory for the Ord system); and

- demonstrate that, where restrictions remain, the benefits of the restriction outweighs the costs (for example, show that mechanisms in place for water trading do not adversely impact on river health where surface waters are traded, or in the case of groundwater, do not result in demands on aquifers that are ecologically unsustainable).

Reform commitment: environment and water quality

In relation to institutional reform:

6(a) that where they have not already done so, governments would develop administrative arrangements and decision-making processes to ensure an integrated approach to natural resource management;

(b) to the adoption, where this is not already practiced, of an integrated catchment management approach to water resource management and set in place arrangements to consult with the representatives of local government and the wider community in individual catchments;

In relation to the environment:

8(a) that ARMCANZ, ANZECC and the Ministerial Council for Planning, Housing and Local government examine the management and ramifications of making greater use of wastewater in urban areas and strategies for handling stormwater, including its use, and report to the first Council of Australian Governments' meeting in 1995 on progress;

(b) to support ARMCANZ and ANZECC in their development of the National Water Quality Management Strategy, through the adoption of a package of market-based and regulatory measures, including the establishment of appropriate water quality monitoring and catchment management policies and community consultation and awareness;

(c) to support consideration being given to establishment of landcare practices that protect areas of river which have a high environmental value or are sensitive for other reasons; and

(d) to request ARMCANZ and ANZECC, in their development of the National Water Quality Management Strategy, to undertake an early review of current approaches to town wastewater and sewage disposal to sensitive environments, noting that action is underway to reduce accessions to water courses from key centres on the Darling River system. (It was noted that the National Water Quality Management Strategy is yet to be finalised and endorsed by governments.);

NCC interpretation and benchmarks for third tranche

Integrated resource management (clause 6(a), 6(b) 8(b), and 8(c))

Jurisdictions should have in place integrated resource management practices, including:

- demonstrated administrative arrangements and decision making processes to ensure an integrated approach to natural resource management and integrated catchment management;
- an integrated catchment management approach to water resource management including consultation with local government and the wider community in individual catchments; and
- consideration of landcare practices to protect rivers with high environmental values.

The Council will examine the programs established by jurisdictions to improve approaches for integrated resource management. Programs should desirably address such areas as government agency coordination, community involvement, coordinated natural resource planning, legislation framework, information and monitoring systems, linkages to urban and development planning, support to natural resource management programs and landcare practices contributing to protection of rivers of high environmental value.

Integrated catchment management

It is important that jurisdictions demonstrate that the catchment management planning process is free from domination by narrow sectoral interests to ensure decisions reflect the balance of interests within the wider community. Genuine stakeholder participation in catchment planning requires agreement to the principles underpinning the plan such as cost sharing arrangements, acceptable basin impacts, and allowable tradeoffs amongst water users. Appropriate institutional arrangements should ideally have a statutory underpinning.

The Council is aware that there has been little guidance developed to date to address issues of integrated catchment management. The Council notes the House of Representatives Standing Committee on Environment and Heritage is conducting an inquiry into catchment management practices in Queensland, New South Wales, South Australia, Western Australia, ACT and Victoria, and is expected to report its findings shortly.

The Council proposes to review the process followed by each jurisdiction to ensure effective implementation of catchment management practices. Further, the Council will also take account of any reviews by jurisdictions in this area and whether the findings of these reviews are being implemented.

Information provided by jurisdictions could include:

- a description of the overall coordinating body including its composition and functions relating to natural resource management and links to regional/local government bodies;
- a description of the process whereby catchment management bodies (trusts, committees, councils, or groups) are formed including how the local community, local government, and state agencies are involved;
- a description of the statutory basis of catchment management plans/strategies and capacity and mechanisms to enforce actions identified in the plan;
- a description of the framework used to assist catchment managers to evaluate/review the effectiveness of a catchment management process; and
- a description of landcare practices (including extent of coverage) that protect areas of river which have a high environmental value.

National Water Quality Management Strategy (clauses 8(b) and 8(d))

The National Water Quality Management Strategy (NWQMS) aims to deliver a nationally consistent approach to water quality management. It is being developed in response to growing community concern about the condition of the nation's water. The policy objective is *'to achieve sustainable use of the nation's water resources by protecting and enhancing their quality while maintaining economic and social development.'*

The Council is proposing to take the following approach for the third tranche assessment.

- Each jurisdiction should be able to demonstrate a high level of political commitment and a jurisdictional response to ongoing implementation of the principles contained in the NWQMS guidelines, including to achieving the policy objectives. Such commitment should include the development of practical on-the-ground action, which might involve the use of legislation, policy instruments, programs or plans. These should contain provisions which are consistent with the guidelines, and scope for review.
- Each jurisdiction should have a publicly stated commitment to implementing the principles identified in the Strategy and have implemented an approach for adopting the scientific framework outlined in the *Australian Water Quality Guidelines for Fresh and Marine Waters* (ANZECC 1992). There should be an appropriate statewide approach to water quality management.
- Each jurisdiction should have in place a water reform program that integrates water quality and quantity management requirements in their

approaches to land-use planning. In relation to water quality, this program should target the attainment of the ambient environmental quality objectives set in consultation with the community.

- All relevant legislative, regulatory and policy measures to protect water quality should, where practicable, be consistent with the *Implementation Guidelines for the NWQMS* (ARMCANZ and ANZECC 1998). In particular, they should include measures to promote:
 - integrated resource management;
 - identification of environmental values and associated water quality objectives; and
 - catchment, coastal and groundwater management planning.

Each jurisdiction should be able to demonstrate use of the relevant national guidelines. Where necessary, jurisdictions should have produced local guidelines or codes of practice consistent with the national guidelines so far completed for those industries covered under the NWQMS. The national guidelines seek adoption of local guidelines to underpin the regulation of each of the activities covered.

The strategy for the achievement of sustainable water quality management should build on a full mix of approaches including, but not limited to, regulatory and market based approaches, education and guidance. This is supported by CoAG. Market-based approaches should play a complementary role in achieving protection and enhancement of water quality where appropriate.

Where modules have been finalised, jurisdictions must have finalised their approach and initiated market-based and regulatory activities and measures such as water quality monitoring, catchment management policies, town wastewater and sewerage disposal and community consultation and awareness to give effect to the NWQMS.

Jurisdictions should support ANZECC and ARMCANZ in the development of the remaining modules of the NWQMS.

Reform commitment: public consultation and education

In relation to consultation and public education:

- 7(a) to the principle of public consultation by government agencies and service deliverers where change and/or new initiatives are contemplated involving water resources;

(b) that where public consultation processes are not already in train in relation to recommendations (3)(b), (3)(d), (4) and (5) in particular, such processes will be embarked upon;

(c) that jurisdictions individually and jointly develop public education programs in relation to water use and the need for, and benefits from, reform;

(d) that responsible water agencies work with education authorities to develop a more extensive range of resource materials on water resources for use in schools; and

(e) that water agencies should develop individually and jointly public education programs illustrating the cause and effect relationship between infrastructure performance, standards of service and related costs, with a view to promoting levels of service that represent the best value for money to the community;

NCC interpretation and benchmarks for third tranche

Consultation prior to change (clauses 7(a) and 7(b))

Jurisdictions must have consulted on the significant CoAG reforms (especially water pricing and cost recovery for urban and rural services, water allocations and trade in water entitlements). The Council will examine the extent and the methods of public consultation, with particular regard to pricing, allocations and water trading.

Public education programs (clauses 7(c), 7(d) and 7(e))

Education programs related to the need for and benefits of reform should be developed. Evidence should also be provided of agencies working individually and jointly to develop public education programs that illustrate the need for reform, and general awareness of water related issues. This could include the relationship between infrastructure performance, standards of service and related costs. These programs should promote levels of service that represent the best value for money to the community.

The Council will look for evidence that responsible agencies are working with education authorities to develop a more extensive range of resource materials for use in schools.

The Council noted in the second tranche assessment that there is a potential conflict in the service provider being responsible for determining the level of ongoing public education on water conservation when it has a financial

interest in increased water consumption. The Council is interested in information on measures used by jurisdictions (for example, an effective purchaser provider split) to address this issue, including programs offered by service providers as 'good corporate citizens'.

Reviewing and reforming water legislation: the CPA commitment

As well as implementing the CoAG Framework, governments agreed to ensure the water industry is subject to clause 5 of the CPA. This commits governments to ensuring that legislation does not restrict competition unless the benefits of the restriction to the community as a whole outweigh the costs and the objectives of the legislation can only be achieved by restricting competition.

Legislative reform was important for meeting a number of second tranche water reform commitments in relation to, for example, water allocations and trading, institutional separation and resource management. Until recently a key third tranche issue was the risk that jurisdictions may not have implemented amendments to legislation by the year 2000 deadline, in line with the CPA legislation review commitments.

However, in November 2000 CoAG agreed that the 2000 deadline for the full completion of all jurisdictions' legislation review programs should be extended to 30 June 2002. Accordingly, the Council will continue to monitor progress and look for full implementation by 30 June 2002, with a robust public interest justification provided for any delays beyond this date.

For the third tranche, the Council is looking for jurisdictions to provide a status report on reviews of water legislation including whether a piece of legislation has been repealed by passage of new legislation. Where a government chooses to continue a restriction on competition, or not to apply recommended reforms, the Council will require evidence in the annual report of the public interest justification or why non-implementation benefits the community.

Appendix B: Water trading

Governments have agreed that water trading arrangements should be in place to so as to maximise water's contribution to national income and welfare, within the social, physical and ecological constraints of catchments.

Consistent with commitments under Clause 5 of the CoAG framework, the objective of water trading is to ensure water is used to maximise its contribution to national income and welfare, subject to the physical, social and ecological constraints of catchments. The Council's view is that, as far as possible, water rights regimes should facilitate trading that maximises the value of the resource with any restriction on trade being transparent and based on a sound public benefit.

In assessing compliance with Clause 5 of CoAG framework, the Council has looked for the following matters to be given due consideration:

- a clear definition of sustainable water rights;
- clear water trading zones and rules;
- robust markets and trading procedures; (clearance and facilitating trade)
- a number of market choices;
- accessible and equitable market information;
- certainty, confidence and timeliness; and
- capital efficiency.

This approach is consistent with the High Level Steering Group on Water report 'A National Approach to Water Trading' (2000).

In making its assessment the Council recognises that the means through which each of the above issues are addressed will vary from jurisdiction to jurisdiction. That said, as trading in most jurisdictions is still in its infancy, the assessment has focussed on the establishment of mechanisms, policies and information that provide a sound foundation for efficient water trading. Particular focus in this assessment has therefore been extended to:

- the clear definition of property rights;
- adequate specification of appropriate trading rules and zones;
- appropriate market procedures; and

- accessible and equitable market information.

In future assessments, the Council will look for evidence of effective trade in areas of demand and measures to be in place to increase the depth of water trading markets.

Definition of water entitlements

Well-defined property rights are essential for efficient water trade. Efficient trade in water rights requires that market participants are able to form a reasonable expectation about the magnitude and distribution of the benefits likely to be provided by the water right and the likelihood that those benefits will be realised. That is, water rights must be well defined in terms of both:

- *the nature of the right* – the benefits promised by holding the water right; and
- *ownership* – the right holders ability to realise those benefits.

In addition, transitional mechanisms that allow for the movement to a system of sustainable property rights should be open and transparent so that potential market participants understand the impact upon their water rights.

Discussion on the definition of water entitlements has been given in the allocations section. Therefore, the focus in this chapter will be solely upon the impact of these issues on the efficacy of inter- and intra- state trading markets.

Nature of the right

Efficient water trade, consistent with the clause 5 objective of maximising water's contribution to national income, requires that buyers and sellers have a clear understanding of exactly what they are trading. This includes clear specification of the volume, ownership, reliability and, if appropriate, quality of the water provided by the right over time. Poorly defined rights increase the risks associated with holding a water right, which is likely to discourage beneficial trade and investment that would have otherwise occurred.

Ownership

Uncertainty about the individual right holder's security of tenure can impede efficient trade and investment. Rights covering only a short time or which have significant risk of uncompensated reductions in the share of the available resource provided for the duration of the water right mean that water users are more uncertain about whether they will have access to the water in the future. This can be a significant issue, particularly when considering major investments in assets with long lives with little or no resale value. Key issues in ensuring that water rights' security of ownership of

water rights is maximised include the duration of the right, ensuring that the right is enforced, the quality of the title and establishing rights that are transferable and divisible.

Water trading zones and rules (where and how people can trade)

Efficient and effective trading requires clearly defined trading zones and rules. Uncertainty about where and under what conditions trading can take place can discourage mutually beneficial trades. Where trading rules and zones are used to pursue environmental or community objectives, this should be done in a way that minimises the impact on efficient trade.

Markets and trading procedures

As noted by the High Level Steering Group on Water's Report, any financial transaction involves risk to the participants (including payment to the seller and delivery to the buyer). However, water trade involves an important set of additional risks relating to environmental impacts and third party effects. If water trading is to maximise water's contribution to national income and welfare, transparent and efficient clearance procedures must be in place to address risks to both market participants and third parties.

Where precautionary measures are put in place, it is important to:

- separate legitimate from illegitimate reasons for restricting trade;
- recognise that social impacts should not be ignored but should be addressed in their own right;
- examine and improve the efficacy and efficiency of legitimate restrictions; and
- balance the need for appropriate protection for buyers, sellers and third parties, generally through buyer and seller checks, with the need for timely processing of trade applications.

Ideally, sufficient information should be provided to allow potential buyers and sellers to shop around and compare water prices, transaction fees and services offered by water brokers and water exchanges.

Market choices

The HLSGW Report notes that it is important for potential market participants to have a wide choice in the manner in which their trade is conducted. There are three main mechanisms for trade:

- Private trade;
- Water brokers; and
- Water exchanges.

While it is not essential to have all of these options available for all trades, a variety of mechanisms for trade will only benefit trading markets. A variety of trading mechanisms usually results in the wider public availability of information regarding trading mechanisms, availability and price and encourages participation in the market as buyers and sellers can make a reasonable estimate of the value of their water. As well as providing a mechanism for trade, a water exchange is one way in which market information can be provided effectively. Evidence suggests that these exchanges also facilitate trade by providing a price-setting function for private sales in the region

Market information

Water trading will only maximise the resources contribution to income and welfare when actual and potential market participants have enough and equal information to make and informed decision about a particular trade. As noted by the HLSGW Report an effective market depends on buyers and sellers having access to timely and relevant quality information on the key questions of:

- what is being traded;
- where can water be traded to and from;
- how trades can be executed;
- what are the procedures; and
- what are the risks and can these be managed.

The Report also notes the value of water exchanges as a forum for the dissemination of market information and price information. Evidence suggests that exchanges also serve a price setting function for private sales.

Certainty, confidence and timeliness

It is important for potential market participants to fully understand the risks involved with participation in the market and that these risks be minimised. As such, the High Level Steering Group on Water report notes that:

Governments should ensure that trading is as open and transparent as possible and should seek to minimise any artificial impediments to trade.

Market transparency could be accomplished through easily available market information and information on trading rules, practices and procedures. This would include clear specification of water property rights, especially in terms of the nature of the right and ownership. Governments should work to remove any impediments to effective trade, and ensure that remaining impediments are based on sound public benefit and be the least distortionary means possible.

Capital efficiency

Improved capital efficiency of water entitlements and property rights is a key outcome of the better specification of property rights and the development of trading markets. Water entitlements are valuable capital assets, and in many areas, are more valuable than the land they used on. A water user with a water entitlement of 5000ML could potentially own a resource with a value in excess of \$5million.

As such, water users need flexibility in the methods of managing water as a capital asset. These methods may include:

- Mortgage security;
- Leased for one or many years in the same manner as vehicles and equipment, rather than purchased outright;
- Sold to a financier and leased back; and
- Subject to conditional sale, purchase or lease contracts and other forms of options.

It should be noted that mechanisms to improve capital efficiency as described, particularly the latter two, are generally found only in developed, or mature, markets. As water markets are generally still in their infancy, the Council will not be requiring a specific suite of these mechanisms in its third tranche assessment. Instead, the Council has looked for the appropriate basis to exist for the development of these options, and consideration by Governments of how markets may be improved in future assessments.

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