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

WESTERN AUSTRALIA WATER REFORM

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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

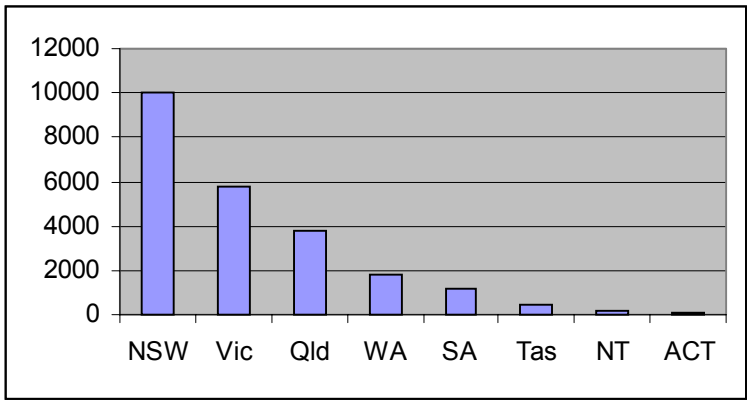
ANCID	Australian National Committee on Irrigation and Drainage
ANZECC	Australian and New Zealand Environment and Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
CoAG	Council of Australian Governments
CSO	Community Service Obligation
NCC	National Competition Council
NCP	National Competition Policy
NLWRA	National Land and Water Resources Audit
NWQMS	National Water Quality Management Strategy
SS	Suspended Solids
WRC	Water and Rivers Commission
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.

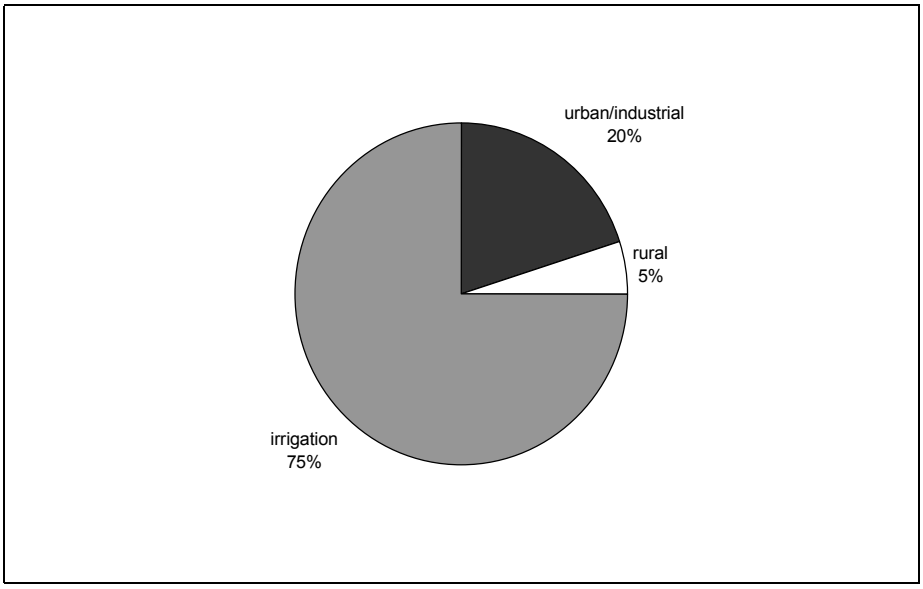
- Regional planning processes on natural resource management issues have started in all States and Territories and communities are heavily involved in consultation on these processes.

- 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.

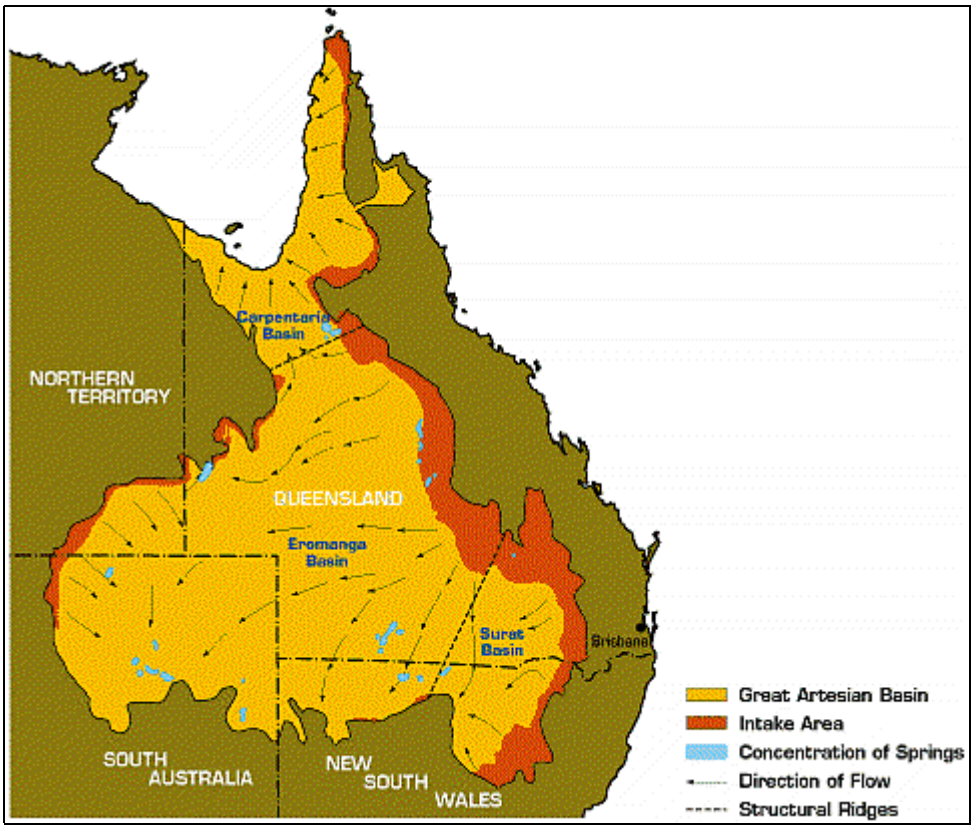
Managing groundwater basins cooperatively

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 gigalites) 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.

Western Australia

Around 60 per cent of total water use in Western Australia comes from groundwater sources. The most intensively used groundwater area is the Perth Division followed by the Yilgarn Division. On a State-wide basis groundwater is used for mining (35 per cent), irrigated agriculture (25 per cent) and households and private household bores (19 per cent). Parks and gardens, services, industry and stock watering account for the remaining 21 per cent of groundwater use.

Surface water accounts for around 40 per cent of the total water use in Western Australia. Irrigated agriculture and households account for 65 per cent and 5 per cent of surface water use respectively, while services, industry, mining and stock watering account for the remaining 20 per cent. Most of the surface water use in Western Australia is restricted to South–West drainage Division and the Timor Sea Division. The Ord River basin irrigation accounts for nearly all of the water use in the Timor Sea Division.

There are three major providers of urban water services in Western Australia: the Water Corporation, Aqwest (formerly the Bunbury Water Board) and Busselton Water Board. In addition there are 20 local government authorities operating sewerage schemes. Water Corporation, which is a corporatised entity, is by far the largest water service provider supplying bulk water storage and transfer, water treatment and reticulation, wastewater treatment and reticulation and storm water services. Western Australia has four irrigation scheme providers, the South–West, Preston Valley, Carnarvon and Ord irrigation schemes. Water Corporation supplies bulk water to these schemes.

The South–West and Preston Valley schemes are owned and operated by farmers co-operatives. Both the Carnarvon and Ord irrigation schemes are publicly owned. Plans are underway to transfer ownership of both schemes to privately owned growers' cooperatives.

The Water and Rivers Commission is responsible for water management and resource allocation. The Office of Water Regulation administers a water-licensing scheme and provides policy advice relating to water services (including charges levied for the provision of water services). The Minister for Water Resources has the overall responsibility for water service provision and standard setting, resource management and water regulation.[1]

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[1] Changes since 30 June 2001 have established separate portfolios, with resource management and water service regulation the responsibility of the Minister for

Progress on reforms

Pricing and cost recovery

Urban water services

The Council is satisfied that for the most part, Western Australia's urban water and wastewater services are recovering costs consistent with CoAG commitments. Western Australia has advised that water and wastewater providers will soon be subject to independent prices oversight. This will also provide a means for achieving improved asset valuation for price setting purposes.

In the 2002 assessment the Council will look for Western Australia to have made progress in the following areas: further consideration of the treatment of externalities associated with broader environmental effects of urban water use; improved asset valuation by Aqwest, Busselton Water Board and the Kalgoorlie-Boulder service provider; and consideration of avenues for recovering taxes or tax-equivalents in charges by the Kalgoorlie–Boulder service provider.

The Water Corporation, Aqwest and Busselton Water Board have all substantially implemented two-part tariffs. Two-part tariffs apply to all Water Corporation customers and all residential customers of Aqwest and the Busselton Water Board. Aqwest and the Busselton Water Board are currently in the process of moving the non-residential customers to a two-part tariff regime. The full implementation of two part-tariffs is expected to be completed by mid 2002. This process should eliminate from water charges the current arrangement of free water allowances as well as the fixed charge based on the gross rental value. The Council will monitor the progress in this area.

The Water Corporation is implementing a single fixed charge for residential sewerage services, which will replace existing charges based on gross rental value. The Council will look for consideration by other waste service providers to replace existing charges based on gross rental value.

Western Australia released the Community Service Obligations Policy in Western Australia in April 2000, which updates a 1996 document and provides a more coordinated and well-focussed framework for endorsing new community

Environment and Heritage, and water service delivery the responsibility of the Minister for Government Enterprises.

service obligations (CSOs). The Council welcomes this new framework. Western Australia is continuing to comply with CoAG commitments in regard to the CSOs as they relate to the urban water sector.

Western Australia has advised that ring–fenced arrangements have been established within the Water Corporation. This allows for the use of internal volumetric bulk water transfer prices that recover full operating costs and reduce the potential for cross-subsidies between business segments. The Water Corporation also uses volumetric charges for country water customers that reflect the cost of providing such services. This reduces the potential for cross subsidies between different groups of customers. A broader and a more systematic examination of cross-subsidies in the Western Australian water sector will be an issue for consideration for the Council's 2002 NCP assessment.

Rural water services

Among the regulated irrigation districts in Western Australia, the South–West and the Preston Valley irrigation schemes meet the lower bound of the agreed pricing guidelines to meet cost recovery. As a result of the price paths that have been established for the Ord and Carnarvon irrigation schemes, their full cost recovery is expected, albeit in a decade or so. Hence the arrangements in the rural water services to recover full costs still have some way to go. The Council will examine the cost recovery of these schemes during the 2002 NCP assessment.

In terms of unregulated water resources, the Council can find little evidence that licence fees in any way reflect cost recovery. The Council will look at progress in this area in the 2002 NCP assessment.

Currently, the South–West and the Preston Valley irrigation co-operatives, and the Carnarvon scheme use volumetric charges to recover water costs. The Ord scheme recovers costs through an area-based charge. As indicated earlier the irrigation schemes receive bulk water from the Water Corporation. The corporation's bulk water charges to the South–West and the Preston Valley irrigation co-operatives are volumetric based. It charges the Ord and Carnarvon irrigation schemes on a fixed basis for their bulk water. The Council finds that Western Australia has met minimum commitments on consumption based pricing for rural water and it will monitor further progress in this area in the 2002 NCP assessment.

The Water Corporation's bulk water charges to the South–West and the Preston Valley irrigation co-operatives are set to recover only the lower bound of the CoAG pricing guidelines. The Council understands that the Water Corporation is compensated through a CSO payment for the fact that the Ord and Carnarvon irrigation schemes are charged for their bulk water at a price less than the lower

bound. The lack of transparency in the reporting of these arrangements makes it difficult to clearly estimate the CSO payments in the rural water sector in Western Australia. The Council will look for consideration of further disclosure of CSOs for rural water supply in future assessments.

Western Australia has indicated its commitment to establishing a comprehensive framework for assessing the economic viability and environmental sustainability of future investment in new rural water schemes. The framework is expected to be completed in 2001. In looking at the economic viability criteria of the framework, the Council notes that it is an improvement on previous arrangements. The Council will continue to monitor this issue. In terms of new infrastructure, the Council notes the Stirling–Harvey redevelopment scheme will provide security of water supply to Perth. The development of Stage 2 of the Ord irrigation area has not been approved yet. The Council will look for appropriate economic and environmental assessments once this approval has been given.

The Council is satisfied that for the 2001 NCP assessment, Western Australia has complied with water pricing and cost recovery commitments.

Institutional reform

The three major urban water service providers, the Water Corporation, Aqwest and Busselton Water Board are responsible to the Minister for Water Resources in Western Australia. Furthermore, the Minister is also responsible for the Office of Water Regulation and the Water and Rivers Commission. Such an arrangement could potentially lead to conflict of interest, and hence there needs to be a greater degree of transparency and accountability in this regard. This arrangement where one Minister is responsible for service provision, resource management and regulation is under review as a part of the Western Australian Government's current Machinery of Government Review.

The Office of Water Regulation does not currently have a role in price regulation in the water sector. Western Australia has indicated its commitment to establishing an independent economic regulator that will deal with the economic regulatory aspects in the water sector, in particular price regulation. The Council will monitor progress in this area in the 2002 NCP assessment.

Western Australia's approach to the regulation of resource allocation and water management is likely to provide sufficient transparency and separation in the roles of the responsible minister. A combination of mechanisms including the role of the Water and Rivers Commission Board, public consultation in water management through the water resource management committees and the provisions which allow Water and Rivers Commission decisions to be appealed

appear to address any potential conflict of interest. These mechanisms are still being implemented and the Council will monitor their progress.

In relation to drinking water quality, the Water Corporation has agreed to move from the 1987 drinking water guidelines to the 1996 Australian drinking water guidelines over a period of five years. The Department of Health will monitor the phasing in of the changes.

Western Australia is continuing to participate in the Water Services Association of Australia performance monitoring and benchmarking process. In relation to the devolution of irrigation scheme management, Western Australia is continuing to make progress.

The Council is satisfied that the Western Australia has complied with institutional reform commitments.

Allocation

Licences issued under the *Rights in Water and Irrigation Act 1914* create water property rights in Western Australia. Licences are issued separately to the land title. The Act also formalises Western Australia's approach to providing water for the environment and consumptive uses. This is done through a system of statutory water management plans. The Act provides for three levels of water management plans. The purpose of these plans is to manage both groundwater and surface water quantity and quality within a catchment. The three levels of plan are regional management plans, sub-regional management plans and local area management plans. These plans are of an indefinite duration, and are to be reviewed at least every seven years. Western Australia has a timetable for the preparation of water management plans including the current status of the plans.

Water resource management committees will aid the Water and Rivers Commission in the setting up of water management plans. These committees will include water users and other stakeholders. Currently there are no water resource management committees in place. Two committees are expected to be established in 2001 and another two in 2002. Eventually there will be 16 such committees in Western Australia.

In Western Australia, environmental water provisions are set in water management plans for all water systems in one of two ways: in the form of a 'notional or interim allocation limit' or in the form of formal assignment of environment water provisions in areas that are highly of fully developed.

There are no stressed or over allocated surface water systems in Western Australia that required action in June 2001. The Council will monitor both the

progress in developing water management plans and any increased water use which may indicate a need to bring forward the schedule for completion of particular plans.

Trading

Around a third of Western Australia's water resource systems are at a highly or fully allocated level. It is in these areas, in particular, that water trading will allow new users to obtain water or existing users to raise their supply without impacting on the sustainability of the water system.

Provisions for water trading in Western Australia have been established through amendments to the *Rights in Water and Irrigation Act 1914*. The amendments came into effect in January (2001a). The Water and Rivers Commission has released a draft policy document on transferable (tradeable) water entitlements for Western Australia (2001) for public consultation. This document, once formalised, is expected to provide a broad template for water trading including the trading rules.

Water trading in Western Australia is still at an embryonic phase. At present water trading occurs only within the South–West Irrigation Area. The only prospect for interstate trading is with the Northern Territory where the proposed stage two of the Ord irrigation project crosses the state boundary.

The Council is satisfied that Western Australia has made satisfactory progress in water allocation reform commitments and has met minimum water trading commitments for the 2001 NCP assessment. The Council will look for further progress in these areas in the 2002 NCP assessment.

Environment and water quality

In Western Australia integrated resource management occurs primarily through regional natural resource management groups and with the help from local and state government agencies. Activities undertaken in this regard include the provision of advice to community groups on river restoration and management, establishment of 145 Land Conservation District Committees and preparation of initiatives to protect the quality and quantity of ground water used in Perth.

Implementation of specific actions to address broader catchment management issues in Western Australia is progressing gradually. The Council will monitor further progress in this area in the 2002 NCP assessment.

In 2000, the Western Australian government developed the State water quality management strategy as the framework through which the National Water

Quality Management Strategy will be implemented. The Western Australian Cabinet endorsed the State strategy in April 2001. As a part of this overall process a State water quality implementation plan is to be developed setting the priorities for implementing the National Water Quality Management Strategy guidelines. Western Australia has a provisional timetable spanning for the next two years to implement the State strategy. The Council will monitor the progress against this timetable during future assessments.

By the 2002 NCP assessment, the Council would expect to see the following: the State water quality implementation plan finalised and released as a public document; and completed drafts for public release showing the means of implementation of specific National Water Quality Management Strategy guidelines for fresh and marine water quality, drinking water, and water quality monitoring and reporting.

The Council is satisfied that Western Australia has complied with environment and water quality reform commitments.

Consultation and education

The Western Australian government has undertaken widespread public consultation and education programmes in relation to its water industry reforms. For example in developing the environment water provisions policy, considerable public and stakeholder consultation has been undertaken. Local water management advisory committees are important means by which public consultation is achieved.

In the second tranche NCP assessment, the Council noted that it is inappropriate for service providers to decide on the level of public education on matters such as water conservation. Western Australia has indicated that it recognises that there may be a potential conflict of interest in suppliers providing public education on water conservation. However it indicates that there are incentives for suppliers to manage water conservation in a responsible manner.

The Council is satisfied that Western Australia has complied with public education and consultation reform commitments.

Assessment

The Council is satisfied that Western Australia has met reform commitments required for the 2001 NCP assessment. Western Australia has demonstrated a substantial degree of commitment and progress, implementing water reforms.

Pricing and cost recovery: urban

Governments agreed that urban, non-metropolitan urban and rural water services should introduce full cost recovery and consumption-based pricing and identify and report CSOs and cross-subsides. (clause 3)

The three main metropolitan and non-metropolitan urban water service providers in Western Australia are the Water Corporation, Aqwest (formerly Bunbury Water Board) and the Busselton Water Board.[2]

The Water Corporation is by far the State's largest service provider (table 1) providing bulk water storage and transfer, water treatment and reticulation, wastewater treatment and reticulation and storm water services.

Table 1: Metropolitan water service providers, 1999–2000

	Water customers	*Water supplied (megalitres)*	*Wastewater customers*	*Wastewater treated (megalitres)*	*Total assets ($'000)*
Water Corporation	787 351	339 190	613 936	118 890	9 173 875
Aqwest	12 897	6893			44 336
Busselton Water Board	7619	3668			16 334

Source: Busselton Water (2000); Aqwest (2000); Water Corporation (2000); Western Australia (2000 unpublished).

In addition, 20 local authorities operate their own wastewater schemes. The largest, provided by the City of Kalgoorlie–Boulder, has almost 10000 residential connections. The remainder have fewer than 1000 connections.[3]

2 Urban services include the provision of bulk and reticulated water and wastewater services to households, businesses and industry in metropolitan areas (such as large cities) and non-metropolitan areas (such as country towns).

3 The Council has not considered the progress of those activities with fewer than 1000 connections but, rather, has focused on larger activities given that these areas promise the greatest gain. The view has also been put to the Council that the cost of reforming activities with fewer than 1000 is likely to be greater than the benefits.

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 regime, 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 regime (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.

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 (clause 3a and b).

Western Australian arrangements

Commercial viability

The Water Corporation's 2000 annual report stated that 1999-2000 earnings before interest and tax were 3 per cent below the target as a result lower water stemming from mild weather and the Corporation's water use efficiency program. However, Water Corporation still earned a positive return on assets, equal to 4.2 per cent which was the same as that for the preceeding year. The Water Services Association of Australia (2000) reported a real economic rate of return of 7 per cent for 1999-2000, compared with a national trend of 5.1 per cent.

Returns to water and wastewater businesses are not reported separately in the Water Corporation annual report however, the Water Services Association of Australia reported a return on assets for the Water Corporation of 5.8 per cent, and 7.12 per cent for wastewater services. Real economic returns of 6.9 per cent and 7.11 per cent were also reported for these activities in 1999-2000. These results compared with national trend values of 5 per cent and 5.16 per cent for water and wastewater respectively.

The Western Australian 2001 NCP annual report stated that the Water Corporation financially ring-fenced its metropolitan bulk water operations, establishing an internal volumetric bulk water transfer price that recovers full operating costs, including a commercial real rate of return on the written-down replacement cost of assets.

Aqwest earned a return of 6 per cent in 1999–2000 which was above its target rate of 4 per cent, while Busselton Water Board earned a return on average assets of around 3 per cent (based on assets valued at historic cost).

The Western Australian 2001 NCP annual report stated that information provided by the City of Kalgoorlie–Boulder indicated that it generated revenue of $3.4 million from its sewerage scheme compared with total operating costs of $2.3 million, the City generated a pre-tax rate of return on the depreciated historical cost of sewerage scheme assets of just over 4.2 per cent.

Taxes

The Water Corporation 2000 annual report stated that the *State Enterprises (Commonwealth Tax Equivalents) Act 1996* requires tax-equivalent payments for income and sales tax. In 1999–2000 the Water Corporation made income tax equivalent payments of $140 million, compared with $158 million the preceding year. Sales tax and local government rate equivalent payments totalled $8 million.

In 1999–2000 the Busselton Water Board made income tax-equivalent payments of $140 300, while payments by Aqwest totalled $940 476. Aqwest and the Busselton Water Board also provided for sales tax as part of the requirements under the State Tax-equivalent regime. Western Australia advised that Kalgoorlie–Boulder does not pay taxes or tax equivalents.

Externalities

The Council has been advised that there is currently no explicit provision in Western Australia for passing on to urban water users the costs of addressing any broader environmental effects of urban water use.

Assets

The Water Corporation annually reports plant and equipment assets at their written-down replacement cost (based on the deprival approach), with these amounts being re-valued every three to five years. Land and buildings are re-valued every three years. The recoverable amount test is applied to ensure assets are recorded at a fair value, although calculations of this amount do not discount future cash flows.

Aqwest reports land and mains assets at independent valuation, while valuing all other non-current assets at cost. Similarly, the Busselton Water Board reports non-current assets at historic cost or at 1996 cost depending on the asset class. Western Australia advised that assets used by Kalgoorlie-Boulder are reported at their written-down historic cost.

Dividends

In 1999–2000, the Water Corporation paid dividends of $201.2 million, a $5.1 million increase on payments in the preceding year. Annual report information suggested that both the 1999–2000 and 1998-99 dividends represented around 55 per cent of earnings before interest, tax and developers' contributions. Aqwest, the Busselton Water Board and Kalgoorlie-Boulder did not provide dividends in 1999-2000.

Discussion

The Council is satisfied that Western Australia's urban water and wastewater services are, for the most part, recovering costs consistent with CoAG commitments. The Council welcomes Western Australia advice that water and wastewater providers will soon be subject to independent prices oversight and suggests that this will provide a more open, transparent and consistent process for setting prices.

The Council supports the Water Corporation's application of the deprival approach to asset valuation. It is concerned that the deprival approach is not used to a greater extent at Aqwest, the Busselton Water Board and the City of Kalgoorlie–Boulder. The Council suggests that the deprival approach provides a sound basis for setting prices that reflect of the future store of benefits provided by an asset and, therefore, for setting prices that reflect the cost of the service received and encourage efficient water use. Further, the CoAG guidelines require the adoption of the deprival approach unless specific circumstances justify another method. The Council has received no justification of why the circumstances faced by Aqwest, the Busselton Water Board and Kalgoorlie-Boulder warrant an alternative method. The planned introduction of independent prices oversight provides a means for achieving improved asset valuation for price setting purposes. Independent prices oversight could also consider whether the Water Corporation, in applying the recoverable amount test should discount future cash flows to their present value. This would ensure adequate provision for the time value of money and thus avoid overstating asset values.

The Council understands that there is no explicit provision for externalities in urban water prices. Including externalities in setting prices is a requirement of the CoAG guidelines. The Council notes that one way of meeting this requirement could be to pass onto customers some of the costs of managing the environmental impacts of urban water use. However, the Council also notes that a comprehensive treatment of the issue of externalities requires considering issues such as well defined property rights and setting appropriate standards. In undertaking its future assessments the Council will look for Western Australia to have further considered a more rigorous treatment of externalities.

Provision for taxes or tax-equivalent payments is also a requirement of the CoAG pricing guidelines and, as such, the Council is concerned that tax-equivalent payments are not included in costs recovered by Kalgoorlie-Boulder. In the next assessment the Council will look for further consideration of this matter.

Assessment

The Council is satisfied that Western Australia has met third tranche commitments in regard to full cost recovery. However, when the Council next assesses progress, it will look for:

- improved asset valuation by Aqwest, Busselton Water Board and the City of Kalgoorlie–Boulder;
- consideration of how to provide for taxes or tax equivalents in charges by Kalgoorlie–Boulder; and
- further consideration of more explicit and rigorous treatment of externalities.

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)

Western Australian arrangements

Retail/distribution water charges

The Western Australia 2001 NCP Annual report stated that 99.5 per cent of the Water Corporation, Aqwest and Busselton Water Board water customers' water bills are based on a two-part tariff comprising a fixed access/supply charge and a charge based on the volume of water supplied. The remaining 0.5 per cent of bills are for Aqwest and the Busselton Water Board commercial and industrial customers, who pay a fixed charge based on gross rental value and a volumetric charge for consumption in excess of the a free water allowance. However, both Aqwest and Busselton Water Board are introducing two-part tariffs to non-residential customers.

Water Corporation services

Two-part tariffs apply to all Water Corporation customers, although the structures of these tariffs vary; for example, services to metropolitan residential customers pay a flat supply charge while commercial users pay a supply charge based on meter size. Usage charges also vary with residential customers paying an increasing block tariff while the commercial per kilolitre price peaks at consumption between 601 kilolitres and 1 100 000 kilolitres and then decreases. (Water Corporation 2001c).

For non-metropolitan urban water services (which the Water Corporation classifies as country) all residential customers pay the same supply charge as paid by metropolitan residential customers, which is $135.40 in 2000-01. This is consistent with the states uniform tariff policy. However, in setting non-metropolitan urban volumetric charges towns are categorised reflecting the cost of providing services to that area. This means all non-metropolitan urban customers face the same volumetric charge up to 350 kilolitres (which is the approximate average residential consumption) but charges far beyond that level of consumption reflect the cost of providing services to that category of customer (Water Corporation 2001c).

Commercial customers are also categorised according to location for the purposes of setting volumetric charges. Service charges are based on meter size.

In 1999–2000 the Water Corporation commenced a program to reduce charges for strata titled units that share a meter. The service charge is $215 in 2000-01. The Water Corporation has commenced a program of tariff reform to reduce the service charge for vacant residential and commercial land to the equivalent of the residential fixed service charge over a two–year period. Previously, service charges for vacant commercial and residential land were based on gross rental value.

Other water services

Aqwest and the Busselton Water Board both committed to introduce two-part tariffs to all water customers. Residential customers already pay two-part tariffs, non-residential (that is, commercial and industrial) customers pay charges based on gross rental value and a charge for each kilolitre in excess of their free water allowance. The free water allowance is also based on gross rental value, so the higher the value of the property the larger the allowance is. Non-residential volumetric charges for 1999-2000 were a flat 65 cents per kilolitre, while residential volumetric charges were based on an inclining block tariff.

In 1999-2000 volumetric charges accounted for 41 per cent of Aqwest's total revenue paid by residential customers and excess charges paid by non-residential customers. Rates and supply charges also represented 41 per cent, with developer charges and interest making up the remainder. Rates and supply charges include fixed charges paid by residential customers as part of a two-part tariff and rates based on gross rental value paid by non-residential customers.

For non-residential customers, the Western Australian 2001 NCP annual report stated that, Aqwest completed installing water meters in 1999-2000 as part of the first phase of implementing of two-part tariffs for this group. Western Australia also noted that Aqwest modelled a range of alternative two-part tariff structures to replace existing gross rental value based charges. Although Aqwest's preferred models were based on implementing changes on a revenue neutral basis, preliminary analysis suggested that significant tariff re-balancing between non-residential customers will be required to support the implementation of two-part tariffs. Under most alternative models aggregate revenue from commercial customers would be likely to fall by around 25 per cent, while that from non-rateable properties, (such as

hospitals, schools and local government) would increase by around 70 per cent. Western Australia advised that Aqwest expects to seek endorsement for a preferred two-part tariff structure soon.

In 1999-2000 the Busselton Water Boards volumetric charges represented 36 per cent of total revenue, while rates and supply charges accounted for 33 per cent. All customers on two-part tariffs paid an increasing block tariff. The Busselton Water Board is also continuing to install water meters for non-residential consumers. All properties in the light industrial area have had meters fitted. However, progress has been slower than anticipated, partly as a result of the difficulty of obtaining adequate access to premises in the central business district where only 20 per cent of properties have meters fitted. In addition, Western Australia stated that the high rate of growth in the Busselton region, and the associated need for water infrastructure, has placed pressure on the board's resources.

The Council has been advised that Aqwest and the Busselton Water Board have set a target to achieve full implementation of two-part tariffs for all water customers by mid-2002.

Bulk water charges

Western Australia advised that the Water Corporation financially ring-fenced its metropolitan bulk water operations, establishing an internal volumetric bulk water transfer price that recovers full operating costs. The metropolitan bulk water transfer price was set at 41.86 cents per kilolitre for 2000-01. Bulk water charges to external customers are also set on a volumetric basis.

Wastewater charges

Water Corporation services

Charges for metropolitan Water Corporation residential customers are based on the gross rental value with a minimum of $214.60 in 2000-01. The Western Australian 2001 NCP annual report stated that the Water Corporation, will replace existing charges based on gross rental value as part of a program to implement a single fixed charge for residential sewerage services. The Water Corporation is increasing the minimum charge by 10 per cent per year. This increase is in addition to any approved general price rise. Since this program commenced in 1997–98 there has been a 52 per cent increase in the minimum sewerage charge.

The Water Corporation estimated that around 11 200 (or 2.5 per cent) of households paid the minimum charge in 2000-01, forecast to rise to 19 770 (or 4.4 per cent) in 2001-02. However, Western Australia also stated that 'Despite these significant annual increases, the Water Corporation expects that the program will take until 2006-07 to complete' (Western Australia 2001, p. 46).

Western Australia has argued that:

> *…given the scope of pricing reforms being implemented, the program represents an appropriate balance between achieving the underlying objectives of the Council of Australian Governments' (CoAG) water reforms while providing an acceptable adjustment path for the community.* (Western Australia 2001, p. 46).

Gross rental values were removed from metropolitan commercial wastewater charges in 1995 when the Water Corporation introduced a tariff made up of a service charge, based on the number of major sewerage fixtures (toilets and urinals), and a volumetric charge. The volumetric charge is calculated as a percentage of the water use. This percentage is set on an individual basis for all customers whose water consumption is more than 500 kilolitres per year. For those who use less than 500 kilolitres a discharge factor of 95 per cent is assumed, although this can be appealed. However, a 200 kilolitre discharge allowance is also provided; that is, the first 200 kilolitres of wastewater discharges is not included in calculations of volumetric charges. Thus, those with less than 200 kilolitres consumption do not pay a volumetric charge.

Wastewater charges for non-metropolitan urban residential and commercial customers are based on gross rental value. The rates per dollar of gross rental value are set independently for each scheme and are published each year in the by-laws. The minimum non-metropolitan urban residential sewerage charge is $186.70 in 2000-01. However, as with metropolitan residential services, a single fixed charge should be phased in by 2006-07. A maximum charge of $550 was also placed on non-metropolitan urban residential charges for the first time in 2000-01.

The minimum non-metropolitan urban commercial sewerage charge in 2000-01 was $390. The Council has not been advised on any maximum charge for country commercial customers.

As with water services the Water Corporation commenced a program in 1999-2000 to reduce charges for strata titled units with no sewer connection and for those that share facilities in. The service charge was $280 in 2000-01.

Other wastewater services

Kalgoolie-Boulder wastewater charges are based on gross rental values. The Council has not received advice as to when or even if the use of gross rental values will be phased out.

Trade waste charges

The Water Corporation is the only wastewater service in Western Australia to have a trade waste regime. Its industrial waste charges apply to all business customers who discharge non-domestic waste into the wastewater system. These charges apply

in conjunction with the normal wastewater charges calculated for all wastewater customers. The Water Corporation recently conducted a review of industrial waste charges and cost drivers, determining that the total revenue generated by the industrial waste business is consistent with full cost recovery.

Industrial waste customers are issued with a permit for a fee reflecting whether their waste imposes a minor, medium or major burden on the wastewater system. Major customers are also charged quantity/quality fees quality fees apply to only waste with biological oxygen demand (BOD) and suspended solids (SS) (table 2).

Table 2: Water Corporation industrial waste charges, 2000–01

Charges	*Minor(for example, restaurants, fast food, service stations)*	*Medium (for example, laundries, hotels, motels)*	*Major (for example, food processing, metal finishing, chemical manufacturers)*
Fixed charges	120.65	120.65	387.05
Additional charges	17.50	60.35	na
	Pre-treatment fixtures in excess of one	Each washing machine* in excess of two	
Variable charges			
Volume (kilolitres)	na	na	0.718
BOD (kilograms)			1.064
SS (kilograms)			0.912

a coin operated laundries. Other laundries pay for each machine.

Source: Western Australia (2001) (unpublished).

Drainage charges

As with wastewater charges, minimum drainage charges were increased by more than the approved general price increase to facilitate the introduction of a single fixed charge for residential drainage services supplied by the Water Corporation. In 2000-01 the minimum residential drainage charge was $47.40 in metropolitan areas. The minimum charge now applies to 80 per cent of residential customers consuming drainage services.

Discussion

Water services

The Council notes that the Water Corporation now levies two-part tariffs on its metropolitan and non-metropolitan urban water services. The Council also considers that the variation in the two-part tariffs paid by different customer groups vary is not inconsistent with CoAG commitments. Further, to the extent that measures such as service charges based on metre size or geographic based volumetric charges result in charges more closely reflecting the actual cost of services received, water use decisions can be more efficient and cross-subsidies can be eliminated.

The Council also supports the Water Corporation removal of gross rental values from service charges for vacant residential and commercial land and commends the decision to reduce the phase-in period from four years (as reported in the second tranche NCP assessment) to two years. In regard to Aqwest and the Busselton Water Board, the Council is particularly concerned that current non-residential arrangements include a free water allowance. With no price signal attached to the water, significant free water allowances dilute incentives to use water economically. The Council, therefore, considers that significant free water allowances undermine the principle of consumption-based pricing that jurisdictions agreed to in the CoAG water framework. In addition, free water allowances provide potential for non-transparent cross-subsidies, which are also inconsistent with the water reform commitments.

The Council is unable to determine the proportion of non-residential customers who pay volumetric charges, based on current information, and therefore is unable to establish the likely distortionary effects of existing arrangements. However, volumetric charges overall (residential and non-residential) do represent a significant proportion of revenue. The Council notes that both Aqwest and the Busselton Water Board are moving non-residential customers to a two-part tariff and thus eliminating free water allowances, and that this should be achieved in around 12 months.

In addition, the Council remains concerned that charges for non-residential customers are still based on gross rental values. As noted in previous assessments the Council's view is that gross rental values can lead to significant non-transparent cross-subsidies which are not consistent with efficient water use and CoAG commitments. However, given that both entities have committed to phase out the use of gross rental values (with a target date of mid 2002), and have demonstrated progress towards this, the Council will follow up on progress in the 2002 NCP assessment. If the target of mid-2002 is not been met then the Council will look for information to demonstrate both progress in pricing reform and legitimate reasons for the delay.

Wastewater services

The Council supports Western Australia's progress towards eliminating gross rental values from wastewater charges. As noted above the Council suggests that gross rental values can lead to non-transparent cross-subsidies which are not consistent with CoAG commitments.

The Council is concerned, however, that the use of gross rental values will not be completely phased out for nine years. It acknowledges the potential impact on the community of raising the minimum charge, but suggests that a more effective way of protecting the interests of low income earners is through a well-targeted community service obligation. This is particularly the case given that gross rental values do not necessarily protect the interests of those with low incomes; for example, a pensioner or unemployed person may own a valuable property (for example, an inherited family home) and thus face very high water bills.

The Council is potentially concerned by the apparent lack of progress in removing gross rental values from country commercial charges. However, it supports the introduction of a maximum charge for country residential services because this can help address some of the distortionary impacts of gross rental values. The Council suggests that a consideration be given to extending the use of a maximum charge to non-metropolitan urban commercial or metropolitan residential customers.

In regard to metropolitan commercial wastewater charges, the Council notes that Western Australia's use of water consumption as a basis for volumetric wastewater charges should provide a further signal for economical water use. The Western Australia approach will also encourage minimisation of the volume of waste discharged into the Water Corporation system to the extent that water use and wastewater discharge are correlated and can be changed. The Council has not been provided with any evidence of this correlation but is comfortable that this approach is consistent with CoAG commitments.

As noted above volumetric wastewater charges apply to only metropolitan commercial wastewater customers whose wastewater discharge is greater than 200 kilolitres. Western Australia stated that the 200 kilolitres allowance reduces the demand on Water Corporation resources that would otherwise result from small customers appealing that their discharge factor was too high. Western Australia's considers that this approach enables available resources to be focused on larger customers which is where the State believes the greatest gains can be made. Further, Western Australia argues that those who consume less than 200 kilolitres per annum have very little capacity to alter their water consumption and thus the volumetric signal that would result from applying a water volume based wastewater charge to this group would have a limited effect.

The Council previously expressed its support for focusing resources on the areas of greatest gain. It also notes that the 200 kilolitres threshold is well below average annual water consumption of 350 kilolitres, that the volumetric charge is based on estimated rather than actual discharge and small dischargers have only limited capacity to respond to the volumetric signal.

The Council is satisfied that pricing at metropolitan commercial wastewater services is consistent with the 2001 NCP commitments but continue to monitor this issue and the impact of the 200 kilolitre threshold in future assessments.

Other charges

The Council is satisfied that bulk water and drainage charges in Western Australia are consistent with CoAG commitments. The Council also commends Water Corporation on its revised trade waste regime which results in charges that are sensitive to both the quantity and quality of the waste discharged into the system. In the next assessment the Council will explore the potential for cost-effective trade waste charges among smaller wastewater service providers and the degree to which existing arrangement result in non-transparent cross-subsidies between Government trade waste and other discharges.

Assessment

The Council is satisfied that Western Australia has met 2001 NCP commitments in relation consumption-based pricing. However, the Council's next assessment will look for:

- continued progress in eliminating free water allowances and gross rental values from all water and wastewater charges;
- implementation of pricing reforms for metropolitan commercial wastewater services; and
- consideration by Kalgoorlie-Boulder of charges for trade wastes and other wastewater services.

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).

Western Australian arrangements

The Western Australian 2001 annual report stated that the paper *Community Service Obligations Policy in Western Australia*' was released in April 2000. Western Australia stated that the paper updates the 1996 CSO information paper and

provides a more coordinated and focused framework for endorsing new CSOs. For new CSOs the paper establishes a requirement for a detailed submission to the relevant portfolio Minister and to Cabinet, including consultation with Treasury on funding mechanisms. The paper also introduces a periodic review of ongoing CSOs to evaluate whether the Government's policy objectives are being met and to establish whether a CSO is still the most effective means of achieving the Government's policy objective.

In addition, Western Australia notes that the enabling legislation of the State's corporatised and commercialised government business enterprises (such as the Water Corporation) requires a statement of corporate intent that includes information on the nature, extent, costing and payment of CSOs. Statements of Corporate intent are public documents and where the government directly funds a CSO the amount is reported in the State Budget Papers.

The Water Corporation, Aqwest and the Busselton Water Board provide rebates to pensioners and seniors. In addition the, Water Corporation also provides CSOs for:

- the supply of water, sewerage and drainage services at uniform tariffs, where those tariffs may not be sufficient to recover the full cost (including a rate of return on capital) of providing these services ($151 million); and

- the provision of infill sewerage, where uniform tariffs are insufficient to recover the full cost (including a rate of return on capital) of providing this service ($15 million):

Assessment

The second tranche NCP assessment concluded that:

> *The Council is satisfied that the regime, and manner in which it is administered ensure the overall policy objective of full cost recovery and paying for services is not undermined.* (NCC 1999, p. 532)

The Council supports the State's refinements to its CSO arrangements and considers that Western Australia has continued to comply with CoAG commitments in regard to CSOs.

Cross-subsidies

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

Western Australian arrangements

Western Australia's 2001 NCP report stated that the Water Corporation implemented tariff reforms aimed at:

- reducing the level of cross-subsidisation between business and residential customers; and
- ensuring tariffs better reflect the cost of service provision.

In addition, Western Australia noted that the corporation also implemented programs to:

- financially ring-fence its metropolitan bulk water operations (effective 1 July 2000);
- implement a single fixed charge for vacant commercial and residential land (phased in over two years from 1 July 2000); and
- phase in a single fixed charge for residential sewerage services.

Discussion and assessment

The Water Corporation is a vertically integrated provider of water wastewater and drainage services to customers across the state which provides significant scope for non-transparent cross-subsidies. However, the Council supports the Government's actions to reduce the potential for non-transparent cross-subsidies, including initiatives to reduce the Water Corporation's reliance on gross rental values. The Council also commends moves by Aqwest and the Busselton Water Board to move from gross rental values based charges to a two-part tariff. However, the Council is concerned at the lack of progress by Kalgoorlie–Boulder. As noted in earlier assessments the Council considers that charges based on gross rental values do not reflective of the cost of services received and have the potential to result in cross-subsidies between high and low value properties that are almost impossible to identify in a cost effective way. As noted in the section on consumption based pricing the Council suggests that CSOs could more effectively protect the interests of low income earners allowing two-part tariffs to be introduced without a long phase-in period.

Since the second tranche assessment, the Water Corporation has introduced internal bulk water costing and charging arrangements. The Council strongly supported this initiative which not only reduced the potential for cross-subsidies between the business segments but also provided valuable information on avenues for improving the efficiency of service delivery. The Council also supports the Water Corporation's use of volumetric charges for country water customers that reflect the cost of providing services to that area. This also reduces the potential for cross-subsidies between geographic areas.

However, overall the Council considers that Western Australia adopted a less than rigorous approach to cross-subsidies compared with some other jurisdictions. For example, the Council has not been advised of any guidelines established or case studies done to indicate whether cross-subsidies exist between different customer groups (such as commercial and domestic customers) or different geographical areas.

The Council also notes that the establishment of an independent regulator of water and wastewater prices will provide an opportunity for a more rigorous consideration of cross-subsidies, particularly among non-Water Corporation services. This combined with Western Australia's continued progress with phasing out the major potential sources of non-transparent cross-subsidies, is enough to satisfy the Council that Western Australia has met 2001 NCP commitments. However, Western Australia's continued progress in phasing out gross rental values as well as broader and more systematic consideration of cross-subsidies are issues for the 2002 NCP assessment.

Pricing and cost recovery: rural

Governments have agreed that urban, non-metropolitan urban and rural water services should introduce full cost recovery and consumption based pricing and identify and report CSOs and cross-subsides (clause 3).

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 customers. The aim of adopting a broad definition is 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 activities such 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 and mining plants; and

- license fees set for commercial users extracting surface water or groundwater using their own infrastructure.

Western Australia has three main irrigation systems: the South–West, the Carnarvon and the Ord. The South–West Irrigation Co-operative, which includes both the Preston Valley and the South–West Irrigation District, has moved local management and supplies water used to irrigate more than 9700 hectares. Both the Carnarvon and Ord irrigation schemes are publicly owned, with the Water Corporation providing irrigation water to more than 1600 properties in these regions. Plans are underway to establish both the Carnarvon and Ord schemes as privately owned grower cooperatives.

In Western Australia little provision has been made for licence fees in unregulated systems. Fees are charged on an inconsistent basis and do not reflect the true costs of service provision or the benefits obtained from holding the licence.

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 regime, 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 regime (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.

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 c).

Western Australian arrangements

Regulated systems

Commercial viability

The Water Corporation provides bulk water services to each of the three irrigation districts. The bulk water tariffs paid to the Water Corporation by irrigators in these schemes are based on recovering the lower bound of the agreed pricing guidelines, although an ongoing subsidy is paid to cover the rate of return on assets.

As part of the transfer of irrigation distribution assets from the Water Corporation to the South–West and Preston Valley irrigation co-operative, the Western Australian Government provided a transitional subsidy. The aim of this subsidy was to enable phasing in the higher prices necessary to achieve commercial viability as defined by the CoAG pricing guidelines. The subsidy was discontinued in 1999-2000 and the cooperative meets the lower bound of the agreed pricing guidelines. Now as a private company, it is expected to operate on a commercial basis and continue to meet these costs. The Western Australian 2001 NCP annual report stated that bulk water supplies to the cooperative are based on recovering the lower band of the CoAG pricing guidelines.

The Carnarvon and Ord irrigation schemes do not charge prices sufficient to meet the lower band. However, over the past 12 years at Carnarvon, prices rose by 271 per cent to $233.70 per megalitre, with a fixed charge of $313.60 per hectare. Similarly, prices at the Ord increased by 354 per cent over the period 1989-90 to 2000-01. Prices in these schemes are already high, particularly in the Carnarvon scheme.

Assuming the schemes remain under the control of the Water Corporation, the lower bound price will be achieved in approximately 13 years for Carnarvon and 12 years for the Ord if prices continue to increase by 10 per cent and 5 per cent respectively. However, Western Australia has advised that memorandums of understanding were signed to transfer the ownership of the Ord and Carnarvon irrigation districts to private ownership. The transfer to local ownership may assist cost recovery. As with the South–West Irrigation Co-operative, a subsidy will be provided initially, but then phased out to result in the recovery of lower bound costs.

Tax equivalent regimes

The South–West Irrigation Co-operative, as a private company, is required to pay income tax. As such, it paid $26 702 in tax in 1999. The Water Corporation, which still manages the Carnarvon and Ord irrigation schemes, is subject to tax equivalents. Tax equivalents for the irrigation schemes are included in the lower bound target tariffs.

Externalities

As with urban services, there is no explicit provision for passing on to rural water users the costs of addressing any broader effects of water use. Bulk water prices reflect environmental cost to the extent that the Water Corporation's costs are increased by the need to meet environmental requirements.

Assets

Under Western Australian arrangements, privatised irrigation districts, (currently only the South–West Irrigation Co-operative), have two cooperatives. One cooperative owns the assets and charges a renewals annuity to the management cooperative. The management cooperative then passes these costs, along with bulk water charges and administration and operational charges, to water users. This structure has taxation advantages and means that if then the management cooperative becomes insolvent, the assets are not at risk.

South–West Irrigation's assets were valued at around $70 million in replacement value terms (ANCID 2001) in 1999–2000 and $596 000 was invested in a renewal fund in that year (representing 0.9 per cent of the replacement value of the assets) (ANCID 2001). The Canarvon and Ord irrigation schemes include assets valued at $57 million and $43 million respectively.

Unregulated

The Western Australian Government advised that they have few licence fees, on some rivers around Perth. The license fees charged are about $60-70 per year. These do not reflect cost and were set some 20 years ago. The new legislation introduced no fees for existing activities but some fees for new activities such as transfer applications and appeals. For the transfer of a licence, the applicant is required to undertake the environmental assessment and pay for the cost of advertising. Western Australia stated that this is to ensure applicants face the true cost of their application.

Discussion

Regulated water

Arrangements in Western Australia to recover the full-costs for rural water services are still incomplete. The South–West and Preston Valley irrigation schemes reached the lower bound of the agreed pricing guidelines. However, both the Carnarvon and Ord schemes are well below the CoAG guidelines' definition of a viable business. It will take 13 years and 12 years for the Carnarvon and Ord schemes respectively to reach the lower bound. These lengthy paths are largely a result of the already high costs for water and the substantial price increase needed. A transparent subsidy paid to the Water Corporation, which manages the Ord and Carnarvon schemes, meets the difference between revenue and operating costs and therefore meets reform commitments.

The Western Australian Government anticipates that the move to private control will assist the shift to full cost recovery. As occurred with the South–West and Preston Valley irrigation schemes, a transitional subsidy will be paid to the irrigation cooperatives to assist with their phasing in of commercially viable cost-recovery principles.

Unregulated water

In terms of unregulated water, except for new charges introduced under the Act, there is no evidence that licence fees in Western Australia reflect the cost of that resource. Licence fees are sporadic and reflect historical fees rather than the cost of resource management, licensing and other costs. However, the focus in this assessment has been primarily on regulated water charges so unregulated water charges will be examined in closer detail in future NCP assessments. The Council will revisit this issue in 2002 when it will examine progress in the pricing of licences for unregulated water resources.

Assessment

In assessing of the full cost recovery of rural water services, the Council notes the differences between regulated and unregulated water resources. As such, the Council has examined each separately, focusing on the prices charged for water services with regulated irrigation districts. The Council will examine unregulated water in closer detail in the next assessment.

Within regulated irrigation districts, the Council has looked for water charges to reflect at least the lower bound of the agreed pricing guidelines. Within the four irrigation districts in Western Australia, the Council notes that the South–West and Preston Valley irrigation schemes meet the lower bound of pricing. However, in line with commitments under the 1999 tripartite meeting, the Ord and Carnarvon Schemes price paths have established. Full-cost recovery will be achieved through these paths in 12 and 13 years respectively. As such, in terms of full-cost recovery of regulated water resources, Western Australia has met minimum requirements for the 2001 NCP assessment. The Council will examine progress in the cost recovery of these schemes in the 2002 NCP assessment.

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, b, and c).

The Water Corporation bulk supplies water services to each of the irrigation districts. For the South–West, Preston Valley and Carnarvon irrigation schemes, these charges are volumetric. The Ord scheme pays a fixed rate.

Information from the *1999–2000 Australian Irrigation Water Provider – Benchmarking Report* (ANCID 2001) found that of the three irrigation systems only the Ord scheme does not provide a tariff structure that reflects the volume of water supplied. Instead, the Ord system uses land area as a proxy for the volume of water used. The Ord scheme has an area-based charge of $85.10 per hectare. The South–West Irrigation Co-operative's volumetric charge was $1.53 per megalitre in 2000-01. In the Preston Valley water charges varied between $30.72 per megalitre for use up to 1200 megalitres and $51.21 per megalitre for use over 1200 megalitres.

The Carnarvon scheme has a more complex arrangement than the other irrigation schemes. It draws Water from borefields to provide a reticulated supply to farmers, many of whom have their own bores drawing from the same aquifer. The reticulated supply acts as a supplementary supply for some farmers and is the sole supplier for others who do not have direct access to the aquifer. The Carnarvon scheme charges $298.70 per hectare to a maximum of $1792. In addition, water users pay a volumetric charge of $233.70 per megalitre.

Discussion and assessment

The Council notes that, three of the four irrigation districts use a two-part tariff to recovery water costs. The Ord scheme recovers costs through an area-based charge, although the Council understands that this may change when the scheme moves to private ownership.

Each of the irrigation schemes receives bulk water services from the Water Corporation. For the South–West and the Preston Valley irrigation cooperatives, this charge is volumetric. The Ord and Carnarvon schemes are charged on a fixed basis. The Council notes that the Ord and Carnarvon districts are Government owned and report separately as regional operations of the Water Corporation. The Council also notes that the Water Corporation has established processes to assess the appropriate framework under which distribution assets in both the Carnarvon and Ord irrigation schemes could be transferred to local ownership. This would result in the Water Corporation charging a volumetric bulk water tariff and would facilitate the implementation of two-part tariffs by the irrigation entities. This matter is progressing and is discussed in more detail under the section on the devolution of irrigation scheme management.

The Council finds that Western Australia has met minimum commitments in terms of consumption based pricing. It will examine these issues again in future assessments to determine whether the Ord scheme adopts consumption-based pricing principles and to ensure bulk water services are provided on a volumetric basis to each of the districts.

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).

Western Australian arrangements

Bulk water charges to the South–West Irrigation Co-operative are set to recover the lower band of the CoAG guidelines and, as such, do not include a rate of return. The Council understands that the Water Corporation is compensated through a CSO payment for the Ord and Carnarvon schemes' prices being less than the lower bound.

A CSO is paid to the Water Corporation to cover the rate of return it is required to earn on bulk water supply assets. This rate of return is 6 per cent for assets acquired after 1996 and 4 per cent for assets acquired before that date.

Discussion and assessment

The Council notes that CSOs for rural water services are paid to the Water Corporation as a part of a broader CSO. However, the lack of transparency in current arrangements means that it is impossible to determine the quantum of rural water CSOs. The Council suggests that this arrangement is sufficiently transparent in showing how public funds are used to achieve non-commercial objectives.

The Council is aware of a review of CSOs in Western Australia and understands that the review recommended disaggregated subsidies as far as possible so information on subsidies for specific schemes is easily available. The Council supports this recommendation and in future assessments will look for Western Australia to consider further disclosure of CSOs for rural water supply.

As with the South–West and the Preston Valley irrigation cooperatives, the Carnarvon and Ord schemes' devolution to local management may also assist in the transparency of subsidies because the CSO will not be part of the general subsidy paid to the Water Corporation. The Council understands that a CSO will be paid to both the Ord and Carnarvon irrigation schemes until full cost recovery is achieved under the price paths discussed previously.

The Council finds that Western Australia has met 2001 NCP reform commitments in terms of CSOs, although the subsidies paid to the Ord and Carnarvon irrigation schemes need to be made transparent and independently identified.

Cross-subsidies

Cross-subsidies should be transparently reported and ideally should be removed where they are inconsistent with efficient service provision and use (clause 3a).

Western Australian arrangements

As noted above, the Ord and Carnarvon schemes price below the lower band of the CoAG guidelines. Thus the Water Corporation, as the owner, operates two nonviable activities as defined by the guidelines. The Council understands that this shortfall is made up through a CSO rather than a cross-subsidy.

Assessment

The Council Supports use of a CSO rather than an internal cross-subsidy to cover the shortfall in returns to the Water Corporation, and this arrangement meets reform commitments.

New rural schemes

Governments agreed that all investments in new rural water schemes or extensions to existing schemes should be undertaken only after appraisal indicates that it is economically viable and ecologically sustainable (clause 3d[iii]).

After the second tranche NCP Assessment Western Australia undertook to make significant changes to the arrangements for the economic and environmental appraisal of new schemes.

Western Australian arrangements

Western Australia's 2001 NCP annual report noted the State's commitment to establishing a comprehensive framework for assessing the economic viability and ecological sustainability of future investments in rural water supply schemes. This framework is expected to be completed in 2001.

Economic viability

In pursuit of this objective, the Treasury proposed that Cabinet consider before 30 June 2001 the following two-stage process for establishing the economic viability of a project proposal:

1. estimate the revenue of the project compared with the direct costs. These costs should include operating and maintenance costs, taxes or tax-equivalent regime payments, provision for asset consumption or refurbishment and an appropriate return on the capital invested. If the direct costs exceed the revenue, then the level of support needed for the project to become financially viable will be determined; and

2. identify whether and the level to which the project will result in public benefits or costs. These impacts may include regional development, consumer interests and environmental impacts. It is expected that a range of Government agencies and other stakeholders will be consulted in relation to the non-financial socioeconomic impacts of the investment.

This assessment will apply the method outlined in chapters 4, 5 and 6 of Western Australia Treasury's project evaluation guidelines, which evaluate the financial, economic and social aspects of the proposed development. It may indicate that the investment is expected to generate overall economic benefits, despite revenue being insufficient to meet the project's direct costs. In such cases, the Government may consider providing a subsidy or some form of support to the project proponent to ensure the project is commercially viable if Cabinet decides that the project should proceed.

The Farm Water Grant Scheme was assessed and found to comply with requirements as a part of the Council's 1999 second tranche assessment.

Ecological sustainability

The procedures for environmental assessment have not been altered significantly since the second tranche assessment, when the Council found that the arrangements were sufficient to meet reform requirements. The Environmental Protection Authority can review any project that may have a significant impact on the environment. The level of assessment is based on the likely magnitude of environmental impact, the degree of public interest in the project, and the legal mechanisms available to manage environmental consequences of the project. The practice is to assess all water projects where significant headworks and distribution infrastructure are involved.[4]

Proposed developments

1. The proposed Stirling-Harvey Redevelopment Scheme will result in the enlarged Harvey Dam being used primarily to increase the security of water supplies for Perth. As such, this development is not subject to clause 3 (d) (iii) which only applies to investment in rural water schemes.

2. It is understood that the development of the Ord Irrigation Scheme stage two comprises approximately 64 000 hectares of irrigated agricultural land of which around 25 000 hectares are in the Northern Territory. Significantly, it is expected to yield approximately 43 000 hectares of irrigated farmland. Associated with this development will be high demand for water resources and associated infrastructure investment.

   The Western Australian 2001 NCP annual report noted that a memorandum of understanding signed between Ord Irrigation Co-operative and the Western Australia Water Corporation in July 2000 formalised the intent of the parties and provided the backbone for the work required for the project. However, this development has yet to receive government approval to proceed and as such, is not yet subject to assessment under the water reform commitments.

Discussion

In its second tranche assessment, the Council found that the Western Australian processes for assessing the economic viability and ecological sustainability of new investment in water use schemes met the minimum requirements. However,

[4] Projects that propose the diversion of over 30 per cent of available water.

concerns were raised about the process for assessing economic viability, and the Council noted that it would consider this issue as a part of the 2001 NCP assessment.

The Treasury proposal provided to the Council will improve the process for assessing economic viability. However, at the time of writing, the Western Australian Cabinet had not agreed to this process. The Council notes that Cabinet is expected to consider this issue by 30 June 2001.

The two-stage process for considering economic viability outlined above, allows for the assessment of the direct costs and benefits of the process and the separate determination of broader public costs and benefits. For smaller projects with limited spillover effects, it may be sufficient to consider only the direct costs and benefits of the proposal. However, for larger projects with broader regional implications, it may be necessary to consider the broader benefits and costs to ensure the project provides an overall benefit. Only where appraisal suggests that public benefit exceeds public cost should the Government make a contribution towards the investment.

The Council agrees with this approach and reinforces the importance of determining the quantum of public benefit in isolation from determining of the level of subsidy required for economic viability. Provided this mechanism is adhered to, Government investment in water infrastructure in Western Australia is likely to be consistent with CoAG commitments to ensure economic viability. Related to this matter is the importance of an independent body separate from the proponent determining the public benefit.

Assessment

The Council is satisfied that Western Australia has met the requirements of the 2001 NCP assessment in relation to investment in new rural schemes. The Council also notes the proposed new mechanism for assessing of new schemes, as outlined above. The Council will continue to monitor this issue in future NCP assessments and will look for appropriate ecological and environmental assessment once the Government has given this approval to stage two of the Ord Development

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).

Western Australian arrangements

The three major providers of urban water services are the Water Corporation, Aqwest and the Busselton Water Board. All three are responsible to the Minister for Water Resources. In addition, 20 local government authorities operate sewerage schemes.

Western Australia has four irrigation scheme providers: the South–West Irrigation Co-operative, the Ord Irrigation Scheme, Preston Irrigation Scheme and the Carnarvon Irrigation Scheme. the Water Corporation supplies bulk water to these schemes and still owns some assets in the Canarvon and Ord schemes.

Following its program of restructuring and corporatisation, Western Australia argues that the roles and responsibilities of all bodies in the water industry are now clearly defined and that the essential elements of institutional reform have been met.

The Government considers that its current arrangements with the one Minister responsible for water service provision and standards setting, resource management and regulation is sufficient to meet its CoAG water reform commitments. Nevertheless, this arrangement is under review as part of the Government's current machinery of government review.

Discussion

In its assessment of structural reform the Council has focused on whether the arrangements in each State and Territory are accountable, transparent and effective in resolving conflicts of interest. The Council has considered three broad areas of regulation when looking at institutional arrangements:

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

In its second tranche NCP assessment, the Council concluded that Western Australia's institutional arrangements showed a strong commitment to the strategic framework and that the second tranche commitment had substantially been met. However, several issues were raised:

- Almost all institutions were ultimately responsible to the Minister for Water Resources, without any procedures in place to avoid conflicts of interest.
- The Council concluded that the current form of pricing regulation provides insufficient structural separation between the commercial service provision operations of the Water Corporation and the regulatory role of price setting.

The Council also noted the commitment of Western Australia to review the options for price regulation and Ministerial responsibility, and flagged that it would monitor these matters were implemented before the 2001 NCP assessment.

The second tranche assessment noted that the Council would monitor the progress of reforms to the plumbing industry following the Office of Water Regulation review. The assessment also recognised that responsibility for the management of irrigation districts had either been devolved, or was in the process of being devolved, to local irrigators. Once finalised, these arrangements will provide a significant level of separation between the operation of these districts and their regulation. The Council noted that it would continue to monitor the implementation of local management.

Economic regulation and service standards

The Office of Water Regulation conducts audits of operating licences that consider whether the licensee has complied with the conditions of the licence. Licences set requirements on water quality, service standards and operational and maintenance performance. In the second tranche assessment the Council concluded that this aspect of Western Australia's institutional arrangements met water reform commitments. The Office of Water Regulation does not have a role in price regulation but the current Western Australian Government has committed to establishing an independent economic regulator that will include water regulation.

Western Australia established a Plumber Licensing Board in July 2000 that is responsible for all occupation licensing decisions for plumbers operating in Western Australia. The Minister for Water Resources appoints the board. Water Corporation inspectors currently undertake plumbing inspection under the terms of a memorandum of understanding. The Plumbing Licensing Board will consider new arrangements in the next couple of months, either employing its own inspectors or contracting out inspection.

Resource allocation, water management and environmental regulation

As well as being the owner of the Water Corporation, the Minister for Water Resources is responsible for water allocations, resource management and some aspects of environmental management.

Given the involvement of the Office of Water Regulation in monitoring compliance with licence standards the remaining issues for this assessment are in the setting of those standards. The standards are set based on an assessment of the ecological water provisions. The Minister for the Environment must approve these provisions on advice from the Environmental Protection Authority.

The Water and Rivers Commission also makes decisions on resource allocation and water management. Several factors provide for separation and transparency in these decisions is that the commission:

- reports to a board that is directly responsible for decision-making. If the Minister directs the board, then such directions must be published in the commission's annual report;

- decisions are subject to public consultation through resource management committees; and

- decisions can be appealed. The appeals are a full merit review of the decision.

Drinking water quality

In its report 'Arrangements for Setting Drinking Water Standards' (PC 2000), the Productivity Commission noted that Western Australia was applying the 1987 National Health, and Medical Research Council standards rather than the 1996 Australian drinking water guidelines. More recently, the Water Corporation agreed with the Department of Health to move from the 1987 drinking water guidelines to the 1996 Australian drinking water guidelines. A commitment to phase in the change over five years is set in the Water Corporation's operating licence and statement of corporate intent. The Department of Health, through an interdepartmental committee (the Purity of Water Committee), will monitor implementation. The committee meets quarterly and reports on water quality.

If the Water Corporation does not meet health standards, the Department of Health can issue an alert to boil water or order a supply to be closed.

Assessment

Given the Minister for Water Resources is responsible for water service providers, the Office of Water Regulation and the Waters and Rivers Commission, transparency and accountability are needed in the setting and monitoring of all of these standards to avoid any conflicts from the overlap in decision-making responsibilities. The Council has concluded that the introduction of the Plumber Licensing Board will separate plumbing regulation form the operation of the Water Corporation.

The Office of Water Regulation conducts public inquiries and produces publicly available reports in those areas where it is involved in standards setting and enforcement. Therefore, the Council considers, in the areas of customer service standards and the administration of the licence system for water services, that the involvement of the Office of Water Regulation means Western Australia has met its obligations for the separation of water institutions.

The Council also commends Western Australia's commitment to the introduction of independent price regulation. This is a major advance in transparency of institutional arrangements. The Council has few details on these new regulatory arrangements, so it will review Western Australia's progress in implementing these reforms in the 2002 NCP assessment.

The Council has also concluded that Western Australia's approach to the regulation of resource allocation and water management is likely to provide sufficient transparency and separation in the roles of the responsible Minister. The combination of the Water and Rivers Commission board, public consultation and the full independent appeals appear to address any potential conflicts of interest. However, these mechanisms are still being implemented. Therefore, in later assessments the Council will monitor both the implementation of the resource management committees and the introduction of the appeals mechanism to confirm that they are delivering transparent and accountable decision-making.

Performance monitoring and best practice

ARMCANZ is to develop further comparisons of interagency performance with service providers seeking best practice (clause 6e).

Western Australian arrangements

Western Australia is continuing to participate in benchmarking processes. The Water Corporation is involved in the Water Services Association of Australia Facts comparisons. Aqwest and six geographic locations of the Water Corporation participate in the Australian Water Association's non-metropolitan urban benchmarking. In the rural sector, three irrigation areas were involved in the Australian National Committee on Irrigation and Drainage benchmarking in the 1997–98 and the 1998–99 reports.

Assessment

Given Western Australia's continuing involvement in benchmarking processes, the Council has concluded that Western Australia has met this component of the water reform commitments.

Commercial focus

Metropolitan service providers must have a commercial focus, whether achieved by contracting out, corporatisation, privatisation etcetera, to maximise efficiency of service delivery (clause 6).

Discussion and assessment

In its second tranche NCP assessment the Council concluded that, apart from some reservations concerning institutional separation, it was satisfied with the

commercial focus of the Water Corporation. The structure of the Water Corporation remains unchanged the so Council has again reached this conclusion.

Devolution of irrigation scheme management

Constituents should be given a greater degree of responsibility in managing of irrigation areas, for example, through operational responsibility being devolved to local bodies, subject to appropriate regulatory frameworks being established (clause 6g).

Western Australian arrangements

At the time of the Council's second tranche assessment one scheme was devolved, one was significantly progressed and difficulties with the other two schemes had been identified and were being resolved.

Devolution of ownership of the Ord Irrigation Scheme commenced in 1995. The transfer of the business to the Ord Irrigation Co-operative stalled in 1998. The Water Corporation agreed with the cooperative in November 1999 that the parties would work closely together to help progress the privatisation of the scheme. A memorandum of understanding was signed in July 2000 outlining the manner in which the scheme would be privatised.

In December 2000 the Ord Irrigation Co-operative and the Water Corporation signed an asset management agreement, which gives the cooperative the right to manage, use and operate the assets up to the point at which they are transferred. The transfer is planned to be completed by 30 June 2001.

In December 1999 the board of the Water Corporation approved a proposal to divest ownership and operation of the Carnarvon Irrigation Scheme. A memorandum of understanding outlining the procedure was endorsed by the irrigation community in May 2000 and formally signed in June. Canarvon irrigators are in favour of local management. The Water Corporation is working towards the privatisation of the scheme. In the interim Western Australia now expects to set up an operation and maintenance contract with growers, allowing for greater participation in operation of the scheme, before full ownership is transferred to the local irrigators.

Discussion and assessment

The Council noted in its second tranche NCP assessment that Western Australia had made substantial progress in devolving irrigation management. It concluded that it was satisfied that second tranche commitments had been met, but that it would monitor the State's progress in devolution in the remaining irrigation schemes for the 2002 NCP assessment.

Given the continued progress in this area, the Council has again concluded that Western Australia has met this reform commitment. The Council will review further progress in the 2002 NCP assessment.

Allocation

Water allocations and property rights

There must be 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. Governments must have determined and specified property rights, including the review of dormant rights (clause 4a).

Management of water resources occurs through a hierarchy of statutory plans including regional allocation plans, sub-regional allocation plans and local area plans for specific water resources. Western Australia's water allocation plans and licensing system for the proclaimed water management areas of the State are the main vehicles for the allocation of water to users and the environment.

Western Australian arrangements

Water property rights

The Council considered Western Australia's property rights system in some detail against second tranche NCP commitments as part of the January 2001 supplementary assessment. A brief summary of the features of the Western Australian system is provided in table 3.

Table 3: Western Australian water property rights

Key Item	*Western Australia*
Entitlements/rights	
Nature of water entitlement	Broadly specified water rights cover, for example, riparian water rights for stock or domestic purposes and rights to take surface water and water from non-artesian wells for domestic and ordinary use, watering cattle or other stock, and firefighting. Water users need to hold a licence for all use outside basic riparian rights. One licence type a licence to take water, covers both for surface water or groundwater extraction. The licence then specifies whether it is to store water in a dam, pump from a stream, etc.
Nature of water right	Licence or local by-laws authorise taking of water. **Local by laws** are legally enforceable rules set for specific purposes, such as the building of dams, taking water from non-artesian wells, amounts of water to be taken from augmented flows and persons eligible to hold licences. **Licences** may be for a fixed period, generally five to 10 years with automatic renewal if licence conditions have been met, or indefinite duration. Special licences are retained for 10 years. All licences are volumetric with maximum volumes specified in kilolitres. Reliability is specified in water management plans. The licenses are separate from land title. Tradeable and enforceable. **Water management plans** specify the rules on how water will be allocated and the reliability of water available under the licence. They are also the main means of amending licences. They are reviewable every seven years. **Directions by Water and Rivers Commission** in areas of overallocation or where extraction causes environmental damage can be made at any time and overrides all other rights. Directions are subject to appeal to an appeals tribunal. **Overland flows** can be managed under local bylaws if the use of the overland flow causes a reduction in the flow of a watercourse, or has a significant effect on the quality of the water of an ecosystem. **Compensation** is made by the beneficiary where there is a forced reduction in the level of use as a result of granting increased allocations to others; by the State where the change is made for the public interest; or by the Water and Rivers Commission if a licence is altered or existing use refused unfairly or reasonably. Subject to appeal.

Water management plans

Water management plans set up water management policy for an area. The *Rights in Water and Irrigation Act 1914* formalises Western Australia's approach in providing water for the environment through a system of statutory management plans that will be the basis for allocating water, setting environmental flows and adjusting allocations. The Act provides for three levels of water management plans, and provision for water for the environment is considered at each level of planning.[5]

[5] The January 2001 second tranche NCP supplementary assessment referred to these as 'allocation plans'. Given that water allocation mechanisms form only a part of water management, Western Australia now refers to these plans as 'management plans', consistent with the *Rights in Water and Irrigation Act 1914*.

The Act requires that management plans set out how water rights are to be allocated and water taken and used to meet various needs including the needs of the environment. The purpose of plans is to manage both ground water and surface water quantity and quality within a catchment. All aspects of land and water management will be considered, and consistency will be achieved between the various levels of plans. The three levels of plans are:

- **regional management plans** which identify ecological and other environmental values at a regional level, including the likely future uses of the water resource. They may give a preliminary indication of the quantity of water that could be diverted from the region, including the possible scale of any development and of how water resources planning and management will be integrated with land use planning and management;

- **sub-regional management plans** which identify ecological and other environmental values at a sub-regional level, and define environmental water requirements and environmental water provisions. These plans establish ecologically sustainable development to be facilitated by the Water and Rivers Commission including the quantity of bulk water allocations for particular consumptive uses and how the rights to water are to be allocated to meet various needs. These plans will set out the objectives of water allocations for the Water and Rivers Commission to consider in licensing; and

- **local area management plans,** which cover part of a single water resource for a specified local area (for example, a groundwater sub-area).

Western Australia's policy for water allocations is to allocate up to the sustainable yield of a water resource after accounting for environmental water provisions (see the section on provision for environment). The sustainable yield is the maximum amount of water that can be extracted without damaging the system. The allocation limit is the amount of extractions allowed, given the current level of certainty on the environmental assessment.

The Act provides the framework to estimate and allocate the sustainable yield of water resource systems between the various demands on the water resource. The plans will set the sustainability of use and the balance between competing users. They will also specify environment water provisions, sustainable limits and the requirements of licensing.

Water management water plans are of an indefinite duration. Western Australia advised that the legislation requires plans to be reviewed at least every seven years, but that the policy objective is for five-yearly review. The intention to review a plan will be advertised and stakeholders can present views on whether there should be a review.[6] The Minister then decides on whether the review will take place. Generally,

[6] A planning review will involve extensive consultation with a water resource management committee.

where management plans have been implemented, any changes to allocations will be made at the time of plan review. The planning process provides for the revision of licences if the review finds that reallocation is necessary. The Act also provides for roll-over of plans where the objectives are being met. Plans can only be revoked or amended with public and relevant Government agency consultation.

The Government is adopting a conservative approach to allocation to ensure continuity and security of allocations over time. Thus, Western Australia's 2001 annual report stated that:

> *It is unlikely that for groundwater systems for example, changes to allocations will be made during the tenure of the plan. This is deliberate to give licensees some continuity and security in their allocations for that period of time, and to respect the longer time frames of change associated with groundwater resources. There is a provision in the Act however, to amend allocations in the shorter timeframe if necessary based on certain triggers, but with proper management, this contingency is unlikely to be required. Whilst the timeframes of change for surface water are significantly shorter, the same principle applies.* (Western Australia 2001, p.57)

However, the Act allows plans and licences to be altered at any time because it is proposed that problems be addressed as they occur, rather than constrain changes to a five or 10 year period. The Western Australian government argued this gives water users increased security because the tendency to delay corrective action is avoided.

Western Australia provided a timetable for the preparation of plans, including those that will contain environment water provisions based on the Western Australian water assessment 2000 (attachment 1). The timetable is open to inspection by stakeholders and will be regularly reviewed.

The process for setting water management plans

The Water and Rivers Commission will involve water resource management committees in setting water management plans. These committees will include users and other stakeholders. Decisions of committees must comply with Water and Rivers Commission policy, such as the removal of sleepers before the introduction of trading. Issues such as managing within ecological sustainability are non-negotiable. The Committees will have significant input into the approach adopted to meet the and timeframes contained in plans as well as advice to Water and Rivers Commission prior to the making of plans or local by-laws.

Currently, no water resource management committees are constituted under the *Rights in Water and Irrigation Act 1914*. Rather, two committees are expected to be established this year and another two in 2002. Eventually there will be 16 committees. Local water management advisory committees will continue to operate until the water resource management committees have been established. Once the committees have been constituted, they will need to decide on issues such as whether they will adopt a consensus approach to decision making.

After a committee has developed a draft plan, that plan is put out for public consultation. It is then redrafted to take in the views of submission makers and finalised when approved by the Minister for Water Resources or, by delegation, by the Board of Water and rivers commission, and gazetted. Licences will then changed to be consistent with the new plan.

The Act also requires specific identification of environmental values and of how the rights to water should be allocated including the needs of the environment. Water management plans require the approval of the Minister for the Environment in setting environment water provisions. Management plans that have a significant impact on the environment are assessable under the provisions of the *Environment Protection Act 1986*. The Minister for the Environment approves and sets conditions on the allocation strategies, assesses the environmental impacts of those strategies after the Environment Protection Agency. The Act also allows the Water and Rivers Commission to set conditions on licences or to amend licences to protect the environment and environmental values.

Licences

Western Australia licenses irrigation districts to store and distribute water. The cooperatives then specify in cooperative by-laws how irrigators are to take the water. There are also controls in the memorandum and articles of association of the irrigation cooperatives regulated by the Office of Water Regulation.

Only a person who intends to use the water can hold licences. They specify the time within which the holder needs to use the water. The Water and Rivers Commission monitors licence holders to ensure these conditions are met. If the conditions are not met, then the licence-holders must justify why they should not lose the licence. This system is based on the Californian model, whereby the licence is a probationary right until the holder begins to use water. The commission can amend the licence if the licence-holder consistently does not take some or all of the water.

Western Australia does not intend to be involved in taking back water once trading is in place; unused water should be either traded or leased. Generally Western Australia will consider taking action if the water has not been used for a pre-determined period. However, the water resource management committees are responsible for defining the sensible triggers for their region, taking into account factors such as reasonable drought management strategies. The conditions on use of licences will be included in water management plans.

Licences are automatically renewed if the licence-holder has complied with the conditions of the licence. Otherwise, the licence can be revoked. This is proving to be a strong incentive for people to comply with their licence.

Water and Rivers Commission directions

Directions are used in times such as drought to ration water temporarily when there is not enough to satisfy all of the existing rights. The direction is lifted as soon as the shortage is abated. Water and Rivers Commission directions are temporary and do not change the conditions of the licence. If there is a permanent water shortage, then the licence needs to be amended. The Act sets out the process for change, including compensation and appeals. Compensation is payable if individual licence-holders are not treated fairly and reasonably in comparison with other licence-holders.

Appeals

The appeals under the Act are a full merit review. One to three people hear each appeal. The Minister selects these people from a panel. The panel consists of 10 people, each with appropriate expertise to hear appeals. The chairs of the Environmental Protection Authority, Water and Rivers Commission and Legal Practices Board appoint the panel.

Regulations under the Act are yet to be drafted to appoint the tribunal. In the interim, the Minister and the appellant must agree on a panel to hear an appeal.

Register

The Act creates a licensing register that will provide a publicly available list of property rights to use water, including licences and directions. Similar to a land titles register people wanting to confirm those rights can search it.

The register is primarily for information about titles; it does not guarantee title or create security of interest. Any person seeking to buy a licence should obtain a copy of the licence from the holder or the Water and Rivers Commission.

The contents of the database are specified in the Act and regulations. The register will list the licence number, licence holder details, the water entitlement volume, the water resource and the location from which the water is taken. It will also include details of security interests, including where a licence has been mortgaged or leased, conditions imposed on a licence, the period it is in force, the size of an allocation, transfers, and any details prescribed by regulation.

The person who holds the licence is responsible for registering the third party interest. Once a third-party interest is recorded, the licence cannot be traded without the agreement of the third party. The third party is also notified of certain events that could put the licence at risk. The licence holder cannot remove the security interest without the agreement of the third party. The database records if the licensee has been convicted of not complying with the Act. This helps the lender to determine whether the licensee is a high risk.

Western Australia is now setting up a working group with the banks. The banks have not said that they are dissatisfied with the Western Australian property rights system, but they have some concerns about whether banks will be able to hold the water licence if the licensee defaults on the loan. Western Australia argued that if the loan is defaulted the bank is most likely to take possession of both the land and the water. Therefore, the separation of land and water title is not seen as an insurmountable issue. These issues will be worked through in the working group. If necessary, regulations can be made to allow those with a security interest to hold a licence.

The register does not include information on how much of the licence is being used. If it proves necessary, then register could be changed to include such information.

The register is to be established immediately. Currently the Western Australian database for licences has not been updated to deal with the new arrangements. If a person wants licence information, such as provided for the new licence register, then the Water and Rivers Commission runs a search on the database and charges for printed reports. Any person wishing to inspect the register will need to visit a Water and Rivers Commission office. In the next twelve months, the register is meant to be placed on the internet.

Surface water overallocation

The National Land and Water Resources Audit assessment of water resources (2000) provided data on surface water resource use for Western Australia. The data indicate there are no overallocated surface water resources.

Groundwater

The National Land and Water Resources Audit assessment also has provided data on groundwater resource use for Western Australia including where the resource is fully allocated or over allocated in relation to the sustainable yield in table 4.[7]

[7] Western Australia defines sustainable yield as 'estimates based on throughflow estimates, chloride analyses, rainfall recharge estimates and land use and determination of impact land use on recharge'. For groundwater-dependent ecosystems, 'environmental allowance is made for each groundwater management unit according to conditions in that groundwater management unit. The basic allowance is 5 per cent of total recharge. For significant wetlands, it is approximately 40 per cent of the total recharge and for others it varies between 25-70 per cent of total recharge'.(NLWRA 2001)

Table 4: Summary of data for groundwater management units that are at full allocation or overallocated

Groundwater management unit	*Total abstraction (megalitres)*	*total allocation (megalitres)*	*Sustainable yield (megalitres) and its reliability*[*]
Albany	4 647	4 647	4 647c
Cockburn–Superficial	29 230	29 230	29 230a
Cockburn–Yarragadgee	5 786	5 786	5 786b
Gnangara–Leederville	23 840	23 840	23 840b
Gnangara–Yarragadgee	25 150	25 150	25 150b
Gwelup–Leederville	4 860	4 860	4 860b
Gwelup–Superficial	14 060	14 060	14 060b
Gwelup–Yarragadgee	3 500	3 500	3 500b
Jandakot-Leederville	1 973	1 973	1 973b
Mirrabooka–Leederville	4 002	4 002	4 002b
Mirrabooka–Yarragadee	2 000	2 000	2 000b
Murray–Cockleshell Gully	3 775	3 775	2 597b
Perth–Leederville	17 297	17 297	17 297b
Perth–Superficial	129 109	129 109	129 109b
Perth–Yarragadee	15 940	15 940	15 940b
Rockingham–Leederville	486	486	487b
Serpentine–Leederville	3 141	3 141	3 140b
Serpentine–Yarragadee	135	135	135b
Swan–Leederville	5 659	5 659	5 659b
Yanchep–Leederville	400	400	400b
Collie	23 520	23 520	8 300a
East Murchison–Wiluna Superficial	6 540	6 540	6 540c
Goldfields–Lake Carey-Superficial	30 672	30 672	30 672c
Goldfields-Raeside–Superficial	10 514	10 514	10 515c
Goldfields-Rebecca–Superficial	6 315	6 315	6 315c
Goldfields–Roe	12 205	12 205	12 206c
Goldfields–Roe–Superficial	30 173	30 173	30 173c
Gascoyne–alluvium	4 417	4 417	4 417c
Gascoyne	5 581	5 581	5 581c
Marymia	6 250	6 250	6 250c
Hamersley–Carawine	31 500	31 500	31 500c
Hamersley–Fortescue	15 100	15 100	15 100c

sustainable yield reliability assessment – a = highest reliability to d = lowest reliability

Source: NLWRA (2001)

The National land and Water Resources Audit report indicated that only two of the 174 groundwater management units in the State are overallocated (where allocations exceed the sustainable limit). For a discussion of measures to address this issue for these two groundwater management units, see principle 5 of the national principles in the section on the discussion of provision for the environment.

Western Australian water assessment 2000

As part of the National Land and Water Resources Audit, Western Australia produced and publicly released an assessment report of its water resources entitled *Western Australia Water Assessment 2000 – Water Availability and Use* (WRC 2000). Water assessment identifies the high priority systems requiring review or determination of environment water provisions and sustainable limits. It is a significant step beyond previous State and National reviews creating preliminary assessments of environmentally sustainable yields at regional scales across Western Australia. The adopted methodology of estimating sustainable yields is consistent with the allocation process being implemented in Western Australia, including the expectation that some resources will be withheld from development and others will be developed with soundly established environmental water provisions.

The Western Australian 2001 annual report advises that estimates produced in this way introduce very substantial environmental water allocations though the creation of conservative or precautionary estimates of sustainable yield. The sustainable yield is the amount of water that can be substantially harvested each year from a water resource after making provision for environmental water requirements and social values (see provision for the environment).

The Western Australian Water Assessment 2000 has identified 44 surface water management areas and 174 groundwater management areas. As discussed in the second tranche June 1999 report, Western Australia will use this data to systematically group individual resource units of groundwater and surface water into different levels of use categories relative to sustainable yields for each water resource management area. In summary, these categories are:

- Category C1 (minor resource allocation and usage) covers resources where allocation is less than 30 per cent of the estimated sustainable yield. Western Australia has set allocations conservatively. Because of these large safety margins, Western Australia does not need to undertake the investment necessary for full environmental evaluation. There would be a low amount of licensing and no trading;

- Category C2 (growing resource pressure) covers resources where allocation is between 30 and 70 per cent of the estimated sustainable yields. As demand grows to over 30 per cent formal planning should commence. Resource management plans and large scale local area management plans are prepared and allowable diversions are based on regional estimates or more detailed recharge estimates to meet environment water provisions; and

- Category C3 (strong resource competition) covers resources where allocation is between 70 and 100 per cent of the estimated sustainable yields.

  When an area triggers 70 per cent allocation (moving from C2 to C3) the Water and Rivers Commission advertises and calls for applications for new water licences. This enables it to consider these applications together and allocate the remaining available water based on merit or some other method suitable for the region. The criteria for the merit selection are likely to include factors such as the economic viability of the proposed water use and equity issues to ensure one user does not obtain all, or a substantial proportion, of the available water. These criteria tend to result in the remaining water being distributed over a range of users to support the traditional uses of water in the region. The process of approving this water use may be designed to allow for a transition to trading.

  Planning reviews are necessary to update provisions for the environment and prepare for water trading. Sub-regional management plans and local area management plans are prepared. Reservoir and river simulation studies for surface waters and modelling studies for groundwater provide for allowable diversions with the environment water provisions adopted as the constraint. Market rules are developed and existing licensed use reviewed:

- Category C4 (resource at limit and trading active) covers resources where allocation is at or over 100 per cent of the estimated sustainable yield. Trading will be operational and if allocation exceeds sustainable yield, action would be taken to correct this. Sub-regional management plans will be developed.

All current category C3 and C4 will require a management plan to be developed over the next five years. A list of those areas considered to be in C3 and C4 has been provided in attachment 2. This information subdivides 20 river basins or surface water management areas into a total of 103 subareas or subcatchments and indicates two subareas considered to be in the C4 or overallocated category.

Assessment

The Council has reviewed the efficacy of property rights arrangements in Western Australia and considered further the provisions of the Rights in Water and Irrigation Act since the January 2001 Supplementary assessment.

The Council is of the view that it would be optimal for rights to be vested in the end user. However, where rights are not vested in the end user, the Council believes the rights must still be able to ensure a licence holder is able to:

- invest in the rights;

- buy and sell the right commodity — that is, trade it; and

- plan business activities based on the surety of the rights

For these reasons, the Council has reviewed the efficacy of property rights in terms of three criteria:

1. the reliability should be specified. There should be enough information to enable stakeholders to know what they have got and to be able to trade;

2. the length of the right, the presumption of rollover of a right unless there is a specific need for change, and the adequacy of the registry system need to be adequately established to enable the right to hold a third party interest such as a mortgage. A right does not to be need to be granted in perpetuity; and

3. whether there is a need for compensation depends on the frequency and likelihood of the need for changes to the Plan. If there is a low likelihood of change due to the needs of the environment being adequately met, then no compensation may be necessary. If however there is a high frequency need for change based on environmental needs, for example, a high level of overallocation, then compensation may be payable.

The Council has reviewed the efficacy of property rights under the Western Australian system to ensure there is enough specificity in the rights. As noted in the January 2001 supplementary assessment, there is no end date on water allocations although reliability will be specified in water management plans. Furthermore, Western Australia has adopted a conservative approach to determining the needs of the environment and the allocation needs of consumptive users.

With regard to the form of the registry and timetable for establishment, Western Australia has advised it is expected that later this year an electronic database will be made available on the Internet or at local Water and Rivers Commission offices. It is the Council's view that it is the length of the property right, and the adequacy of the registry system that are needed to create the ability for third party interests to hold a mortgage.

The chief concern the Council has had with the Western Australian system is the discretion of the Water and Rivers Commission to issue a direction at any time where action is necessary and that direction overrides all other rights. A direction by Water and Rivers Commission in areas of overallocation or where extraction causes environmental damage can be made at any time and overrides all other rights. However, it is noted that directions by Water and Rivers Commission are subject to appeal to an appeal tribunal to protect rights.

Licences can be amended at any time to ensure they comply with water management plans. Furthermore, plans can be amended at any time as it is proposed to address problems as they arise, rather than constrain changes to occur at the end of a defined time period. Any constraints on water rights that are implemented through plans must be subject to full public consultation and be acceptable to the community. Western Australia has advised that this gives water users increased security as the tendency to delay corrective action is avoided.

The Council has held discussions with the Australian Bankers Association on the adequacy of the property rights system in terms of bankability in each of the jurisdictions. In relation to Western Australia, it was noted that Western Australia has advised it is now setting up a working group with the banks to talk through the implications of the changes and deal with transitional issues. This will be aided by a clear registry system based on a Land Titles approach.

In the January 2001 Supplementary assessment, the Council noted that Western Australia is in the enviable position that few areas of the State are overallocated. This view has been confirmed by the data on Western Australia (NLWRA 2001). As a result, the likelihood that Western Australia will need to pay compensation is very low.

Since the second tranche assessment in June 1999, Western Australia has placed significant resources into determining the current status of surface and groundwater resources in terms of available resource, divertible yield, sustainable yield, and current use and allocation.

The Council notes that much of the sustainable estimates are preliminary and that Western Australia is engaging in further work to better define these estimates. Western Australia has finalised its environment water provision policy which describes the principles and processes to be applied by the Water and Rivers Commission in determining how much water should be retained by the environment when allocating and reviewing rights to use water. The Council supports the approaches identified in this policy.

The Council is of the view that Western Australia's system of water property rights meets the requirements for this assessment.

Provision for 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).

Management plans set the allocation of water between consumptive use and environmental purposes and are statutory plans under the Rights in Water and Irrigation Act. In Western Australia, water provisions for the environment are set as

environmental water requirements in management plans for all water systems in one of two ways. Firstly, from a 'notional or interim allocation limit' in under-allocated and non-stressed systems, and secondly to a formal assignment of environment water provisions in areas that are highly or fully developed.

The assignment of environment water provisions takes into consideration the environmental, social and economic impacts. They are set in management plans as the allocation limit or sustainable yield and licensed allocations can then be approved up to this level. The setting of environment water provisions involves stakeholders and the community and by its nature, determines the trade-offs between the environment and socio-economic requirements.

In all proclaimed groundwater areas of the state, allocation limits for consumptive use have been set. Explicit in this limit is an allocation to the environment which has been set prior to the allocation for consumptive use.

Environmental protection policies provide for the statutory identification and priority management of 'critical areas' through regulations or schedules. These subordinate instruments may include areas where the environmental values of water are not being attained or are considered by the Environmental Protection Authority to be 'stressed'. The authority has an ongoing role in assessing the adequacy of ecological water requirements and environment water provisions in water management plans.

Western Australian arrangements

The January 2001 second tranche NCP supplementary assessment provides further detail concerning the environmental water provisions policy for Western Australia, and the principles for determining environment water provisions and environmental water requirements. A brief summary is provided for this assessment only, and considers developments since January 2001.

Environmental water requirements and environment water provisions

The recently finalised environmental water provisions policy for Western Australia describes the principles and processes to be applied by the Water and Rivers Commission in determining how much water should be retained for the environment when allocating and reviewing water use rights. It also identifies important linkages to Western Australia's statutory framework, and to national principles. In summary, the policy provides for the Environmental Protection Authority to determine:

- environmental water requirements — the water regimes required to maintain ecological values at a low level of risk determined on the basis of best available scientific information. Environmental water requirements will be reviewed as needed, or as part of the overall review of sub-regional management plans within seven years; and

- environment water provisions — the outcomes of the water allocation decision-making process and are the constraints and conditions on the water quantities for licences taking into account ecological, social and economic impacts. They may meet in part or in full environmental water requirements. Environment water provisions will be less than environmental water requirements where some ecological impact is accepted.

Where there is limited information — and interim estimates of environmental water requirements and environment water provisions are required for management planning and licensing — the Water and Rivers Commission will set allocations on a precautionary basis that minimises ecological risk.

Allocations for the environment are considered at each level of planning, depending on the level of knowledge and experience of a particular resource. In regional management plans[8] where a water resource is considered as 'not stressed', initial estimates of environmental water requirements and environment water provisions may be broadly defined as a 'notional or interim allocation limit' for the purpose of providing initial estimates of abstraction limits.[9] In areas that are highly or fully developed (ie allocations greater than 70 per cent of sustainable yield) the allocations for water dependent ecosystems are based on detailed scientific investigations to determine environmental water requirements. In areas of high conservation values, it may be determined that all water should be allocated to ecological values. For example, this is proposed for the Shannon River.

The transition from providing notional or interim allocations to environmental water requirements status will be driven in many cases by growth pressures. environmental water requirements will then be converted to environment water provisions to take into account the socio-economic pressures associated with allocation planning. In these areas, allocations for consumptive uses are made subsequent to allocations for the environment.

Environmental flows and regulation

Assessing the environmental allocation from groundwater requires:

- measuring the average annual recharge;
- identifying how much of that recharge is needed to maintain ecosystems (environmental water); and
- allocating water for consumptive uses which equals the recharge less environmental water and water needed for social reasons.

8 Or in areas where there is little technical knowledge available.

9 Or a percentage of the rainfall in certain groundwater areas

For water sources that are in the low allocation category (C1 zero to 30 per cent), Western Australia can afford to have large errors in the assessment of sustainable yield. A preliminary environmental assessment is undertaken for areas where usage is 30 to 70 per cent (C2). When usage is above 70 per cent (C3), there is a need for more scientific understanding. Water and Rivers Commission contracts out these studies, to assess environmental values and the amount of water needed to maintain the environment.[10] C4 areas have usage greater than 100 per cent and are overallocated.

Because the water resource management committees are not in place and the science will take time (between one and 1.5 years), Western Australia has developed interim operation strategies to allow water to be used before full scale planning is finalised.

Proclamations

The Rights in Water and Irrigation Act provides for the Governor to issue a proclamation for any watercourse, wetland and groundwater area for the purpose of management. The purpose of proclamation is to allow the Water and Rivers Commission to sustainably manage the water resources in an area by giving effect to the environmental requirements of management plans.

Proclamation results in an area becoming subject to licensing. It is used for C2 and C3 areas. Prior to proclamation, water rights are not secure. However, in these areas there is excess water available. Nearly all of the State is now proclaimed for groundwater and some for surface water.[11] In proclaimed groundwater areas, licences to abstract groundwater are required for all groundwater works including bores, wells, excavations etc.

Proclamation is necessary to secure allocations and address the environmental issues arising from the collective use of water. The Environmental Protection Authority can address the environmental impact of individual use.

In unproclaimed areas, Environmental Protection Authority conditions apply. Also local by-laws can be used to restrict water use such as setting requirements on dam building. In unproclaimed areas, policy initiatives endorsed by the Minister and the Water and Rivers Commission can be used to ensure the protection of ecological values in addition to community education initiatives.

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10 The work is supervised by Water and Rivers Commission staff with a sound knowledge of the environmental water requirement process and methodologies.

11 The Water and Rivers Commission website lists 52 groundwater and 22 surface water areas proclaimed.

Environmental Protection Authority environment protection policy

The State groundwater environmental protection policy and State marine waters environmental protection policy provide for the statutory identification and priority management of 'critical areas' through regulations or schedules developed under the relevant policy. These subordinate instruments may include areas where the environmental values of water are not being attained or are considered by the Environmental Protection Authority to be 'stressed'.

For example, in areas such as the Gnangara and Jandakot mounds where formal environment water provisions have been set, the Water and Rivers Commission carries out comprehensive compliance monitoring and review and provides annual and triennial reporting of the results to the Environmental Protection Authority. Information available from the authority's website on non-compliance documents past instances of excessive water use from both Gnangara Mound and Jandakot groundwater resources up to and including 1999.

Current water levels on the Gnangara and Jandakot mounds are generally low due to a prolonged period of below average rainfall. About 25 per cent of public supply production bores on the Gnangara mound and 31 per cent of production bores on the Jandakot mound have been shut down, under instruction from the Water and Rivers Commission, to prevent breaches of environment water provision criteria.

Progress against Western Australia's implementation program

Western Australia has reported that the Water and Rivers Commission is progressing steadily with the environment water provision and allocation planning 'rollout' program as published in the National Competition Council's second tranche assessment.

The *Western Australia Water Assessment 2000* (WRC 2000) identifies the high priority systems requiring review or determination of environment water provisions and sustainable limits. However, the Water and Rivers Commission is currently revising this rollout plan in light of the results of the recently completed National Land and Water Resources Audit 2000 audit of the State's surface and groundwater systems to produce a five-year work program to address environment water provision priorities. It is still working on finalising this plan. The Water and Rivers Commission have tabulated the classification of water sources and the current level of environmental assessment to identify those areas where more work is needed. It is now concentrating on the hot spots that include north of Perth, to south of Geraldton, Cockburn and the South–West Regions.

There are sub-regional plans for groundwater in Jurien, Arrowsmith, Gingin, Cockburn and Harvey Dam for surface water. The West Kimberley has commenced its regional strategy and there is a draft plan for the Ord Irrigation area. There is also a regional plan for the Goldfields. A local area plan has been developed for the Kemerton Industrial site.

Western Australia provided a list (attachment 1) which represents the current status of water management plans and allocation strategies. This list should be considered as preliminary only. The list identified recently completed plans, draft plans subject to community consultation, and plans in progress. The list does not include the older plans and concentrates on the second and third generation plans and strategies. Furthermore, a large number of groundwater management plans are already in force but under review.

Discussion

National principles for the provision of water for ecosystems

The ARMCANZ/ANZECC National Principles of Water for Ecosystems have been a fundamental component in formulating the policy approach that has been adopted by Western Australia. The Western Australian approach to each of the national principles is described and discussed below.

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

The introduction of the amended Rights in Water and Irrigation Act, compliance and review provisions in the *Environment Protection Act 1986*, the principles embodied in State environment water provision policy, the Western Australia Water Assessment 2000, and the approach to be taken in implementing the three levels of water management plans indicates that Western Australia is meeting this principle.

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.

The Water and Rivers Commission has developed scientific methods for the determination of environmental water requirements and environment water provisions based on reservoir and river simulation studies for surface waters and modelling studies for groundwater dependant ecosystems in Western Australia.

In relation to groundwater, results of a decade of coordinated research into the wetlands of the Swan Coastal Plain were used in determining environmental water requirements for the wetlands of the Gnangara and Jandakot mounds. The approach will also be applied in the determination of environment water provisions for other high priority groundwater systems.

Western Australia has also fostered a number of applied research projects to keep abreast of best practice methodologies for determination of environmental water requirements for surface water systems. Detailed work is currently underway on a number of surface and groundwater systems, notably the Ord surface water, La Grange groundwater, Harris and Collie surface water systems.

In areas that are highly or fully developed (allocations greater than 70 per cent of sustainable yield) allocations for water dependent ecosystems are being based on detailed scientific investigations to determine environmental water requirements. These investigations are normally carried out by experts (consultants) in the field under contract to the Water and Rivers Commission. The commission has also set up a panel of experts in many fields (including the environment) from which it can draw the appropriate experts to undertake investigations in partnership with the commission and the community.

In areas where there is little technical knowledge available, and the water resource is determined to be not stressed (under allocated), a 'notional or interim allocation limit' may be set which relates to a percentage of the 'engineering practical diversion limit' for surface water, or a percentage of the rainfall in certain groundwater areas.

Western Australia has cited examples of the use of best scientific information in environment water provision decision-making in the Gnangara mound, and the draft Harvey Basin surface water management plans.

The Council is satisfied that the approach being taken to make decisions concerning allocating water to the environment is using the best scientific knowledge currently available for Western Australian ground and surface water systems.

Principle 3: Environmental water provisions should be legally recognised.

The Rights in Water and Irrigation Act specifically provides for water for the environment, including:

> *… to provide for management of water resources, and in particular: (1) for their sustainable use and development to meet the needs of current and future users; and (2) for the protection of their ecosystems and the environment in which water resources are situated, including by the regulation of activities detrimental to them.* (s4(1))

Water management plans are statutory instruments. They are binding on the Water and Rivers Commission in allocating water and must be taken into account by other decision-making authorities. Further it is a requirement in the Act that management plans at each level of planning across the State, set out how rights in respect to water are to be allocated, and how water may be taken and used to meet various needs, including the needs of the environment, identification of environmental values and the protection of those values. The Rights in Water and Irrigation Act also provides for the proclamation of any watercourse, wetland and groundwater area for the purpose of management.

The Council is satisfied that Western Australia meets this principle.

*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.

The development of water management plans sets out matters that guide the management of the State's water resources, including how rights in respect to water are to be allocated to meet various needs including the needs of the environment. The Council is not aware of any over-allocated surface water resources and is satisfied the Water and Rivers Commission has a process for the assessment of the capacity of water resources to provide water at sustainable levels of use, including the environmental impact of developing those resources.

In developing groundwater areas, Western Australia is using the scientific information to guide decisions on allocation limits whilst providing water for the environment. Sustainable groundwater abstraction limits are set based on recharge estimates and updated as the response of the aquifers to abstraction is monitored. Groundwater level regimes are set in particular cases to ensure protection of wetlands and riparian vegetation which act as constraints on the sustainable abstraction limits.

In all proclaimed groundwater areas, allocation limits for consumptive use have been set after providing for an allocation to the environment. The allocation limit is the sustainable yield which can be nominal, interim, preliminary and other descriptions which indicate the figure is not static and will change with better data. The allocation limit is set so that licences can be issued against this limit.

The Council is aware of the importance of the groundwater resource to Western Australia and notes that assessment of the reliability of the data for sustainable yield in the National Land and Water Resources Audit report indicates many of these assessments are of low reliability including for some groundwater management units operating at 100 per cent allocation. The Council will continue to monitor progress in this area.

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

The Council notes the findings of the Western Australia Water Assessment 2000 that none of the 44 surface water basins in the State or 303 subcatchment areas are overallocated. On the basis of this audit, preliminary environmental water requirements have been determined for all 44 surface water basins and for the 174 groundwater management units.

The Western Australia Water Assessment 2000 found that most of the State's surface and groundwater resources are being appropriately managed, with less than 10 per cent (by sustainable yield) requiring additional work to bring them up to the appropriate level of management. Western Australian has advised that part of this backlog of work involves determining environment water provisions and reviewing sustainable limits.

Western Australia is conducting substantial work to ensure compliance with environment water provisions. Licensed allocations are kept within the sustainable limits determined by environment water provision criteria. Monitoring of the resource is carried out monthly to ensure water levels are in compliance with the environment water provision criteria. Water users are required to reduce extraction rates if breaches of criteria occur or appear likely to occur. This is enforced through the licensing process.

Western Australia has advised that due to low current water levels on the Gnangara and Jandakot mounds, because of prolonged periods of below average rainfall, about 25 per cent of public supply production bores on the Gnangara mound and 31 per cent of production bores on the Jandakot mound have been shut down. The Council supports the action taken by the Water and Rivers Commission to address water levels on the Gnangara and Jandakot mounds to prevent breaches of environment water provision criteria.

However, two groundwater management units (Collie and Murray–Cockleshell Gully) have allocations exceeding the sustainable limit. Western Australia has indicated that strategies are to be put in place to bring use back to sustainable limits for these two groundwater management units within the next five years. The Council notes the CoAG requirement that jurisdictions have until 2005 to ensure use and allocations in groundwater systems are sustainable. It is also noted that some groundwater management units have sub-areas with localised overallocation, compensated for by adjacent sub-areas with lower allocations. Western Australia has indicated that work is underway to resolve these groundwater overallocation issues by resurveying use, reallocating water, or reviewing and redistributing water to maintain sustainable limits.

The Council is satisfied that the approaches being taken in Western Australia comply with this principle.

Principle 6: Further allocation of water for any use should only be on the basis that natural ecological processes and biodiversity are sustained (i.e. ecological values are sustained).

The Council is satisfied that the environment water provision policy for Western Australia sets out an adequate process for identification of ecological values that are sensitive to changes in the water regime and for the determination of ecosystem processes which support these values. Western Australia has cited the Gnangara Mound groundwater resources environmental resource management plan (November 1986), review of proposed changes to environmental conditions Gnangara Mound groundwater resources (June 1995), the East Gnangara environment water provision plan (October 1997), and the draft Harvey Basin surface water allocation plan (1998) as indicative of where environmental water requirements have been incorporated into allocation decisions. Each of these major allocation planning proposals was formally reviewed and approved by the Environmental Protection Authority.

The Water and Rivers Commission is committed to incorporating environmental water requirements in allocation decision making through the environment water provision policy and the Rights in Water and Irrigation Act.

Activities that are environmentally significant need to go through the Environmental Protection Authority process. If a licence application is likely to involve an environmentally significant activity the Water and Rivers Commission will refer it to the Environmental Protection Authority. Alternatively, the proponent or a third party can refer an activity to the authority or the authority can decide the activity is significant. The authority then sets the level of assessment. The assessment is public and can be appealed. The assessments and the results of any appeal are then provided to the Minister who can place Ministerial conditions on the activity. There are reporting and auditing requirements on Ministerial conditions.

Western Australia have advised there may be legal impediments to plans coming fully under the Environmental Protection Act as was originally intended. However, it is standard practice for the Water and Rivers Commission to refer plans to the Environmental Protection Authority for assessment where there are potential issues. The board will not finalise a plan that does not have Environmental Protection Authority support. This can result in the Environment Minister placing conditions on the Water and Rivers Commission.

Western Australia's 2001 NCP Annual Report notes that most of the State's surface and groundwater systems are being managed at a level appropriate to their degree of utilisation. However, some 30 per cent of the systems (8 per cent of the resources by sustainable volume) require more detailed work on environment water provisions and allocation planning to fully comply with the ARMCANZ/ANZECC principles. The Council will continue to monitor compliance with the national principles for future assessments.

Principle 7: Accountabilities in all aspects of management of environmental water provisions should be transparent and clearly defined.

The Water and Rivers Commission's primary role is to sustainably manage the State's water resources and it does not have a vested interest in the outcome of the decision process. Whilst many of the desired outcomes will be negotiable with the stakeholders and the community, other outcomes will not be negotiable, such as the need to manage water resources in a sustainable manner and to ensure environmental protection.

The Western Australian 2001 annual report notes that a good measure of how well the Water and Rivers Commission is fulfilling its role in the environment water provision and management planning process is the formal review of plans by the Environmental Protection Authority. All plans to date have been approved by the authority without significant departure from the environment water provisions proposed.

Community participation in the decision making process for allocation is a statutory requirement in the new Act and the environment water provision policy sets out the

process for involvement. Stakeholders are involved at the 'issues scoping' stage for the management plan preparation to agree on the key issues, work program to address these issues, and the community participation arrangements. The community is consulted at regular intervals with progress and findings and to provide feedback at critical stages in the development of a plan. Most large plans would go through a formal public review stage as part of the environmental impact assessment process.

All reports prepared by the Water and Rivers Commission or consultants as part of development of the plan are publicly available. Copies are provided to key stakeholders and made available in the Commission's information centre for any interested parties.

Public notification that a proposed plan has been prepared must be published in the Gazette and daily State newspapers. In addition, the public is invited to make submissions and the plans may be referred to any other body. Notice of plan implementation must be published in the Gazette.

The Council is satisfied that Western Australia has met its commitments.

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

The monitoring and review process forms a major component of management plans. In groundwater areas, monitoring bore networks provide continuous monitoring of water levels and water quality in each aquifer system to determine the impact of pumping and leakage characteristics which may impact on any dependent ecosystems.

In areas such as the Gnangara and Jandakot mounds where formal environment water provisions have been set, the Water and Rivers Commission carries out comprehensive compliance monitoring and review. This involves:

- monthly monitoring of criteria bores to ensure compliance with environment water provision criteria;
- periodic vegetation monitoring to ensure ecological objectives are being met;
- annual and triennial reporting of results to the Environmental Protection Authority;
- periodic review of environment water provision criteria; and
- proactive intervention to prevent potential breaches of criteria by shutting down production bores if required.

The process for review of environment water provisions based on the results of compliance monitoring is set out in the Water and Rivers Commission's environment water provisions policy.

The Water and Rivers Commission has the ability through its licensing powers to reduce extraction of water if required to ensure ecological values are protected. This has been demonstrated in recent years on the Gnangara and Jandakot mounds where about 25 per cent of the public supply production bores have been shut down to prevent breaches of environment water provisions criteria. The same licensing powers would be used to reduce extraction if required due to a revision of environment water provisions.

The Council is satisfied that Western Australia meets the requirements of this principle.

Principle 9: All water uses should be managed in a manner which recognises ecological values.

The Rights in Water and Irrigation Act contains provisions that allows the Water and Rivers Commission to regulate the quantity and rate of water that can be taken where there is a need to protect the ecological values. The objects of Part III of the Act provide for the sustainable use and development of water resources, and for the protection of dependent ecosystems detrimental to them. This includes water quality impacts from usage as well as the direct impacts of extraction.

Water management plans are being developed in accordance with the Act provisions including compliance mechanisms such as licensing and penalties for non-compliance. Large users are required to provide a satisfactory operating strategy which sets out an extraction regime, drought strategy, water efficiency measures, and monitoring program, among other things.

The process to make provision for water dependant ecological values and determine the sustainable limit on water available for consumptive use is clearly set out in the environment water provision policy.

The Council is satisfied that Western Australia meets the requirements of this principle.

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

Western Australian requires all water users to be efficient in their use of water. This is enforced through a review of actual water needs before issuing a license to abstract water. For small water users, this is based on efficient use 'crop factors'. For large public supply service providers, it is based on per capita consumption values (see 'Allocating Water for Perth's Future' (WRC 1997)). Large users are also required to demonstrate their water use efficiency measures in the operating strategy submitted with their licence application and subsequently enforced as a licence condition.

Urban and industrial public supply service providers in Western Australia such as the Water Corporation are fully self-funding. Irrigation schemes have been, or are, in the process of being privatised with strategies in place to make them self funding.

The Water Corporation has made a significant investment in a study of 600 households to evaluate domestic water use practices. This will contribute to future demand management programs.

The Council is satisfied that Western Australia meets the requirements of this principle.

Principle 11: Strategic and applied research to improve understanding of environmental water requirements is essential.

The Water and Rivers Commission has developed methods for the determination of environmental water requirements and environment water provisions for groundwater dependant ecosystems in Western Australia. The commission is now initiating work on methods for determining interim environmental water requirements for surface water and groundwater systems in response to the large backlog of work required to determine detailed environment water provisions and sustainable limits over the next five years.

As previously discussed, Western Australia has also fostered a number of applied research projects to keep abreast of best practice methodologies for determination of environmental water requirements for surface water systems. The Water and Rivers Commission has also sponsored research into groundwater dependant fauna in the Pilbara.

Western Australia has indicated it believes one of the most pressing strategic issues of water for the environment in Western Australia is the effect of dry sequence climate variability on groundwater environment water provisions. A major study is about to be initiated to address this and related issues of groundwater supply reliability.

The Council is satisfied that actions taken in Western Australia meet the requirements of this principle.

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

The Rights in Water and Irrigation Act provides for public consultation in water allocation planning process and also provides for the establishment of water resource management committees with community and stakeholder involvement.

The development of the environment water provision policy followed considerable public and stakeholder consultation. A guiding principle in the policy when making decisions relating to provision of water for the environment is community

involvement and adaptive management. These are fundamental aspects of water management planning, including the establishment and review of environment water provisions. Public consultation is an ongoing part of the Water and Rivers Commission planning process for establishing and reviewing water management plans.

The Council is satisfied that actions taken in Western Australia meet the requirements of this principle.

Assessment

For this assessment, the Council is looking for governments to demonstrate substantial progress against their implementation programs on the ground. Substantial progress includes at least allocations in all river systems which are over-allocated or deemed to be stressed. The implementation programs are to be substantially completed by 2005 for all river systems and groundwater nominated.

In the Council's June 1999 second tranche NCP assessment, Western Australia provided a timetable of future water management plans for groundwater and surface water, and environment water provision studies. An examination of Western Australia's implementation program shows that there are no stressed or overallocated surface water systems that required action by June 2001. The first surface sub-regional water allocation plan involving high usage (but not overallocation) is the Murray River Basin management plan due for completion in 2001-02.

The Council accepts the need for Western Australia to revise the roll out plan present in the second tranche assessment to bring it more in line with the priorities identified by the Western Australia Water Assessment 2000. The Council will monitor both the progress made in developing plans and any increased water use which may indicate a need to bring forward the schedule for completion of particular plans. The Council will require Western Australia to provide an updated list in the 2002 NCP assessment. This may include a list of existing plans and the date of effect of these plans for both surface and ground water systems.

Western Australia derives most of its water supply from groundwater, and there are no stressed river systems. Accordingly, Western Australia has until 2005 to fully implement its implementation program for provision for the environment.

The Council is satisfied that Western Australia is making satisfactory progress against the implementation timetable and has met all reform commitments for this assessment.

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 (clause 3).

The High Level Steering Group on Water (2001) notes that:

> *Western Australia, while facing different issues to the other states and territories, has significant opportunities to achieve productivity improvements through water trading.* (HLSGW 2001, p.12)

In many parts of Western Australia, there is a relatively low level of competition for water resources. That said, around a third of the State's water resource systems are at a highly or fully allocated level (WRC 2001a). It is in these areas in particular that an effective trading market needs to be in operation to allow new users to obtain water or existing users to increase their supply without affecting the sustainability of the system. The passage of the *Rights in Water and Irrigation Amendment Act 2000* established an effective framework for the transfer of water rights, although the practical implementation of the Act's trading provisions are still in their early stages.

The potential demand for water trading will increase in the future as demand for water use is anticipated to double over the next 20 years, placing additional pressure on available resources and increasing resource scarcity.

Trading within Western Australia

Legislative base

Trading provisions have been established in Western Australia through the Amendment Act, which was enacted on 28 November 2000. The reforms contained in the Act, including those relating to water trading, which will take effect from 10 January 2001.

Division 7 of Schedule 1 of the Act makes it possible for a person to permanently transfer their licence with others who are entitled to own a licence.[12] Division 7 of the Act also contains provision for the temporary transfer or lease of water entitlements, provided the receiver holds, or is eligible to hold, a licence.

A transfer of water entitlements is made by the Water and Rivers Commission amending the transferring and receiving licences. Trades can only occur with the permission of the commission, whose decision would be made based on water resource management objectives contained in allocation plans[13]. A decision not to agree to a trade is subject to appeal and the tribunal can allow the trade if the commission has not acted appropriately or has considered irrelevant matters. Leases are also at the discretion of the commission.

For surety of investment reasons, persons planning to make investments in the purchase of a water right, may also apply to Water and Rivers Commission to give an undertaking to grant a licence for when they become eligible.

To limit the scope for speculation in the water market, the Act provides a number of key constraints to the transfer of water rights. These include:

- restrictions on who can hold licences;
- provision that local by-laws can prohibit transfers; and
- a time limit for water licences to be used.

However, provisions also exist for by-laws to be passed which lift the restriction requiring access to land on which the water occurs to allow anyone to hold a licence.

Division 3E of the Act contains provision for the development of a register of water property rights. The register does not confirm title, but will contain information on:

- licence number;
- licence holder details;

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[12] A person is eligible to hold a licence if:
- the person is an owner or occupier of the land to which the licence relates;
- the person is permitted by the owner of the land to which the licence relates to take and use the water for a sufficient period of time;
- the person is a public utility;
- the person is authorised by or under a written law to engage in an activity in relation to land or water; or
- the person is within a class or description of persons that is prescribed by local by-laws.

Further discussion of who is permitted to hold a licence is available in the Allocations section.

[13] See allocations section for discussion of the planning process.

- volume;
- the water resource and location where the water can be taken;
- security interests;
- size of the allocation; and
- transfers.

The Act provides that a third party with a security interest in a licence is informed of certain events, including applications to transfer the right and any action by Water and Rivers Commission that may affect the value of the licence. The commission may not approve a transfer without the written permission of any person with a registered interest in the allocation. This will allow these parties to take action to protect their interests.

Institutions and policies

With regard to the development of trading markets in Western Australia, the *Western Australia Water Assessment 2000, Water Availability and Use* report states that:

> *The vastness of the State and the comparatively low levels of utilisation and competition for the majority of resources also determined the State's strategic position in regard to water trading. Trading needs to approached progressively, like other measures, as use of a particular resource increases. The State's priorities for implementing tradeable entitlements were towards a small number of surface and groundwater systems where conditions were appropriate, while establishing trigger systems to stimulate the timely preparation for water markets on other resources when utilisation reaches appropriate levels.* WRC 2000, p.8)

The Act provides for sub-regional and local area management plans to, among other things, consider water trading issues.[14] Plans have been completed for the:

- Harvey Basin surface water management plan (regional/sub-regional);
- Murray groundwater area (local area); and
- Perth–Bunbury water allocation plan (regional).

The Water and Rivers Commission has also released a draft policy on transferable (tradeable) water entitlements for Western Australia for public consultation. The

[14] Further discussion on these management plans, including a schedule for roll-out, is given in the allocations section.

Council understands that once formalised, this document will provide a broad template for including trading rules within sub-regional plans. Key aspects of this policy not specified in the Act are outlined in Box 2.

Box 2: Summary of key aspects of the transferable (tradeable) water entitlements for Western Australia draft policy

1. only water entitlements that are clearly defined in terms of volume may be traded. Riparian rights (including stock and domestic) are not tradeable;
2. the Water and Rivers Commission reserved the right to refuse trades of water entitlements in order to:
   - preserve the market from distortion;
   - encourage and allow trading for industry water use efficiency;
   - encourage and preserve complementarity and diversity in the market;
   - prevent non-efficient uses and monopolies in water;
   - protect other users and the environment from damage;
   - meet policy objectives; or
   - ensure that the outcomes are beneficial to the state; and
3. trades are for the consumptive portion of allocations only (return flows are only possible to be traded as return flows, not full entitlements).
4. trades between water resource management units are permitted only where it will result in the source area returning to a more sustainable allocation position and where demand in the receiving area will remain below sustainable yield;
5. trades must not result in unacceptable social or ecological impact;
6. the Commission will actively discourage speculation in the market; and
7. while accepting no responsibility, the Commission will encourage brokers and exchanges to meet reasonable standards for ethics and disclosure.

Source: Water and Rivers Commission (2001a)

The Council also notes that draft trading rules for tradable water entitlements for the Wanneroo groundwater area have been released. Further comment on the rules proposed within this document is available under the water trading zones and rules section below.

Trading to date

According to the Australian Irrigation Water Provider Benchmarking Report for 1999–2000 (ANCID 2001), only one of the three water service providers — South–

West Irrigation — allows for trade to occur.[15] In this system, the report found that 7 per cent or approximately 6500 megalitres of the available water entitlement was traded on the temporary market, but only 1 per cent was traded permanently. Trading was reported not be available in the Gascoyne Irrigation (near Carnarvon) and the Ord Irrigation (Western Australia–Northen Territory border) schemes. However, this information does stem from the 1999–2000 financial year — prior to the passage of the Act.

Trading and leasing in Western Australia outside of irrigation areas has been possible since 10 January 2001, when the Act came into effect.

A public register has been established to help prospective purchasers seek out a seller. The Western Australian 2001 NCP annual report noted that the regular enquiries are made to Water and Rivers Commission about the register but, as yet, no trades have eventuated as a result of the register.

The Western Australian annual report noted the example of the Harvey Basin, where under-utilised irrigation supply capacity is being encouraged to be traded to assist in meeting Perth's domestic supply needs. This would reduce pressure for the development of new supply sources for Perth.

Interstate trade

Legislative base

The Act does not make any specific provision for the transfer of water rights into or out of the state. It does, however, require the buyer to hold, or be eligible to hold, a licence if the water right is to be transferred into the State.

Institutions and policies

With regard to interstate trade, the only area where interstate trade is likely to occur in the foreseeable future is in stage two of the Ord Irrigation project. It is understood that the development of the stage two expansion comprises around 64 000 hectares of irrigated agricultural land, around 25 000 hectares of which are in the Northern Territory. Significantly, it is expected to yield approximately 43 000 hectares of irrigation farmland. Associated with this will be high demand for water resources.

[15] It should be noted that this report was compiled prior to the passage of the Rights in Water and Irrigation Amendment Act 2000, which set the legislative basis for water trading in Western Australia.

While significant volumes of water will be available through the development of this region, a large proportion of the water will be allocated to the environment in order to avoid problems found in other areas of the State and nation. The remaining water will be made available for consumptive use in the region. Given the limited nature of the available resource and the large area of development, demand for water resources may exceed supply. An equitable mechanism to allow for adjustments in and transfers of water allocations will be required.

The Council understands that in-principle agreement has been reached between Western Australia and the Northern Territory for Western Australian trading and allocation arrangements to apply throughout the stage two of the Ord Irrigation Project, including those areas within the Northern Territory.

Interstate trading to date

As noted in the intrastate trading discussion, the irrigation benchmarking report stated that trading (in the 1999–2000 financial year) was not permitted in the Ord Irrigation scheme on the border of Western Australia and the Northern Territory (ANCID 2001). Once stage two of the Ord Irrigation Project is developed it is likely to stimulate growth in the demand for water and facilitate the development of a trading market within the region (both Western Australia and the Northern Territory).

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.

In making its assessment, the Council recognises that the means through which jurisdictions achieve these reforms will vary. However, to provide a consistent basis for assessment, the Council has evaluated the arrangements in each jurisdiction against a common set of key criteria, which are consistent with recent work by the High Level Steering Group on Water.[16]

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:

[16] These criteria are based on the findings of the High Level Steering Group on Water report *A National Approach to Water Trading*. Appendix 3 provides an outline of the criteria used by the Council.

- the clear definition of sustainable water 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.

Clear definition of sustainable water rights

Western Australia's progress on these issues has previously been discussed in the section on allocations and property rights. Discussion here will focus solely upon the impact of these issues on the efficacy of interstate and intrastate trading markets.

Nature of the right

All Western Australian water licences have maximum volumes expressed in kilolitres. Actual volumes will vary from time to time due to climatic variation. Reliability of supplies will be indicated in sub-regional management plans. Licences in Western Australia will be issued for between five and 10 years although this period may be extended once allocation plans have been established. There is also a presumption that, provided licence conditions are met, licences will be renewed such that licence holders have an expectation of holding a licence in perpetuity.

To further clarify the nature of the right, a publicly available register of entitlements and transfers will be established. This register will include information of:

- the period for which the entitlement or transfer is in force;
- details of any security interest in the licence; and
- any other details that are prescribed by the regulations.

Water quality is not generally specified.

Specific provision is made in the Act for a direction by the Water and Rivers Commission to override all other rights recognised by the Act. While giving the commission the power to manage water resources where immediate action is necessary, this power impacts on the value of the right as it also increases the risk to entitlement holders.

The Council believes that intervention for sustainability reasons is entirely appropriate but that it should be done in a way that does not unduly affect the tradeable value of the right. To this end, the Western Australian Government has

advised that application of this provision is likely only to be on a temporary basis in the case of extreme events. In addition, the Water and Rivers Commission is required to give reasons for the direction and water users can appeal to the appeals tribunal to ensure that their rights are protected. The requirement for the disclosure of reasons behind the decision and the ability of water users to appeal to the appeals tribunal goes a long way to minimising this risk for water entitlement holders. Regular reporting on resource condition can also assist here (see the market information section). The Council will look to see that this authority is used only in cases of genuine need and that it is removed as soon as possible.

Regular reporting on resource condition through the planning process will also help identify the future stream of benefits and risks associated with buying or selling a water right.

The Council considers that property rights, with regard to trading, are well specified in Western Australia such that, prior to buying or selling a water right, water users can form a reasonable expectation of the potential benefits and risks promised by the transaction.

Ownership

Trade will not maximise the value of the water resource unless the water right is well defined in terms of ownership. The quality of title of a right goes to the security with which the right is held and the likelihood alteration or loss of that right. Within Western Australia, a number of provisions exist to increase the quality of the title to the water right. The Act requires that a third party with a security interest in a licence be informed of certain events, including applications to transfer the right and any action by Water and Rivers Commission that may affect the value of the licence. The commission may not approve a transfer without the written permission of any person with a registered interest in the allocation. This will allow these parties to take action to protect their interests and strengthens the ownership of the right. However, a listing on the registry does not guarantee title.

The Act contains a requirement that licence changes be made in a fair way that properly considers the needs of all licence holders. It also prescribes circumstances under which licence holders must be compensated. Compensation is generally payable where the impact of a given decision is inconsistent with the impact on other water users in the area.

In the January 2001 Supplementary assessment, the Council noted that few areas of the State are overallocated. This view has been confirmed by the data on Western Australia published by the National Land and Water Resources Audit (2001). As a result, the likelihood that Western Australia will need to claw-back water rights is low.

Regular information on resource allocation and use and any potential change in licences is also provided by the plans and trading rules. Where risk of clawback is

high, the Council will look for more information to be available. This may include interim or annual information on resource condition and sustainability.

Western Australia has created a water right that is both transferable and divisible and partially separates water from land title. It is still essential to possess a licence in order to hold a water right. While this was sufficient to meet second tranche requirements, the Council noted that it would monitor the efficacy of arrangements as a part of the Third Tranche Assessment.

An important element of ownership is that rights be of sufficient duration to allow efficient water use, planning and investment. With regard to the duration of the right, the Act provides for licences of a 5 to 10 year duration, although this period may be extended once allocation plans have been established. There is also a presumption that licences will be renewed such that licence holder have an expectation of holding a licence in perpetuity provided licence conditions are met. The Water and Rivers Commission will be conducting further studies on maximising the duration of the licensing tenure.

Enforcement is another dimension of well-defined rights. Western Australia has established a system of water rights that are likely to be renewed if licence conditions are met. This provides a good incentive for right holders to ensure that their water extraction and use does not breach licence conditions. Provision is made for penalties for excess use or extraction without a licence. In addition, the water resource planning framework established under the Act will ensure that rights are unlikely to be attenuated by new water allocations or additional transferred water rights within over-allocated or capacity systems. The Council will continue to monitor this aspect of the trading framework as trading arrangements are rolled out to ensure that enforcement issues do not become an impediment to trade.

The Western Australian system appears to provide a sound balance between water users, who need a clearly specified and secure right, and the environment's requirement for adaptive management. The Council will revisit this issue in future assessments to ensure that Western Australian property right arrangements are delivering efficient and sustainable trade.

Water trading zones and rules

The Council understands that sub-regional plans, when developed, will allow for matters of sub-regional significance to be considered by the Water and Rivers Commission in the approval of transfers of licences and water entitlements.

With the exception of the Wanneroo Groundwater Area, rules that govern the transfer of water rights within water resource management areas have not yet been developed. The trading rules for Wanneroo are available in the draft *Trading Rules for Tradeable Water Entitlements* for the Wanneroo Groundwater Area.

The Wanneroo draft trading rules has been developed to establish a system that allows people holding a water licence to transfer part of their allocation to another

landholder in the same management sub-area of the Wanneroo Groundwater Area. The rules clearly specify the zone where trading may occur and entitlements which can be traded. Box 3 provides a summary of key provisions of the draft trading rules for the Wanneroo groundwater area.

Box 3: Summary of draft Trading Rules for the Wanneroo Groundwater Management Area.

Provisions include:

1. allocations that have never been used cannot be traded;
2. allocations that are no longer in use must be traded if possible;
3. an allocation cannot be leased (temporarily traded) for a period of less than two years;
4. licences will only be issued to parties who have access to the land on which the water will be extracted and used;
5. the Water and Rivers Commission may set conditions on licences created as a result of trade. The licensee may negotiate or object to these conditions;
6. every three months, the Water and Rivers Commission will publish in a local paper the allocation limit and availability of groundwater for each sub-area in the area. Also published will be details of trades of that have occurred in the period. The confidentiality of trade participants will be protected;
7. any reduction in allocations as a result of a reduction in the allocation limit will be done by a pro-rata reduction of the allocation, excluding domestic allocations, or by any other method recommended by the advisory committee;
8. the Water and Rivers Commission will keep a publicly available register of applications to trade water rights; and
9. information is given on the allocation volume, limit and availability of trading in each of the sub-areas. Information will also be provided on the costs of transferring an allocation.

Source: Water and Rivers Commission (1998)

The Council will continue to monitor this issue and will look in the 2002 NCP assessment to see that trading rules have been established in other regions of resource scarcity and that these trading rules clearly define where and under what conditions water can be traded.

Constraints on trade

Western Australia has created a system of tradeable water property rights. The constraints placed on trade by this system, particularly in relation to the requirements to possess a licence, have been addressed under the section on the definition of property rights.

The Act provides scope for a number of constraints to the transfer of water rights through local by-laws that can:

- prohibit transfers;

- specify additional classes of people who can hold licences; and
- set a time limit for water licences to be fully used.

The Council recognises that these limitations are largely in response to widespread community concern over speculation in the water market and concern over the environmental impacts of trade. These provisions have the potential to constrain the movement of water to its highest value use. However, the Council notes that water reform commitments only requires that water can be traded within social, ecological and physical constraints of catchments.

In the case of the Wanneroo groundwater area, these powers have been used to limit water trade to one sub-area.[17]

Western Australia recognises that the need for some of these impediments may only be transitional. For example, provisions in the Act exist for by-laws to be passed which lift the restriction requiring access to land on which the water occurs to allow anyone to hold a licence. The Council would encourage the expansion of water trading as soon as possible once the risk to the environment, community and third parties is better understood and minimised.

The Council is satisfied that current arrangements are consistent with the requirements of CoAG water reform commitments. However, as trading rules are only available for one area,[18] the Council will again consider this issue in future assessments. Any additional constraints included within specific plans should be based on sound social, environmental or physical grounds and introduced in a way that minimises the impact on trade.

Markets and trading procedures

Within Western Australia, procedures have been put in place to minimise the risk for buyers, sellers and third parties, including the environment. While recognising the small amount of trade that is conducted in Western Australia, the risk placed on participants is no less than the risk on participants in more developed markets.

Buyer and Seller checks provide mechanisms to minimise risk for market participants:

- a register of water rights is to be maintained by the Water and Rivers Commission. While this right does not provide indefensibility of title for water rights, it does allow interests to be registered by the right holder. The commission

[17] The Carabooda is the only sub-area within the Wanneroo Groundwater area where trade is currently available. The Joondalup and Mariginiup sub-areas are under review.

[18] The trade policy to have general application is in draft form and is to be subject to consultation during July 2001.

may not approve a trade without the written agreement of any person with an interest in the right. This provides information to the seller on who has an interest in the right and protects the rights of these third parties;

- for surety of investment reasons, persons planning to make investments may also apply to Water and Rivers Commission to give an undertaking to grant a licence for when they become eligible. This enables buyers to be confident that they will be entitled to use the water they purchase.

To protect third parties and the environment:

- a trade cannot be approved without the permission of anyone with a registered interest in the right. This protects the financial investment of third parties;

- trades cannot result in unacceptable environmental impact or concentration of use. The onus is on the proponent to establish this to the satisfaction of the Commission;

- water users have a duty to take all reasonable steps to minimise the degradation of the water resource and their impact on other water users; and

- third parties can object if a trade will adversely impact on them. They need to specify how their objection can be overcome. The trade can then proceed if the affected party is adequately compensated.[19]

The Council is satisfied that the market procedures in place are sufficient to protect buyers, sellers and third parties, including the environment.

Market choices

Market choices are limited in Western Australia. There are no water exchanges in operation, with the majority of trade being conducted privately. This is not unexpected given the low demand for trade within the State.

As trade becomes more widespread, different mechanisms for the execution of trade are likely to become available. In addition, competition within these mechanisms is also likely to increase (for example, through more water brokers) giving market participants wider choice and greater flexibility and control over the method through which they can participate in the market.

The Council notes advice from Western Australia that a public register has been established by the Water and Rivers Commission to help prospective purchasers seek out a seller. Regular enquiries are be made to commission about the register,

[19] For example, this could apply if a trade would result in the concentration of bores in a groundwater system so that bores of neighbouring properties need to be sunk deeper.

but as yet no trades have eventuated outside of regulated areas. While accepting no responsibility for the actions of another party, the Commission will encourage water brokers and exchanges to meet reasonable standards of ethics and disclosure (WRC 2001a). The Council commends this step by Western Australia as a first step in encouraging trade within the State, but has not been provided with detail of how this will be achieved.

The Trading Market in Western Australia is in its infancy and there are only a few mechanisms through which trade can be effected. The Council will continue to monitor this issue in future assessments to ensure that a lack of market choices does not unduly impede trade.

Market information

Market information is limited in Western Australia at present. However, like many other features of a market, it is likely to improve as trading becomes more widespread and the legislative framework provided by the Act is introduced. For example, reporting requirements will be set in the regional, sub-regional and local area management plans. The Act requires reporting at least once every seven years, although in most cases, this is likely to occur every five years. The draft trading rules for the Wanneroo Groundwater Area also provides for three-monthly reports on resource availability and use. The Water and Rivers Commission has also committed to the three-monthly publication of information on trading including the:

- sub-areas where trade is permitted;
- types of trade (sale or lease);
- volume of water traded;
- price per kilolitres of the water traded;
- proposed use of the groundwater;
- previous use of the groundwater; and
- sub-area and aquifer.

The confidentiality of participants will be protected in this process.

The information provided by the report, combined with the fact that for the most part water allocations have been made conservatively, means that the risk of unexpected clawback in water rights through licence reductions is low and entitlement holders will be able to gain an accurate perception of the chance of alteration.

The Council commends the commitment by Western Australia to the preparation of an annual report on the transfer of water rights. This report will include information

on the price, volume and locality and purpose of the trade. The document will be publicly available. The Water and Rivers Commission has also committed to review the effectiveness of this policy annually for the first three years, after which time it will be reviewed after a period not exceeding five years.

The Council also commends the commitment of the Water and Rivers Commission to the ongoing availability of information on both the water resources and market information about the extent and value of trades. However, the key commitments for trading information have, at this stage, only been made within the trading rules of one water management area. The Council strongly supports the inclusion of such commitments within the trading rules of other water management areas. The Council will re-assess this issue in future assessments to ensure that market information is available in all water management areas where trading is possible.

Certainty, confidence and timeliness

The Council notes that resources are approaching full allocation in a number of systems. To protect the environment from excessive abstraction or environmental degradation, the Act allows a direction by the Water and Rivers Commission to override all other rights recognised in the Act. This gives the commission the power to manage water resources where immediate action is necessary.

However, ad hoc application of this provision could undermine confidence in the water allocation management process. In undertaking future assessments, the Council will look for judicious application of this provision. The requirement for the disclosure of reasons behind the decision and the ability of water users to appeal to the appeals tribunal goes a long way to minimising this risk for water entitlement holders.

In future assessments, the Council will also look for evidence that administrative processes are not posing unnecessary constraints on trade, particularly in terms of the time taken to process an application to trade.

Capital efficiency

In examining the arrangements for capital efficiency in Western Australia, the Council notes that leasing is permitted. A time limit for leasing is not specified, in the legislation, although it is for a minimum of two years in the Wanneroo groundwater area.

The provisions provided by Western Australia to prevent speculation in the market limit the capital efficiency of water rights. In particular, the requirements to own a licence to hold water and the time limit on the use of this water could impede the effective management of water as a capital asset. This may impact upon the ability of financial institutions to obtain ownership of the right in the case of default. It is possible for the requirement to own a licence to be removed through local by-laws.

The ability of water users in Western Australia to maximise the capital efficiency of their water right is somewhat limited by these provisions. The Council will revisit this issue in future assessments and will look for consideration of mechanisms to resolve these impediments. The application of by-laws removing these impediments may provide the solution. The Council will continue to monitor capital efficiency provisions in future assessments.

Summary

Water trading in Western Australia is still at an embryonic stage of development. At the time of writing, trading was only occurring within the South–West Irrigation Area, although proposed expansion of the Ord Irrigation area will lead to significant demand for water resources to be tradeable, both within Western Australia and with the Northern Territory. There are significant opportunities to achieve productivity gains through the adoption of water trading.

The amended *Rights in Irrigation and Water Act 1914* made significant changes to trading arrangements in Western Australia. However, like a number of other jurisdictions, these amendments were only finalised in late 2000, leaving little time for on-ground arrangements to be implemented. As such, most sub-regional and local area management plans, which will have the ability to set trading rules, have not yet been developed. However, a statewide policy transferable (tradeable) water entitlements for Western Australia and draft trading rules for the Wanneroo groundwater area are available and give a good indication of the future trading framework that is likely to exist in Western Australia.

Of particular note is that these policies make good provisions for increasing the availability of market information through regular reporting. The Council commends this approach by Western Australia as a means of stimulating trade.

Significant provisions have also been made in the Act for the prevention of speculation in the water market and protection of the environment. Provisions exist that require the ability to use the water (by possessing a licence) in order to hold an allocation. Provisions also exist to set a time limit on the period in which a water right must be used before being lost. While preventing speculation, these arrangements also have the effect of impeding trade and limiting the capital efficiency of water rights.

The arrangements the Council has seen seem to provide a firm basis for the development of water trading in an environment of community uncertainty. In the future it may be possible to relax some constraints on trade and improve the efficiency of the market. If the roll out of trading arrangements in the remainder of the state are along a similar basis, Western Australia is likely to meet reform commitments.

Assessment

With regard to water trading, the Council notes the progress that has been made in establishing a regulatory framework to allow for the transfer of water rights. However, the 2001 NCP assessment needs to look at progress on the ground to ensure that, in line with commitments made in the CoAG framework, water is able to maximise its contribution to national income and welfare subject to given constraints.

The Council considers that Western Australia has made sufficient progress to meet water trading commitments for in the 2001 NCP assessment. The Council will revisit progress against this reform commitment in 2002 and look for further evidence to assess whether the practical implementation of trading in Western Australia is compliant with the CoAG commitments.

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).

Western Australian arrangements

Integrated resource management

Western Australia's natural resource management framework calls for regional strategies and plans to be developed by forming partnership agreements with natural resource management committees with support from local government and State Government agencies. These groups are in the process of developing regional strategies that integrate land, water and biodiversity issues, and proposing outcomes and targets including monitoring and evaluation programs.

Because of the importance of the problem of dryland salinity, to date much of the work has focussed on salinity. This will lead on to broader reviews of natural resource management issues. Progress on other elements of the framework being undertaken in relation to water include:

- support and advice to community groups and individuals on activities relating to river restoration and management;

- the establishment of around 145 land conservation district committees based on the statutory landcare groups;

- the review of the process for the development of arterial drainage plans in order to ensure water quality issues and stormwater management are appropriately accounted for. This review is addressing urban issues. There is a rural drainage strategy and a memorandum of understanding is now being developed with natural resource management agencies to address this issue; and

- joint preparation by the Department of Environmental Protection and the Water and Rivers Commission of schedules protecting the quality and quantity of the groundwater meeting over half of Perth's water use and sustaining environmentally valuable wetlands and vegetation.

Integrated catchment management

Integrated catchment management is part of the portfolio of the Minister for the Environment. The Minister for the Environment works closely with the Minister for Agriculture, Fisheries and Forests to deal with broader natural resource management issues and provide an integrating mechanism for government agencies involved in natural resource management and integrated catchment management.

The natural resource management committees are based on the existing 145 landcare groups. Natural resource management groups have been established for most areas except the Pilbara and the Kimberley. Representation on these groups is now being renegotiated. A condition of funding the committees will be that they are not self selected and have sufficiently broad representation.

The natural resource management committees are developing regional strategies which will then be endorsed by the Western Australian Government. The south coast regional strategy has been endorsed by the natural resource management agencies and there are four draft plans near finalisation. Once endorsed, plans will provide the foundation for the development of partnership agreements between government agencies and the regional groups for implementation of the strategies.

The natural resource management regions are most concentrated in the south–west of the state which is divided into the northern agricultural region, central agricultural region, metropolitan region, south–west region and south coast region. In addition, in the remainder of the state there is a Gascoyne Murchison Strategy Board considering some proposed Kimberley regional initiatives. The chairs of natural resource management groups also sit on the State Salinity Council which is a forum for working with industry and conservation groups.

The State Government has a Cabinet endorsed policy to set up partnership agreements with natural resource management committees to implement regional

strategies in conjunction with government natural resource management agencies. In these partnership agreements, funding and resource support from government agencies will be provided in return for meeting defined outcomes. Western Australia is developing guidelines on the development of natural resource management plans.

Representation on natural resource management groups is now being renegotiated. A condition of funding the committees will be that they are not self selected and have sufficiently broad representation.

The goals of the regional strategies usually address most of the following areas:

- conservation of natural resources;
- sustainable resource use; and
- an integrated approach to planning, management and community development.

The goals are supported by a number of objectives, strategies and targets.

Assessment

Information provided to the Council for the second tranche NCP assessment indicated that Western Australia was well advanced in the development of processes and actions to address issues related to the salinity problem.

The Council is concerned that Western Australia may have been slow to pick up on actions to address broader catchment issues through delays in establishing partnership agreements with the natural resource management bodies who are to develop and implement regional strategies. Western Australia has acknowledged that there has been slow take up of some of the strategies aimed at recovery of catchments such as reducing tree clearing. Western Australia is changing some of its approaches to improve progress.

The Council is aware that there has been some progress in the development of the regional strategies with one prepared by the south coast regional planning team being endorsed by the natural resource management agencies and four others at the draft stage. Also processes are underway through the national action plan on salinity and water quality may possibly require changes to the way implementation of natural resource management is carried out in jurisdictions.

The Council will continue to review the implementation of integrated catchment management in the 2002 NCP assessment.

National Water Quality Management Strategy

Jurisdictions agreed to support ANZECC and ARMCANZ in developing the National Water Quality Management Strategy (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).

In 2000, the Western Australian Government developed the State water quality management strategy as the vehicle through which the National Water Quality Management Strategy and its component guidelines will be implemented.

Western Australian arrangements

Water quality

The State strategy was endorsed by Cabinet in April 2001 as a State Government policy for implementation of the National Water Quality Management Strategy. The document is the first in the series and outlines the framework for implementation. It was developed by a senior review panel of officers from key government agencies and its development involved consultation with stakeholders in 1999. The State strategy consists of a number of documents that use the national approach to water quality management as outlined in the National Water Quality Management Strategy.

The Water and Rivers Commission and the Department of Environmental Protection are the main lead agencies for implementation of the State water quality management strategy, with involvement by other relevant agencies such as Health Department, Agriculture and the Office of Water Regulation.

Western Australia has provided a provisional timetable for implementation of the State water quality management strategy at attachment 3. The strategy is to be implemented through State Water Management Guidelines. The timetable shows that subsequent documents related to implementing 18 modules of the National Water Quality Management Strategy are expected to be completed in the next two years. These documents will mirror the National Water Quality Management Strategy guidelines, set out the method of implementing each guideline, and identify the lead agency responsible for each area. For example, the Department of Environmental Protection is currently developing the management framework for the implementation of the Australian water quality guidelines for fresh and marine waters.

The implementation strategy will identify the order in which the national guidelines will be addressed, who will be the lead agency in developing the State guidelines and the timeframe for implementing the strategy and its component plans.

Implementation of the framework for Western Australia's fresh and marine waters requires a cooperative approach involving all stakeholders, and will require formalisation through statutory environmental protection policies. As a first step, Cabinet has requested the Western Australian Environmental Protection Agency to prepare a Cockburn Sound environmental protection policy, one of the State's most intensively used water bodies. Activities in the Sound and its catchment will be required to be consistent with the statutory objective of protecting the Sound. Environmental protection policies have been developed for a number of other water resources including the Swan and Canning Rivers, Gnangara Mound and a draft State groundwater environmental protection policy.

A number of environmental protection policies are currently suspended pending amendments to the *Environmental Protection Act 1986* to incorporate the term 'environmental value' to enable environmental protection policies to implement the National Water Quality Management Strategy framework.

Drinking water standards

The Water Corporation has agreed with the Western Australian Department of Health to move, over time, from the 1987 drinking water guidelines to the 1996 Australian drinking water standards. There is an interdepartmental committee (the Purity of Water Committee) that monitors progress in drinking water standards. This Committee reports on the quality of water and meets quarterly.

The move to the 1996 standards is included in the Water Corporation's operating licence and statement of corporate intent. The phasing period is five years and the Department of Health will monitor progress through the interdepartmental committee. If the Water Corporation does not meet health standards the Department of Health can issue a boil water alert or order a supply to be closed.

Water monitoring

The Rights in Water and Irrigation Act requires all levels of water management plans to specify monitoring and reporting which is to occur at least once in every seven years as information becomes available. Where environmental water requirements or environment water provisions are nominal, monitoring of groundwater levels and water quality behaviour as the system becomes stressed will indicate the adequacy of nominal figures.

The Western Australian 2001 NCP annual report states that 'monitoring and review process forms a major component of management plans' (Western Australia 2001, p.66). In groundwater areas, monitoring bore networks involves the continuous monitoring of water levels and water quality in each aquifer system to determine the

impact of pumping and leakage on any dependent ecosystems. The Western Australian 2001 annual report advises that proper monitoring will identify any detrimental trends which may be developing from the abstraction of a water resource and these will trigger a response at the time of review of a plan.

The Water and Rivers Commission has a network of groundwater monitoring bores across the state. They can be region-based or project-based and can look at the impact of water use on ecosystems. Bores are also being used to monitor the salt water interface movement in some areas, and to assess land and water salinisation amelioration programs in other areas. Often bores that were originally sunk for groundwater investigation are subsequently used for monitoring.

Other programs for monitoring the impact of land use on groundwater include monitoring contamination and the impact of remediation. Most of the work is reactive except in Perth where Western Australia has identified potential sources of point contamination and is checking the shallow ground water basin for nitrates and phosphates.

The requirement to monitor groundwater can be included in the licence conditions.

Salinity

The National Land and Water Resources Audit's 2000 assessment of dryland salinity in Australia reported 4 363 000 hectares of land in the southwest of Western Australia had a high potential to develop a dryland salinity problem. Some 81 per cent of this area is agricultural land. By 2050 this high-risk area was predicted to be 8 800 000 hectares. The audit report also predicted that some 1 520 kilometres of stream length were at risk from salinity which would increase to 2 850 kilometres by 2050.

Western Australia released its first salinity action plan in 1996. Recently the State Salinity Council reviewed the plan and developed a strategy that includes greater emphasis on community involvement in programs. The five goals of the strategy are to:

- reduce the rate of degradation of agricultural and public land, and where practical, recover, rehabilitate or manage salt-affected land;
- protect and restore key water resources to ensure salinity levels are kept to a level that permits safe potable water supplies in perpetuity;
- protect and restore high value wetlands and natural vegetation, and maintain natural (biological and physical) diversity within the region;
- provide communities with the capacity to address salinity issues and to manage the changes brought by salinity; and
- protect infrastructure affected by salinity.

Western Australia has a major investment in a joint initiative with the Natural Heritage Trust to map and monitor the extent of salinity at the farm and catchment scale.

National Land and Water Resource Audit

The National Land and Water Resources Audit reported on surface water quality against the standards contained in the 1992 ANZECC *Australian Water Quality Guidelines for Fresh and Marine Waters* (see table 5).

Table 5: Exceedance of water quality guidelines for Western Australia

	Number of basins assessed	*Major Exceedances*	*Significant Exceedances*
Nutrient: total nitrogen	7	2	3
Nutrient: total phosphorous	7	1	4
Salinity: electrical conductivity	17	11	2
Turbidity	3	2	0
PH	3	0	1

Note: total number of river basins is 44
Source: NLWRA (2001)

The National Land and Water Resources Audit found that only a limited number of Western Australian river basins have sufficient monitoring coverage to support basin water quality exceedance and trend assessments. The audit identified salinity as the major water quality concern in Western Australia. High levels of salinity exceedances at a basin scale were recorded for the Esperance Coast, Denmark River, Albany Coast, Kent River, Frankland River, Warren River, Blackwood River, Collie River, Murray River, Avon River, Moore-Hill Rivers, Greenough River and Murchison River. The audit found high levels of phosphorus and nitrogen in over half of the basins assessed. While data from basic turbidity and pH data were limited in extent of coverage, turbidity levels were high in two of the three basins assessed — the Harvey River and the Murray River basins.

Wetlands protection

Wetland loss mitigation has been given legal effect through the imposition of legally binding conditions set by the Minister for the Environment which are delivered from environmental impact assessments undertaken by the Environmental Protection Authority. Accordingly, the Environmental Protection Authority is currently finalising a draft position statement on wetlands protection.

WSAA facts

WSAA Facts 2000 reported on water quality compliance for 1999-200 for the Water Corporation with regard to:

- Water Corporation, 97.7 per cent compliance with bacteriology standards, with physical-chemical (turbidity/colour/ph) not reported on; and

- wastewater treatment and discharge standards set in licences, the Water Corporation is operating with 100 per cent compliance. (WSAA 2000)

Assessment

The Council is concerned at the rate of progress being achieved in the adoption of the National Water Quality Management Strategy. Western Australia is one of the last jurisdictions to adopt the strategy in a meaningful way.

The Council is of the view that with the endorsement of the State water quality management strategy as the framework for application of the National Water Quality Management Strategy that Western Australia has met minimum commitments for this assessment.

Western Australia has provided the Council with a provisional timetable outlining a process to implement the National Water Quality Management Strategy. Given the timelags in implementation to date, the Council will need to examine evidence of progress against this timetable over the next three assessments.

By the 2002 assessment, the Council would expect to see:

- the State water quality implementation plan finalised and released as a public document; and

- completed drafts for public release showing the means of implementation of specific National Water Quality Management Strategy guidelines for:

  – fresh and marine water quality;

  – drinking water; and

  – water quality monitoring and reporting.

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).

Western Australia has extensive public consultation and public education mechanisms. The community is consulted through significant programs and communication strategies accompanying all major reform initiatives including water allocation planning, trade and environmental water provisions.

Western Australian arrangements

Public consultation

The development of the Environment Water Provisions Policy followed considerable public and stakeholder consultation.

Water management committees, comprised of local government representatives, employees of businesses operating within the area, public servants and Water and Rivers Commission staff, will provide the commission with assistance and advice prior to the making of water management plans or local water resource by-laws by the Minister. Western Australia has advised that there will be two Water management committees to be put in place by the end of 2001 and a further two will be put in place in 2002. Local water advisory committees currently provide the Minister for Water Resources with advice. Water management committees will be an important means by which public consultation is achieved.

In relation to service provision, the Water Corporation has a permanent customer advisory council representing the general community and key stakeholders. It meets monthly to advise on desired outcomes and provide feedback on corporate initiatives. All service providers must demonstrate customer service processes as part of their operating licences.

In relation to pricing, all significant sewerage and water business tariff reforms have involved consultation with key stakeholders from business and community groups. The customer advisory council and market research are used to provide feedback on reforms as they relate to residential customers. Regular market research is also conducted to determine levels of satisfaction and priority issues for customers such as water quality, water conservation, water restrictions, pricing alternatives, alternative treatment and disposal options.

The Water Corporation meets regularly with representatives from the land development industry to discuss water supply policy changes which have impacts on land development.

All significant supply augmentation projects incorporate community consultation as part of the project management process. Value Management Studies are held, involving community representatives to determine “best value” solutions. Public meetings are also held in local communities to discuss relevant issues such as local wastewater treatment and disposal options.

Public education

Western Australia is a dry state, under pressure to develop new water sources to match population growth. Consequently, there is considerable investment in public education and conservation campaigns.

The Water and Rivers Commission determines the state level of education provided by setting per capita targets with service providers. Principles for water use efficiency have been agreed in operating partnership agreements. Specific targets are set in the operating strategies developed to accompany water allocation licences. Targets have now been established which cover 82 per cent of the population. Service providers then set the annual level of communication and education in accordance with the operating partnership agreement based on water availability and demand.

A water resource planing executive steering committee — which includes representatives from the Water Corporation and Water and Rivers Commission — meets monthly to discuss supply and demand management issues, including communication plans.

Advertising, internet advice, brochures, school education and water use calculators all provide suggestions to customers on how to reduce their water use. Western Australia has advised that awareness of the need to conserve water is exceptionally high (90 to 95 per cent) and many of the options for reducing consumption within households have been adopted.

The Western Australian water education steering committee — comprised of representatives from government and service providers — meets quarterly to coordinate significant activities and promote a high level of public education in water resource issues.

The Water Corporation has been awarded a major national environmental education award — the Banksia Environmental Foundation's Education and Training Award — for its Waterwise schools program for primary and secondary students. In addition to providing standard school curriculum materials, excursions and Internet tools, the program encourages schools to undertake projects that involve local environmental groups, public sector agencies, industry and local government.

Assessment

The Council has reviewed the information provided by Western Australia.

The Council is of the view that development of water management plans and allocation decisions based on the advice of local water management committees is subject to considerable consultation. Further, Water Corporation uses a permanent customer advisory council, comprising key stakeholders and the general community, to discuss customer attitudes on relevant issues such as local wastewater treatment and disposal options, and significant sewerage and water business tariff reforms.

In the second tranche NCP assessment, the Council identified a potential conflict of interest where service providers determine the level of ongoing public education on water conservation while having a financial interest in increased water consumption.

Western Australia has advised that whilst it recognises that there may be a potential conflict of interest in service providers providing education, there are also incentives for service providers to manage water conservation in a responsible manner. These include:

- per capita targets attached to licence allocations. The success of these incentives can be substantiated with outcome-based evidence, as per capita consumption is falling in accordance with targets;
- deferment of the development of more expensive new sources; and
- public approval for 'good citizenship' and joint committees that monitor demand management.

It is the Council's view that Western Australia has met its 2001 NCP commitments in relation to education and consultation.

Attachment 1: Development of water management plans

This information has been provided by Western Australia and reproduced below.

This list represents the current status of water management plans and allocation strategies based on the results of the recent National Land and Water Review Audit. It should be considered as preliminary only. A large number of groundwater management plans are already in force but under review. The list does not include these older plans and concentrates on the second and third generation plans and strategies which will take the Water and Rivers Commission forward.

Completed and published management plans with community consultation

- *Harvey Basin surface water management plan* (regional/sub-regional);
- *Murray groundwater area* (local area) — plan approved, publication in progress;
- *Perth–Bunbury Water Allocation Plan* (regional)–includes Preston and Collie Rivers; Bullsbrook, Collie, Gnangara, Gwelup, Jandakot, Mirrabooka, Perth, Serpentine groundwater areas.

Completed draft management plans subject to community consultation

- *Gingin Groundwater* Area (sub-regional)–environmental water requirement investigations in progress (stage one completed); interim allocation strategy 2001. A full groundwater management plan will be developed by water resource management committee which will be set up by end 2001. Anticipated groundwater management plan availability in 2002-03;
- *Cockburn Groundwater* Areas (sub-regional)– interim allocation strategy 2001;
- *Rockingham Groundwater* Area (sub-regional)–Completion in 2001;
- *Jurien Groundwater* Area (sub-regional)–interim allocation strategy 2001. Full Groundwater Management Plan will be developed by Water Resource Management Committee which will be set up by end 2001. Anticipated Groundwater Management Plan availability in 2002–03;
- *Arrowsmith Groundwater* Area (sub-regional)–interim allocation strategy 2001. Full Groundwater Management Plan will be developed by Water Resource

Management Committee which will be set up by end 2001. Anticipated GMP availability in 2002–03;

- *Esperance Groundwater Area* (sub-regional)–Preliminary draft completed; new format to be completed in 2001 for community consultation;

- *Goldfields Groundwater Area* (Regional)–Preliminary draft completed; new format to be completed in 2001 for community consultation;

- *Allanooka Groundwater Subarea*–Allocation limit review completed: Subarea incorporated in Arrowsmith Allocation Strategy 2001;

- *Ord River Water Allocation Plan* (sub-regional)–released to Environmental Protection Authority; amended version to be released for public consultation in July/August 2001.

Management plans in progress

- *Pilbara Water Management Plan* (regional)–Environmental/Cultural values completed; Issue scoping completed; includes Fortescue River and Port Hedland Coast. Completion 2001–02 for community consultation;

- *Kimberley Water Management Plan* (regional)–includes Fitzroy, Lennard, Isdell, Prince Regent, King Edward, Drysdale, Pentecost Rivers; Completion 2002–03;

- *Albany Groundwater* Area (sub-regional)–existing allocation limits set from review of town water supply performance–new limits in 2001; interim allocation strategy due for completion in June 2001 for community consultation;

- *Kemerton Groundwater* (local area plan)–environmental water requirements investigations due for completion in Dec 2001. Draft Plan due for completion December 2002;

- *Gingin Brook /Lennard Brook* (local area plan)–ecological monitoring and identification of environmental water requirements completed, additional resource investigation required prior to determination of environment water provisions; plan completion anticipated 2002–03;

- *Carnarvon Groundwater Area (*local area plan*)*–environmental water requirement completion date June 2000; management plan in progress, community consultation will be required to prepare first draft by 2003. Plan completion anticipated 2003–04;

- *Busselton-Capel Groundwater Area* (regional)–environmental water requirements to be completed in 2001; draft allocation strategy 2001–02;

- *Busselton Coast (Cape to Cape) Surface Water* (regional)–Issues scoping to continue in 2001-02. Allocation Plans anticipated over next five years;

- *Murray River Basin Management Plan* (sub-regional–to be completed in 2001–02;
- *Fitzroy River Management Plan (regional)*–regional environmental and cultural values study completed: Plan put on hold until licensees carry out investigative work;
- *Swan Groundwater* Area (sub-regional)–Issue scoping in 2001–02; allocation strategy in 2002–03;
- *Wanneroo Groundwater* Area (sub-regional)–Issue scoping in 2001–02; allocation strategy in 2002–03;
- *La Grange Groundwater* Area (sub-regional)–environment water provisions and sustainable diversion limits to be set in 2001–02; delays due to proponents not completing investigations;
- *Scotsdale Brook/Bremer Bay/ Marrinup Brook/Angove Creek* (local area plans)–issue scoping in 2001–02; allocation strategy in 2001–02.

Attachment 2: Areas identified as fully or over developed (C3 and C4)

Basin No	*River Basin or SWMA*	*Subarea or Subcatchment*	*1999–2000 Category based on Developed Yield/Sustainable Yield*	*1999–2000 Category 4's based on Current Use/ Sustainable Yield*
601	Esperance Coast	Munglinup Dams (1,2 and Turkey Nest)	3	
601	Esperance Coast	Ravensthorpe Dams 1-4 (Cor-1 lic)	3	
602	Albany Coast	Bolganup River D10 (Bol-1lic)	3	
602	Albany Coast	Angove River PH3 (ANG-1lic)	3	
602	Albany Coast	Limeburners Creek PH1(LIM-1lic)	3	
602	Albany Coast	Borden Dams 1&2	3	
602	Albany Coast	Jerramungup Dams 1&2	3	
602	Albany Coast	Ongerup Dams 1,2 &3	3	
602	Albany Coast	Gnowangerup Dams 1&2	3	
603	Denmark Coast	Denmark River D9 (Lower)	3	
605	Frankland River	Cranbrook Dams 1,2&3	3	
605	Frankland River	Frankland Dam (Bitumen Catch)	3	
605	Frankland River	Rocky Gully Dam (Rocky Gully Trib)	3	
605	Frankland River	Tambellup Dams 1&2 (Roaded)	3	4
607	Warren River	Karri Lake Dam-Little Quinninup Brook D1(QIN-1lic)	3	
607	Warren River	Phillips Creek Dam D4 & Scabby Gully Dam D2(SCA-1lic)	3	
607	Warren River	Lefroy Brook PH10-Pemberton Weir (LEF-1lic)	3	
607	Warren River	Lefroy Self Supply Area (ULF,LLF,LEF-80lic)	3	
607	Warren River	Wilgarup Self Supply Area 9WLG-50lic)	3	
608	Donnelly River	Upper Donnelly Self Supply Area (UDC-72lic)	3	
609	Blackwood River	Dumbleyung Catchment Dams 1&2 (Bitumen)	3	
609	Blackwood River	Kojonup TWS Dam	3	
609	Blackwood River	Puntapin Rock	3	
609	Blackwood River	Kukerin Reservoir (Bitumen&Roaded)	3	
609	Blackwood River	Nyabing Dam (Bitumen)	3	
609	Blackwood River	Pinwernying Dam	3	

Basin No	*River Basin or SWMA*	*Subarea or Subcatchment*	*1999–2000 Category based on Developed Yield/Sustainable Yield*	*1999–2000 Category 4's based on Current Use/ Sustainable Yield*
609	Blackwood River	Leeuwin Spring Dam	3	
609	Blackwood River	Balingup Dam-Balingup Brook Trib D3 (Bal 1-lic)	3	
609	Blackwood River	Dumpling Gully Dams D2&D3 (DUM1-lic)	3	
609	Blackwood River	Hester Dam-Moultons Gully D2(BLA-1lic)	3	
609	Blackwood River	Millstream Dam D1 (BLA-1lic)	3	
610	Busselton	Kirup Dam-Capel River D55 (CAP-1lic)	3	
610	Busselton	Mullalyup Dam (MUL-1lic)	3	
610	Busselton	Ten Mile Brook Dam D0.5(10M-1lic)	3	
611	Preston River	Glen Mervyn D6 and DS6(PES-2lic)	3	
612	Collie River	Wellington Dam D37(COL-2lic)	3	
612	Collie River	Mungalup Dam D4.5	3	
612	Collie River	Beela Dam D29	3	
612	Collie River	Worsley Dam D5(BRU-1 of 2lic)	3	
613	Harvey River	Bancell Brook Pipehead PH6(BAN-1lic)	3	
613	Harvey River	Waroona Dam D30 & Drakes Brook Dam D23(DRA-4lic)	3	
613	Harvey River	Samson Brook Dam D15 & Pipehead PH9(DRA-4lic)	3	
613	Harvey River	Logue Brook Dam D17(HRV-4lic)	3	
613	Harvey River	Wagerup Refinery Dams Yalup Brook	3	
613	Harvey River	Wagerup Refinery Black Tom Brook	3	
614	Murray River	Serpentine Dam D73 & Pipehead PH68(SEP-33lic)	3	
614	Murray River	Karnet Rehab Centre Dam-Dirk Brook(KAR 1lic)	3	
614	Murray River	North Dandalup Dam (NDP-1lic)	3	
614	Murray River	South Dandalup Dam D22 & Pumpback PH10 (SDP-2lic)	3	
614	Murray River	Conjurunup Pipehead PH7 (CON-22lic)	3	
614	Murray River	Boddington Dam (TRH-1lic)	3	
614	Murray River	Dwellingup Brook Dam (DWE-1lic)	3	
614	Murray River	Bottle Creek Dam (BTL-1lic)	3	
614	Murray River	Boddington Gold Mine -34 Mile Brk/Hotham (MIL, HOT-2lic)	3	
614	Murray River	Hedges Gold Mine- Hotham River Pump Stn	3	

Basin No	*River Basin or SWMA*	*Subarea or Subcatchment*	*1999–2000 Category based on Developed Yield/Sustainable Yield*	*1999–2000 Category 4's based on Current Use/ Sustainable Yield*
614	Murray River	Wandering Dams (combined)	3	
614	Murray River	Oakley & Barritt Brook Dams-ALCOA (MRY-5 of 22 lic)	3	
614	Murray River	Lower Murray Self Supply Area (MRY-17 of 22lic)	3	
616	Swan	Wungong Dam D28 (WUN-12lic)	3	
616	Swan	Churchmans Brook Dam (CHU-1lic)	3	
616	Swan	Canning Dam D50 (CAN-116lic)	3	
616	Swan	Kangaroo Gully Div Dam (KAN-1lic)	3	
616	Swan	Victoria Dam (inc Bickley) (MUN-1lic)	3	4
616	Swan	Mundaring Weir D33 & Lower Heelena PH22(HEL-2lic)	3	
616	Swan	Lennard Brook Self Supply Area (LEN-18lic)	3	
616	Swan	Rottnest Island Catchments (Bitumen)	3	
616	Swan	Stintons Brook Self Supply Area	3	
616	Avon River	Piesse Gully Self Supply Area	3	
615	Avon River	Brookton Dam-Avon River South Tributary (TRA 1-lic)	3	
615	Avon River	Bruce Rock Dam (Rock)	3	
615	Avon River	Corrigin Dam (Natural and Bitumen)	3	
615	Avon River	Hyden Humps Reservoir (Rock)	3	
615	Avon River	Karlgarin Reservoir (Roaded, Rock, Bitumen & Natural)	3	
615	Avon River	Knungajin Reservoir (Rock)	3	
615	Avon River	Kondininin Reservoir (Rock)	3	
615	Avon River	Kulin Town Dam (Natural)	3	
615	Avon River	Lake Grace 1 Dam (Roaded and Bitumen)	3	
615	Avon River	Lake King Earth Dam (Bitumen)	3	
615	Avon River	Moorine Rock Dam (Rock)	3	
615	Avon River	Mt Roe Dam Loc 223 (Avon River South Trib)	3	
615	Avon River	Mt Walker Catchment (Rock)	3	
615	Avon River	Muntadgin Dam Avon Loc 19148 (Rock)	3	
615	Avon River	Barbalin Dam (Rock)	3	
615	Avon River	Beacon Rocks Tank (Rock)	3	
615	Avon River	Bencubbin Railway Dam (Natural &	3	

Basin No	*River Basin or SWMA*	*Subarea or Subcatchment*	*1999–2000 Category based on Developed Yield/Sustainable Yield*	*1999–2000 Category 4's based on Current Use/ Sustainable Yield*
		Rock)		
615	Avon River	Pingarin Rock Catchment (Rock)	3	
615	Avon River	Pingrup Dam (Bitumen)	3	
615	Avon River	Varley Dam (Rock)	3	
615	Avon River	Wadderin Dam (Narembeen) (Rock)	3	
615	Avon River	Waddouring Dam RDo13 (Rock & Natural)	3	
615	Avon River	Wyening Dam (Calingiri TWS)	3	
615	Avon River	Wongan Hills Town Dam (Rock & Natural)	3	
615	Avon River	Wyalkatchem Railway Dam (Natural, Farmed & Roaded)	3	
618	Avon River	Kalannie Dam (Natural)	3	
617	Moore-Hill Rivers	Buntine Dam Mullewa Wubin Rd (Bitumen & Natural)	3	
617	Yarra Yarra	Gingin Brook Sel Supply Area (GBK, MON, MOO,MOW-28lic)	3	
617	Yarra Yarra	Caron Catchment (Bitumen & Roaded)	3	
617	Yarra Yarra	Wubin Dam Gt Nth Hwy	3	
701	Greenough River	Yuna Dams 1& 2 (Roaded & Bitumen)	3	
708	Fortescue River	Opthalmia Dam	3	
709	Port Hedland Coast	Harding River D43 (HAR-1lic)	3	
809	Ord River Basin	Moochalabra Creek Dam (KIN-1lic)	3	
809	Ord River Basin	Arthur Creek Dam (Dunham Pilot Dam)	3	

Source: Western Australian Government 2001

Attachment 3: State water quality management strategy implementation timetable

Implementation Task	*Lead Agency*	*Jun-01*	*Jul-01*	*Aug-01*	*Sep-01*	*Oct-01*	*Nov-01*	*Dec-01*	*Jan-02*	*Feb-02*	*Mar-02*	*Apr-02*	*May-02*	*Jun-02*	*Jul-02*	*Aug-02*	*Sep-02*	*Oct-02*	*Nov-02*	*Dec-02*	*Jan-03*	*Feb-03*	*Mar-03*	*Apr-03*	*May-03*	*Jun-03*
Establish Senior Review Panel	WRC																								
finalise membership																									
Establish inter-agency agreements	WRC																								
list current MOUs with status																									
Establish Community and Industry Advisory Committee	WRC																								
invitations for membership sent																									
committee membership finalised																									
Prepare State Water Quality Implementation Plan	WRC DEP																								
prepare draft																									
public consultation																									
incorporation of comments																									
endorsement by Senior Review Panel																									
publish document																									
Review plans, policies	WRC																								

Implementation Task	*Lead Agency*	*Jun-01*	*Jul-01*	*Aug-01*	*Sep-01*	*Oct-01*	*Nov-01*	*Dec-01*	*Jan-02*	*Feb-02*	*Mar-02*	*Apr-02*	*May-02*	*Jun-02*	*Jul-02*	*Aug-02*	*Sep-02*	*Oct-02*	*Nov-02*	*Dec-02*	*Jan-03*	*Feb-03*	*Mar-03*	*Apr-03*	*May-03*	*Jun-03*
and guidelines																									
review plans, policies and guidelines																									
submit to SRP and CIAC																									
Review water quality management processes	WRC																								
review water quality management processes																									
submit to SRP																									
List water quality policies and guidelines	WRC																								
list water quality policies and guidelines																									
Collection and access to water quality data	WRC																								
prepare paper on data																									
prepare "data map"																									
Develop and implement National Water Quality Management Strategy guidelines																									
Australian and New Zealand guidelines for fresh and marine water quality (No 4)	EPA																								
prepare draft																									
public consultation																									
incorporation of comments																									
endorsement by Senior																									

Implementation Task	*Lead Agency*	*Jun-01*	*Jul-01*	*Aug-01*	*Sep-01*	*Oct-01*	*Nov-01*	*Dec-01*	*Jan-02*	*Feb-02*	*Mar-02*	*Apr-02*	*May-02*	*Jun-02*	*Jul-02*	*Aug-02*	*Sep-02*	*Oct-02*	*Nov-02*	*Dec-02*	*Jan-03*	*Feb-03*	*Mar-03*	*Apr-03*	*May-03*	*Jun-03*
Review Panel																									
publish document																									
Australian Drinking Water Guidelines (No 5 & 6)	Dept of Health																								
prepare draft																									
public consultation																									
incorporation of comments																									
endorsement by Senior Review Panel																									
publish document																									
Guidelines for Water Quality Monitoring and Reporting (No 7)	EPA																								
prepare draft																									
public consultation																									
incorporation of comments																									
endorsement by Senior Review Panel																									
publish document																									
Guidelines for Groundwater Protection in Australia (No 8)	WRC																								
prepare draft																									
public consultation																									
incorporation of comments																									
endorsement by Senior																									

Implementation Task	*Lead Agency*	*Jun-01*	*Jul-01*	*Aug-01*	*Sep-01*	*Oct-01*	*Nov-01*	*Dec-01*	*Jan-02*	*Feb-02*	*Mar-02*	*Apr-02*	*May-02*	*Jun-02*	*Jul-02*	*Aug-02*	*Sep-02*	*Oct-02*	*Nov-02*	*Dec-02*	*Jan-03*	*Feb-03*	*Mar-03*	*Apr-03*	*May-03*	*Jun-03*
Review Panel																										
publish document																										
Rural Land Use and Water Quality - A Community Resource Document (No 9)	WRC																									
prepare draft																										
public consultation																										
incorporation of comments																										
endorsement by Senior Review Panel																										
publish document																										
Guidelines for Urban Stormwater Management (No 10)	WRC																									
prepare draft																										
public consultation																										
incorporation of comments																										
endorsement by Senior Review Panel																										
publish document																										
Guidelines for Sewerage Systems - Effluent Management (No 11)	DEP																									
prepare draft																										
public consultation																										
incorporation of comments																										

Implementation Task	*Lead Agency*	*Jun-01*	*Jul-01*	*Aug-01*	*Sep-01*	*Oct-01*	*Nov-01*	*Dec-01*	*Jan-02*	*Feb-02*	*Mar-02*	*Apr-02*	*May-02*	*Jun-02*	*Jul-02*	*Aug-02*	*Sep-02*	*Oct-02*	*Nov-02*	*Dec-02*	*Jan-03*	*Feb-03*	*Mar-03*	*Apr-03*	*May-03*	*Jun-03*
endorsement by Senior Review Panel																									
publish document																									
Guidelines for Sewerage Systems - Acceptance of Trade Waste (Industrial Waste) (No 12)	DEP																								
prepare draft																									
public consultation																									
incorporation of comments																									
endorsement by Senior Review Panel																									
publish document																									
Guidelines for Sewerage Systems - Sludge (Biosolids) Management (No 13)	DEP		to be initiated when National guideline is finalised and endorsed by Western Australia																						
Guidelines for Sewerage Systems - Use of Reclaimed Water (No 14)	DEP																								
prepare draft																									
public consultation																									
incorporation of comments																									
endorsement by Senior Review Panel																									
publish document																									
Guidelines for Sewerage Systems - Sewerage System Overflows (No	DEP		to be initiated when National guideline is finalised and endorsed by Western Australia																						

Implementation Task	*Lead Agency*	*Jun-01*	*Jul-01*	*Aug-01*	*Sep-01*	*Oct-01*	*Nov-01*	*Dec-01*	*Jan-02*	*Feb-02*	*Mar-02*	*Apr-02*	*May-02*	*Jun-02*	*Jul-02*	*Aug-02*	*Sep-02*	*Oct-02*	*Nov-02*	*Dec-02*	*Jan-03*	*Feb-03*	*Mar-03*	*Apr-03*	*May-03*	*Jun-03*
15)																									
Effluent Management Guidelines for Dairy Sheds (No 16a)	DEP																								
prepare draft																									
public consultation																									
incorporation of comments																									
endorsement by Senior Review Panel																									
publish document																									
Effluent Management Guidelines for Dairy Processing Plants (No 16b)	DEP																								
prepare draft																									
public consultation																									
incorporation of comments																									
endorsement by Senior Review Panel																									
publish document																									
Effluent Management Guidelines for Intensive Piggeries (No 17)	DEP																								
prepare draft																									
public consultation																									
incorporation of comments																									
endorsement by Senior																									

Implementation Task	*Lead Agency*	*Jun-01*	*Jul-01*	*Aug-01*	*Sep-01*	*Oct-01*	*Nov-01*	*Dec-01*	*Jan-02*	*Feb-02*	*Mar-02*	*Apr-02*	*May-02*	*Jun-02*	*Jul-02*	*Aug-02*	*Sep-02*	*Oct-02*	*Nov-02*	*Dec-02*	*Jan-03*	*Feb-03*	*Mar-03*	*Apr-03*	*May-03*	*Jun-03*
Review Panel																										
publish document																										
Effluent Management Guidelines for Aqueous Wool Scouring and Carbonising (No 18)	DEP																									
prepare draft																										
public consultation																										
incorporation of comments																										
endorsement by Senior Review Panel																										
publish document																										
Effluent Management Guidelines for Tanning and Related Industries (No 19)	DEP																									
prepare draft																										
public consultation																										
incorporation of comments																										
endorsement by Senior Review Panel																										
publish document																										
Effluent Management Guidelines for Australian Wineries and Distilleries (No 20)	DEP																									
prepare draft																										
public consultation																										

Implementation Task	*Lead Agency*	*Jun-01*	*Jul-01*	*Aug-01*	*Sep-01*	*Oct-01*	*Nov-01*	*Dec-01*	*Jan-02*	*Feb-02*	*Mar-02*	*Apr-02*	*May-02*	*Jun-02*	*Jul-02*	*Aug-02*	*Sep-02*	*Oct-02*	*Nov-02*	*Dec-02*	*Jan-03*	*Feb-03*	*Mar-03*	*Apr-03*	*May-03*	*Jun-03*
incorporation of comments																										
endorsement by Senior Review Panel																										
publish document																										

Source: Western Australian Government 2001 (unpublished)

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 pricing[1], 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

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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-subsides 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, interalia, 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;

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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.[6] 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.

6 See Chapter 5.

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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