

6 South Australia

The elements of the Council of Australian Government (CoAG) water reform program that are relevant for South Australia in this 2003 NCP assessment are: water and wastewater pricing; intrastate water trading arrangements; the remaining institutional reform requirements (primarily separation of responsibility of water industry institutions and integrated catchment management); the implementation of the National Water Quality Management Strategy (NWQMS); and the completion of the review and reform of water industry legislation that restricts competition. The National Competition Council assessed South Australia's compliance with the CoAG obligations in these areas in this 2003 NCP assessment. As required by CoAG, the Council also considered public education and consultation activity in the reform areas assessed. In addition, the Council reported on progress by South Australia towards meeting water reform obligations on rural water pricing and converting existing water allocations to water entitlements (which will be assessed in 2004) and towards meeting CoAG obligations on the provision of water to the environment (which will be assessed in 2005).

6.1 Water and wastewater pricing

Full cost recovery

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

- To be viable, a water business should recover at least the operational, maintenance and administrative costs, externalities, taxes or tax equivalents (not including income tax), the interest cost on debt, dividends (if any) and make provision for future asset refurbishment/replacement. Dividends should be set at a level that reflects commercial realities and simulates a competitive market outcome.
- To avoid monopoly rents, a water business should not recover more than the operational, maintenance and administrative costs, externalities (defined for the purpose of the pricing obligation to be natural resource management costs attributable and incurred by the water business), taxes or tax equivalent regimes, provision for the cost of asset consumption and cost of capital, the latter being calculated using a weighted average cost of capital.
- In determining prices, the regulator 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. Cross-subsidies that are not consistent with efficient and effective service, use and provision should ideally be removed.

- Where service deliverers are required to provide water services to classes of customers at less than full cost, the cost of this should be fully disclosed and ideally paid to the service deliverer as a community service obligation.
- Asset values should be based on deprival value 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.
- Transparency is required in the treatment of community service obligations, contributed assets, the opening value of assets, externalities including resource management costs, tax equivalent regimes and any remaining cross-subsidies.

Reference: CoAG water reform agreement clauses 3(a)–(d); and guidelines for the application of section 3 of the CoAG strategic framework and related recommendations in section 12 of the expert group report (CoAG pricing principles)

Urban water and wastewater businesses: SA Water

Assessment issue: South Australia is to demonstrate that SA Water sets prices for water and wastewater services to achieve full cost recovery in accordance with the CoAG pricing principles. In the 2001 and 2002 NCP assessments, the Council considered that the lack of transparency of South Australia's water and wastewater pricing process made it difficult to be confident that pricing decisions were (and would be in the future) consistent with the CoAG pricing principles.

Next full assessment: The Council will assess South Australia's progress with urban water and wastewater pricing again in the 2004 NCP assessment. The Council will conduct a full assessment across the entire package of reforms in 2005.

Reference: CoAG water reform agreement, clauses 3(a) and (b); CoAG pricing principles

SA Water is South Australia's primary supplier of water and wastewater services to Adelaide and country towns. In 2000-01, SA Water provided water and wastewater services to over one million people.

The prices of the services provided by SA Water are determined by the South Australian Cabinet each November for the following financial year, on the recommendation of the Minister for Government Enterprises. The Cabinet does not make the information it considers in determining prices or the reasons for its pricing decisions publicly available. While South Australia has established the Essential Services Commission of South Australia (ESCOSA), replacing the former South Australian Independent Industry Regulator, the commission has no pricing oversight role for SA Water.

South Australia considers that its water and wastewater price setting is not inconsistent with CoAG pricing principles, noting that SA Water's prices are above avoidable costs and below standalone costs. South Australia advised that the estimate of the short run marginal cost of water services supplied by SA Water is of the order of 35 cents per kilolitre across the system. The current charge is \$1.00 per kilolitre, with the difference reflecting augmentation costs, a raw water component, a resource management component and 'externality' costs.

The South Australian Government advised the Council in August 2003 that it would publish an annual transparency report on SA Water's water and wastewater prices, with the first statement to cover charges applying from 1 July 2004. Terms of reference provided by the Government indicate that the report will establish the relationship of Cabinet decisions on water and wastewater prices to the CoAG pricing principles, provide information on SA Water's financial performance in the context of the decision and past and future expenditures, and address details of revenues, community service obligations (CSOs), SA Water's capital expenditure program and SA Water's profit and the distribution of that profit. The Government indicated that the annual reports would be widely published (in the SA Water annual report and on the Internet).

The Government advised that it will require ESCOSA to review the processes adopted in preparing advice to the Cabinet for the Cabinet's decision on the level and structure of SA Water's prices, with respect to the adequacy of the application of the CoAG pricing principles. ESCOSA will also be asked to advise on the extent to which information relevant to the CoAG pricing principles is made available to the Cabinet. The reports from ESCOSA will be incorporated in the Government's annual transparency statements.

Discussion

Without rigorous supporting evidence, South Australia's claim that SA Water is achieving full cost recovery does not satisfy the CoAG water and wastewater pricing obligations. South Australia needs to demonstrate that it applies all CoAG pricing principles in setting the price of SA Water's water and wastewater services. The Council raised this matter in both the 2001 and 2002 NCP assessments, suggesting that South Australia introduce arrangements such as independent economic regulation of water and wastewater services and/or a public price setting process.

The Council considers that economic regulation of SA Water by ESCOSA is the preferred approach, because it would allow independent and transparent consideration of pricing and related matters, including asset valuation, CSOs, cross-subsidies, externalities and the distribution of dividends. Nevertheless, the Council acknowledges that an independent, robust and transparent report, prepared annually, which shows that pricing by SA Water for water and wastewater services complies with the CoAG pricing principles, including on price-related matters, would meet the CoAG requirements. Publicly available annual reports would enable transparent scrutiny of the basis on which SA Water's prices are set.

An important element of the CoAG pricing principles is the requirement that prices be set on the basis of an appropriate revenue target for SA Water. The pricing principles state that the revenue target should be based on efficient resource and business costs, with prices set to achieve this target and the cost and other elements that determine the revenue target and the target's connection with prices made clear. Water Services Association of Australia data for the period 1995-96 to 2000-01 show that SA Water's per unit

operating costs appear to have remained about constant in real terms, unlike per unit operating costs in many other comparable urban water businesses, which declined over the same period (WSAA 2001 and 2003).

Assessment

The Council considers that South Australia, on the basis of currently available information, has not demonstrated satisfactory compliance with the CoAG pricing principles in relation to SA Water's water and wastewater pricing. The publication of annual transparency statements, as the South Australian Government has committed to do, provides a mechanism for demonstrating that SA Water's pricing complies with the CoAG pricing principles. Annual transparency statements would also help to satisfy South Australia's institutional reform and the public education and consultation obligations.

The South Australian Government's commitment to produce annual transparency reports to address SA Water's pricing from 1 July 2004 and advice of terms of reference for the first report, is a significant step towards the State showing that it is complying with the CoAG water pricing obligations. On the basis that the terms of reference allow ESCOSA to comment on the outcome of the annual statements — to indicate whether or not it would have reached the same conclusion as the transparency report, and if it would not, whether the conclusion reached is reasonable — the Council considers that the Government's commitment and its advice on terms of reference is sufficient for this 2003 NCP assessment.

In the 2004 NCP assessment, the Council will look for South Australia to have published its first transparency report and for that report to include a rigorous assessment of SA Water's 2004-05 water and wastewater prices against the CoAG pricing principles. Publication of the report will address transparency obligations. The Council will look for evidence in the report that SA Water's prices satisfy all CoAG pricing principles. In particular, the Council draws South Australia's attention to the pricing principles requirements that (1) prices are determined on the basis of a revenue target for the business that is based on efficient resource and business costs and (2) that the dividends paid reflect commercial reality (see the discussion on dividends below).

The Council will look for ESCOSA to have had full opportunity to comment on the processes adopted in preparing the Cabinet advice on SA Water's pricing and the information made available to the Cabinet, as is provided for in the Government's terms of reference. The Council will also expect ESCOSA to advise on whether or not it would have reached the same conclusion as the transparency report, and if it would not, whether the conclusion reached is reasonable. The published annual transparency reports should include ESCOSA's comments. The Council would regard any unwarranted departure from such an approach as compromising South Australia's compliance with the CoAG obligations on water and wastewater pricing.

SA Water dividend payments

Assessment issue: Dividends, where provided, are to be set at a level that reflects commercial realities and simulates a competitive market outcome. In the 2002 NCP assessment, the Council expressed a concern about South Australia's dividend policy, noting that it may result in dividends in excess of 100 per cent of after tax profits. This could have unintended impacts on the capital structure and financial resources of SA Water, which may affect the long term sustainability of water and sewerage services.

Next full assessment: The Council will assess South Australia's progress with the requirement that dividends be set at a level that reflects commercial realities again in the 2004 NCP assessment. The Council will conduct a full assessment across the entire package of reforms in 2005.

Reference: CoAG water reform agreement, clause 3(a); CoAG pricing guideline 5

South Australia advised that from 2001-02 it has set a target dividend for SA Water of 55 per cent of earnings before interest, tax, depreciation and amortisation (EBITDA) less 'stay in business capital'. Dividend payments, borrowings and capital expenditure programs for SA Water are determined by the South Australian Cabinet.

The dividend paid by SA Water in 2001-02 was \$137.175 million (SA Water 2002). South Australian Government officials advised the Council that this represented in excess of 100 per cent of SA Water's accumulated profits for the year. In each of the three financial years from 1998-99, the dividends paid by SA Water as a proportion of profit after tax were 111.08 per cent, 120.12 per cent and 95.90 per cent (WSAA 2001).

Discussion

The CoAG water pricing principles require that dividends be set at a level that reflects commercial realities and simulates a competitive market outcome. This provision is aimed at reducing risks to the solvency of water businesses and the long term sustainability of water services, within an environment consistent with the economic efficiency and competitive neutrality objectives of the broader NCP agreements (see NECG 2002). The Council considers the corporations law requirement that dividends not exceed 100 per cent of accumulated after tax profit is a reasonable interpretation of the CoAG requirement on dividend distributions.

The Council expressed concern about South Australia's dividend policy in the 2002 NCP assessment (NCC 2002, vol. two, pp. 6.1–6.5). A dividend policy based on 55 per cent of EBITDA may result in dividends consistently in excess of 100 per cent of after tax profits, which could have unintended impacts on the business's capital structure and financial resources. This concern is exacerbated by the absence of independent regulation of prices and service quality in South Australia. The absence of service quality regulation reduces the scope for scrutiny aimed at protecting water and wastewater consumers from the potentially adverse consequences of a run down in

financial viability. The absence of price regulation means there is no independent scrutiny to ensure future capital expenditure needs are appropriately taken into account in pricing.

South Australian Government officials stated that the Cabinet process by which the dividend level for SA Water is determined means that matters such as SA Water's future viability are appropriately considered. Officials also noted that the Cabinet considers SA Water's capital works program and funds all expenditure that the Cabinet considers to be necessary. As a result, South Australia believes that the corporations law requirement relating to dividends is not relevant to SA Water. Further, South Australia argued that SA Water is, and is projected to remain, in a sound financial condition. As a means of improving transparency, South Australian officials undertook to ask SA Water to report the dividend it pays to the Government as a proportion of after tax profit in its annual reports.

Assessment

The Council considers that the dividend policy for SA Water does not sufficiently address the CoAG requirement that dividends reflect commercial realities and simulate a competitive market outcome. The current target dividend of 55 per cent of EBITDA means that dividends could exceed 100 per cent of after tax profit (which occurred in 2001-02) and potentially undermine the long-term sustainability of SA Water.

Reporting by SA Water of the dividend it pays as a percentage of after tax profits (which South Australian Government officials have undertaken to pursue) would provide greater transparency. Transparency would be enhanced further if the Government were also to explain its rationale for the level of dividend paid by SA Water, particularly where the level exceeds the corporations law limit of 100 per cent of after tax profits. Such information would provide South Australian consumers of water and sewerage services with a valuable insight into the likely consequences for the delivery of water and sewerage services of the Government's dividend policy.

The Council accepts that it is not the objective of the South Australian Cabinet to impose arrangements, including on the level of the dividend, that inappropriately diminish SA Water's capacity to provide adequate water and sewerage services. There is a danger, however, that the ability of SA Water to provide adequate services may be compromised if it is required year after year to provide dividends in excess of 100 per cent of after tax profits. While South Australia argued that the Cabinet process of allocating, among other things, capital works budgets for SA Water will prevent this, the paucity of relevant information on the public record makes it difficult for consumers to draw this judgment. In addition, the arrangement whereby the Cabinet determines outcomes for SA Water on prices and dividend levels indicates considerable Cabinet involvement in decision-making on business issues. Such a level of involvement may reduce SA Water's commercial focus and,

depending on the matters on which decisions are taken by the Cabinet, compromise the separation of water regulation and service provision.

As noted above, the South Australian Government has undertaken to produce an annual pricing report to transparently show the relationship of SA Water pricing to the CoAG pricing principles. These principles include the requirement that dividends be set at a level that reflects commercial reality. In accord with the Government's undertaking on the transparency report, the Council will look for the report to address the matter of SA Water's profit and the distribution of that profit. In future NCP assessments, the Council will consider the level of dividend paid by SA Water. Where the level of dividend paid exceeds 100 per cent of after tax profits, the Council will look for South Australia to show that there are unlikely to be unintended impacts on SA Water's capacity to provide water and sewerage services of appropriate quality.

Consumption-based pricing

Assessment issue: Prices are to reflect the volume of water supplied to encourage more economical water use and to defer the need for costly investments. In the 2002 NCP assessment, the Council noted the progress achieved by South Australia in introducing cost recovery for all categories of water users but undertook to monitor the implementation of consumption-based pricing for commercial users and the implementation of consumption-based charging for trade waste.

Next full assessment: The Council will conduct a full assessment across the entire package of reforms in 2005.

Reference: CoAG water reform agreement, clauses 3(a)–(c)

South Australia introduced consumption-based charges — incorporating a fixed access charge and a volumetric charge — for all consumers of water services except commercial customers in July 1995. Residential customers (homes and vacant residential land) and business customers (industrial, primary industry, hotels and motels and public institutions) currently face an annual charge comprising an access and a volumetric component. South Australia legislated to remove the free water allowances applying to commercial water users (including wholesale, retail and financial services) in November 2001.

South Australia's legislation provides a five-year transition to full water use charges for commercial customers, commencing on 1 July 2002. Consumption-based pricing for commercial customers is being phased in on a revenue-neutral basis. As revenues from the water use (volumetric) component of the charge increase, the property value-based access (fixed) charge will reduce via offsetting reductions in the rate in the dollar used to determine the access charge. The rate in the dollar used to determine the access charge will continue to reduce over the transition period to offset the additional revenue that accrues as the discount on use previously provided as part of the free water allowance is phased out. Full consumption-based

charging for water used by commercial customers will apply from 2006-07. South Australia advised that over half of the State's commercial customers could expect a reduction in their water bill and that the five-year phase in period would assist adjustment by those whose water bills are likely to increase. The charges applying in 2002-03 are shown in box 6.1.

Box 6.1: Water charges for commercial customers in South Australia, 2002-03

0-125 kilolitres:	8 cents per kilolitre (80 per cent discount on 40 cents per kilolitre)
Above 125 kilolitres up to allowance:	19.4 cents per kilolitre (80 per cent discount on 97 cents per kilolitre)
Above allowance:	97 cents per kilolitre
Commercial water prices for 2003-04 have already been determined as:	
0-125 kilolitres:	16.4 cents per kilolitre (60 per cent discount on 42 cents per kilolitre)
Above 125 kilolitre up to allowance:	40 cents per kilolitre (60 per cent discount on \$1.00 per kilolitre)
Above allowance:	\$1.00 per kilolitre

Source: Government of South Australia (2003)

SA Water does not generally apply consumption-based charges for wastewater services. South Australia advised that the amount of discharge is a relatively minor driver of costs and that measurement of the quantity of discharge and pollutant loading is therefore not practical for the vast majority of consumers.

There are about 7000 registered dischargers of trade waste in South Australia, including about 45 that discharge large quantities of waste. SA Water imposes consumption-based charges for 43 of the large dischargers.¹ The basic trade waste charge rate reflects avoidable cost, but there is a 50 per cent surcharge for high concentration flows (applying to the component of the pollutant load that represents the high concentration). For existing dischargers facing increases in the trade waste charge compared to what they paid previously, discounts are available to manage the transition to full application of the new charges. This discount is equal to 80 per cent in 2002-03, declining by 20 percentage points each year until 2006-07 when full charges will apply. Commercial wastewater and trade waste charges applying in South Australia in 2002-03 (before the application of discounts) are summarised in box 6.2.

¹ Two large dischargers are exempt from the trade waste charging regime in the interim on the basis of a pre-existing agreement with the South Australian Government.

Box 6.2: Commercial wastewater and trade waste charges in South Australia, 2002-03

Commercial wastewater and trade waste charges in 2002-03 (before application of any discounts) are:

<i>Flow (excluding 'domestic' wastewater)</i>	3.4 cents per kilolitre
<i>Biochemical oxygen demand</i>	
For loading portion up to 1000 milligrams per litre	17.8 cents per kilogram
For loading portion above 1000 milligrams per litre	27 cents per kilogram
<i>Suspended solids</i>	
For loading portion up to 500 milligrams per litre	16.2 cents per kilogram
For loading portion above 500 milligrams per litre	24 cents per kilogram
<i>Total dissolved solids</i>	
For loading above a threshold	\$1.28 per kilogram

Source: Government of South Australia (2003)

Discussion and assessment

The Council is satisfied that South Australia is appropriately addressing consumption-based pricing obligations relating to water and wastewater services. South Australia's arrangements may imply a cross-subsidy between commercial users of water services during the period of transition to full water use charges, and a cross-subsidy to large trade waste dischargers during the period of transition to the new trade waste charges. Under the CoAG pricing principles, such cross-subsidies should be reported transparently. This matter is discussed in the following section.

Cross-subsidies and community service obligations

Assessment issue: Governments are to, desirably, remove cross-subsidies that are not consistent with efficient and effective service, use and provision. Where cross-subsidies continue to exist, they should be made transparent. Where service delivers are required to provide water services to classes of customers at less than full cost, the cost of this should be fully disclosed and ideally paid to the service deliverer as a community service obligation. In the 2002 NCP assessment, the Council acknowledged that the steps South Australia was taking to introduce consumption-based pricing for water and (some) wastewater services were appropriate, but noted that South Australia would need to identify and report all cross-subsidies among different classes of consumers of water and wastewater services.

Next full assessment: The Council will assess South Australia's progress with transparently reporting remaining cross-subsidies and CSOs in the 2004 NCP assessment. The Council will conduct a full assessment across the entire package of reforms in 2005.

Reference: CoAG water reform agreement, clause 3(a)

South Australia stated that, apart from major trade waste dischargers, there are no significant cross-subsidies within urban water and wastewater pricing. It explained that because water supply is a capital intensive industry, the ongoing incremental cost imposed by any individual customer tends to be substantially less than the average cost of providing the service. Under the State's urban water pricing arrangements, no customer paid total annual charges of less than A\$1.00 per kilolitre for water in 2002-03. South Australia advised that this is above the incremental cost. South Australia also advised that, given economies of scale, it is most unlikely that the charge imposed would have exceeded the stand-alone cost of providing the same supply to any one customer in isolation.

For wastewater, the incremental cost imposed by an individual customer tends to be lower (as a proportion of total annual costs) than it is for water supply. A high proportion of the cost of providing a wastewater service is fixed. Only a relatively small number of large trade waste dischargers impose annual incremental costs that are likely to exceed the annual charge imposed. When fully implemented in 2006-07, the trade waste charging framework will remove the cross-subsidy to the large dischargers.

In the 1999 NCP assessment, the Council reported that South Australia's 1996 *Community service obligations: policy framework* required CSOs to be delivered via a purchase agreement between the relevant Government Minister and SA Water. At the time, the South Australian Government reported that CSO arrangements had been negotiated in regard to the pricing of nonmetropolitan water and wastewater services, pensioner concessions and exempt properties. The Government also advised that it would use a CSO to phase in its trade waste charges, commencing in 2002-03. In the 2001 NCP assessment, the Council considered that South Australia had met its obligation to transparently report CSOs. In this 2003 NCP assessment, South Australia indicated that SA Water delivered a number of explicit CSOs, although these were not highly transparent.

Discussion and assessment

South Australia's fully volumetric water and wastewater pricing regimes, which are being phased in over five years from 2002-03, will achieve, by 2006-07, the CoAG objective of removing cross-subsidies that are not consistent with efficient and effective service, use and provision. The Council endorsed this transitional movement to fully volumetric pricing in previous NCP assessments.

During the phase-in period, the pricing regimes are likely to result in cross-subsidisation among different customers. In the information provided for this 2003 NCP assessment, South Australia identified major trade waste dischargers as the only significant area of cross-subsidy, and advised that the cross-subsidy will cease by 2006-07. South Australia's comments in relation to expected changes in the water bills faced by commercial consumers of water services — that about half of all commercial consumers could expect to face a

reduction in their water bill when fully volumetric water charges are applying in 2006-07 — suggest that there may also be cross-subsidisation among commercial consumers of water services.

The annual transparency reports on SA Water's water and wastewater pricing and its relationship to the CoAG pricing guidelines, which the South Australian Government has undertaken to produce (see the earlier discussion on urban water and wastewater pricing), offer a vehicle for the Government to report any remaining cross-subsidies and to identify and report the CSOs delivered by SA Water. The Council will look for South Australia to identify and report remaining cross-subsidies and the CSOs provided by SA Water in the annual transparency statements.

Rural Murray Water cost allocation: progress report

Progress report: The Murray–River Basin States have different policies on passing on River Murray Water costs to water users. All Murray–Darling Basin jurisdictions are asked to outline their policy approach on this issue for the 2003 NCP assessment.

Next full assessment: The Council will assess rural full cost recovery and pricing reform in 2004.

Reference: CoAG water reform agreement, clauses 3(a) and (b); CoAG pricing principles

The Murray–River Basin States have different policies on passing on River Murray Water costs to water users. South Australia does not pass on to irrigators River Murray Water charges for bulk water.² New South Wales and Victoria pass on these costs, but apply different charging arrangements. Charges are partly fixed and partly variable in New South Wales and mostly fixed in Victoria. A consultancy study found that the expansion of permanent interstate trade is likely to be impeded by these differential charging arrangements for bulk water (Scriverco and Hassall and Associates 2003).

South Australia is investigating cost recovery matters relating to River Murray Water via a consultancy. The brief for this study indicates that South Australia seeks a 'review of costs associated with managing River Murray Water in South Australia, New South Wales and Victoria'. The study will also identify the beneficiaries of each State's expenditure component, provide a comparison of each State's water charging policies, comment on the extent to which externalities are accounted for, and discuss the effect of different

² River Murray Water recovers the full cost of constructing, operating, maintaining and renewing assets from the Murray–Darling Basin Commission's member governments. River Murray Water recovers 75 per cent of the cost of asset refurbishment and replacement from the States, with the Commonwealth Government paying the remaining 25 per cent. The States meet the full cost of the operation and maintenance of assets.

policy, regulatory and administrative components. The study is scheduled for completion in October 2003.

6.2 Water management progress report: water rights and provisions to the environment

Establishment of water rights systems

Progress report: South Australia is to report on progress towards converting existing allocations to new water rights systems, and in implementing mechanisms to support these systems.

Next full assessment: The Council will assess the Government's compliance with CoAG obligations on implementing water rights arrangements in 2004.

Reference: CoAG water reform agreement, clause 4

The *Water Resources Act 1997* provides the framework for a hierarchy of water management plans for water resources in South Australia: water allocation plans; local water management plans; and catchment water management plans (see section 6.4 for a discussion of catchment water management plans). The Act differentiates between prescribed water resources, which are subject to licensing, and non-prescribed water resources. Prescription is based on the level of consumptive use and the condition of the water resource.

For prescribed resources, water allocation plans are the main tool for allocating water to water users and the environment. The water allocation plans specify rules on how water can be allocated, transferred and used. The plans are prepared by catchment water management boards or, where there is no board, by a water resources planning committee. The plans must be consistent with the overarching State Water Plan 2000, which sets the policy framework for all water plans, and are to be reviewed every five years. Surface water runoff (and farm dams) can be considered in the plans. At the time of the 2002 NCP assessment, South Australia had completed water allocation plans for 14 of the 15 prescribed water resource areas on its original implementation program (see next section on provision of water to the environment). (Local water management plans or broader catchment water management plans may be used to manage nonprescribed water resources.)

Once a water resource is prescribed, the extraction of water from that resource requires a licence.³ Licences specify volumetric allocations and the conditions of use. The Act provides for both water 'holding' allocations and water 'taking' allocations. A water holding allocation enables a person to hold water but not use it without first converting it to a water taking allocation. Licences are the holder's personal property; are issued in perpetuity (unless they are terminated under the Act); and are separate from land title, transferable and enforceable. The State Water Plan sets a target of 2005 for all water allocations to be converted from an area to a volumetric basis and for all water use to be measured. There is no provision for compensation in the event that a water allocation is reduced (provided the reduction accords with the objectives of the Act). Decisions are subject to appeal to the Environment, Resources and Development Court.

In line with the requirements of the Act, South Australia maintains a water licence register. The register records all water rights and transfers, and includes provision for the registration of third party interests. Registered third parties must be notified before a licence transaction may proceed. At the time of the 2001 NCP assessment, South Australia was planning to upgrade its water licence register towards a full Torrens Title system and to enable access via the Internet.

Reform progress

South Australia advised that water allocations have been converted to a volumetric basis in most areas of the State. The main area still to be converted is the South East Catchment. To assist in the conversion process in this catchment, South Australia is installing meters in around 200 sites to obtain information on the volumes used by irrigators. The information from the metering project will be used in reviewing the water allocation plans in the catchment. The revised water allocation plans are due to be completed in June 2006. The water licences in the South East Catchment will then be converted to a volumetric basis in accordance with the revised plans.

The first stage of South Australia's upgraded water licence registry system will be implemented in 2003. South Australia expects the system to be fully implemented by 2004-05.

Discussion

South Australia's scheduled completion date for the water allocation conversion process is later than the 2005 deadline set by CoAG for allocations

³ In most areas licences are not required for stock and domestic use. The exceptions are the River Murray, the northern Adelaide plains prescribed wells area and the recently prescribed Far North wells area.

(including specification in terms of volume) to be substantially completed. While the South East Catchment is only one area of the State, it is a significant catchment having seven prescribed water resources. South Australia advised that water allocations in two of these prescribed water resources are specified on a volumetric basis. In the other five, water allocations are partly volumetric, with the remaining allocations being quasi-volumetric through the use of volume-to-area conversion factors.

The Council draws the South Australian Government's attention to the need to have substantially completed the conversion process in the South East Catchment in line with the CoAG deadline. For the 2004 NCP assessment, the Council will look for South Australia to demonstrate continuing progress in the South East Catchment and to provide information on the proportion of allocations, for the water resources on South Australia's agreed implementation program, that will not be specified in volumetric terms by 2005.

Provision of water to the environment

Progress report: South Australia is to report on progress in implementing allocations to the environment by listing all draft and final water allocation plans and explaining each plan's stage of development.

Next full assessment: The Council will assess the Government's progress in implementing CoAG obligations on the allocation of water to the environment in 2004, consistent with the CoAG requirement that allocations be substantially completed by 2005.

Reference: CoAG water reform agreement, clauses 4(b)-(f)

In prescribed areas, water allocation plans are the primary mechanism for providing water for the environment. In developing the plans, the water needs of dependent ecosystems within or downstream of the prescribed resource are assessed. Under the Water Resources Act, the plans must provide for the sustainable allocation and use of the available water. Environmental water provisions are formally recognised and protected through the plans, which also include monitoring arrangements. Under the Act, the Minister may reduce the water allocations stipulated on licences to prevent damage to dependent ecosystems or a reduction in water quality.

At the time of the 2002 NCP assessment, South Australia had completed water allocation plans for 14 of the 15 prescribed water resource areas on its original implementation program. The only outstanding plan was for the River Murray, which was due to be completed in July 2002. South Australia was also in the process of prescribing the Marne River and possibly other eastern Mount Lofty catchments as stressed systems. The Council indicated that any new systems that are prescribed would be assessed as additions to South Australia's implementation program.

In mid-2002, South Australia was also about to commence a stressed resources review to improve its approach to identifying water resources under stress (or at risk of stress) and appropriate management responses. South Australia has largely identified stressed water resources by assessing the development pressures on the resource, rather than assessing the ecological health or state of the ecosystems that depend on the resource. Water-dependent ecosystems in South Australia generally rely on seasonal wetting from larger rivers (such as the River Murray), ephemeral streams or shallow groundwater systems. Little information is available on the latter two types of systems, which account for the majority of the State's water-dependent ecosystems.

Reform progress

The water allocation plan for the River Murray prescribed watercourse was adopted in July 2002. The final plan appears to be consistent with the draft plan considered in the 2002 NCP assessment. The plan sets a total volume of River Murray water that may be allocated each year. Specific volumes are defined for particular uses, within the constraint of South Australia complying with the Murray–Darling Basin Ministerial Council cap on diversions. The plan provides up to 200 gegalitres each year for wetland management purposes and a further 22.2 gegalitres for environmental land management (in particular, for minimising the effects of rising saline underground water) in the Lower Murray Reclaimed Irrigation Areas. The plan acknowledges that halting the ecological decline of the river would require substantial further action beyond the environmental water provisions in the plan:

The current median flows to South Australia must be increased. The river is in ecological decline, with the current median flow of 4714 gegalitres per annum (38 per cent of natural median). A return to the flows of 1970 (63 per cent of natural median) would achieve significant ecological improvement in the river. However, an increase to 7025 gegalitres (55 per cent of natural median) would ... halt the decline in river health. This is an increase of approximately 2200 gegalitres in the annual median. (River Murray Catchment Water Management Board 2002, p. 6)

In addition to finalising the water allocation plan, in May 2003 South Australia announced a 'Save the Murray' levy of A\$30 a year for residential ratepayers and A\$135 a year for non-residential ratepayers. The levy is to apply from October 2003 and is expected to raise A\$20 million a year. It is to be paid into a Save the Murray Fund. Around A\$10 million a year is to be spent on specific restoration programs, with the balance funding South Australia's contribution to a basin-wide initiative to provide water for increased environmental flows. The Murray–Darling Basin Ministerial Council is to further consider options for improving environmental flows in the River Murray at its meeting in November 2003 (against three reference points of 350, 750 and 1500 gegalitres of flow restored in an average year).

South Australia prescribed two additional water resources in the South East Catchment: (1) the Tintinara Coonalpyn prescribed wells area and (2) the Morambro Creek prescribed watercourse and prescribed surface water area. The Tintinara Coonalpyn water allocation plan was adopted in January 2003. The South East Catchment Water Management Board is preparing the Morambro Creek plan, which is expected to be completed in 2004. South Australia recently prescribed the Great Artesian Basin (Far North prescribed wells area), Marne River and Saunders Creek, with the water allocation plans expected to be completed in late 2005 or early 2006. The status of South Australia's water allocation plans at February 2003 is shown in table 6.1.

South Australia also proposes to prescribe water resources in the Baroota area near Port Germein, in Greenock Creek adjacent to the Barossa Valley, and on Kangaroo Flat on the northern Adelaide plains. The Council will consider the Tintinara Coonalpyn water allocation plan, and any subsequently completed plans, as part of the 2004 NCP assessment.

Table 6.1: Water allocation plans for prescribed areas in South Australia, February 2003

<i>Water allocation plan</i>	<i>Status of plan</i>
Angas Bremer	Adopted 2 January 2001
Barossa	Adopted 22 December 2000
Clare Valley	Adopted 4 February 2001
Comaum–Caroline	Adopted 29 June 2001
Lacepede Kongorong	Adopted 29 June 2001
McLaren Vale	Adopted 6 November 2000
Mallee	Adopted 21 December 2000
Morambro Creek	Under preparation
Musgrave	Adopted 2 January 2001
Naracoorte Ranges	Adopted 29 June 2001
Noora	Adopted 2 January 2001
Northern Adelaide Plains	Adopted 22 December 2000
Padthaway	Adopted 29 June 2001
River Murray	Adopted 1 July 2002
Southern Basins	Adopted 31 December 2000
Tatiara	Adopted 29 June 2001
Tintinara Coonalpyn	Adopted 22 January 2003

Source: Government of South Australia (2003)

South Australia advised that it has made significant progress with the stressed resources review since 2002. It has:

- developed a working definition of a stressed water resource for the State;
- specified the groundwater resources to be covered by the stressed resources methodology, based on the classification in the National Land and Water Audit and the State Water Plan;

- developed draft criteria to identify stress in groundwater resources (based on the model used in Queensland), with the aim of prioritising and managing aquifers according to the level of stress (high, medium or low);
- identified an approach based on geomorphology (or physical characteristics), similar to that adopted in the eastern States, to categorise surface water systems — hydrological and ecological indicators will be used to evaluate the stress level of the resource, as a basis for developing management options; and
- given initial consideration to identifying appropriate case studies to trial the methodology.

The stressed resources review will also identify information that should be collected for monitoring purposes. The review's findings on monitoring will be further considered in a complementary review of the State's water monitoring programs.

6.3 Intrastate trading

Assessment issue: Trading arrangements in water allocations or entitlements are to be instituted to maximise water's contribution to national income and welfare, within the social, physical and ecological constraints of catchments. Any restrictions on trading need to be shown to be in the public interest. According to the CoAG timetable for assessment of reform progress by the Council, arrangements to enable intrastate trade are to be assessed in 2003.

In previous NCP assessments, the Council raised concerns about the limitation on the volume of water that may be permanently transferred out of some irrigation districts. The Central Irrigation Trust has a 2 per cent cumulative limit on the proportion of entitlements that can be permanently traded out of the trust's districts.

South Australia needs to remove constraints on water trading or to demonstrate that any remaining constraints are in the public interest. South Australia also needs to ensure that trading rules in water allocation plans facilitate trading where this is socially, physically and environmentally sustainable.

Next full assessment: The Council will assess arrangements for water trading in 2004.

Reference: CoAG water reform agreement, clause 5

Growing demand from agricultural activities such as viticulture has created a strong demand for water trading in some parts of South Australia. Water trading is possible in regulated irrigation schemes and in prescribed areas where water licences have been issued. Different arrangements apply to trading in irrigation schemes and prescribed areas.

Irrigation trusts

Under the *Irrigation Act 1994*, in irrigation areas the irrigation trust holds a 'taking' allocation. Whether the trust devolves all or part of this allocation to its members varies among the trusts. South Australia advised that only a small number have devolved ownership of the water to irrigators through internal administrative arrangements. Where the allocation is devolved, subject to the trust's approval, the owner of an irrigated property may transfer all or part of their allocation to another land owner within their district or to the trust. An irrigation trust may trade all or part of its surplus allocation (the allocation held by the trust in excess of the sum of entitlements held by individual irrigators) to another party outside the trust.

There are limits on the volume of water that can be traded out of some irrigation districts. For permanent trades, the Central Irrigation Trust imposes a 2 per cent cumulative limit on the proportion of entitlements that can be traded out of the trust's districts and a limit on transfers from a property of 25 per cent of the landholder's original water allocation. South Australia advised that there is no restriction on temporary trade in the Central Irrigation Trust and that none of the State's other 24 trusts on the River Murray has indicated it has any ceilings or restrictions on trade in water entitlements. Other information, however, suggests there may be a range of additional constraints on trade. A consultancy study undertaken for the Murray–Darling Basin Commission reported that the Central Irrigation Trust also has a limit of 4000 megalitres per year for temporary trade to private diverters. In addition, the study reported that there is no permanent trade within the Renmark Irrigation Trust, and that the Sunlands and Golden Heights Irrigation Trusts have permitted only permanent trade into their areas (Hassall and Associates 2002, pp. 48–53).

Other areas

Outside the irrigation trusts, water trading is possible in any prescribed area where licences have been issued to water users under the Water Resources Act (see section 6.2). Objectives and principles or rules for trading are included in the water allocation plans for prescribed areas (see box 6.3 for the objectives included in a recently completed plan). The trading provisions in the plans must be consistent with the overarching State Water Plan. The State plan includes the following provisions of relevance to trading:

- the nature of South Australia's highly variable surface water and watercourse water resources will generally mean that water allocations may be transferred downstream in a catchment but not upstream;
- while transfers of water between catchments are generally not supported because of potential environmental impacts, a transfer is supported if it is within the ecological limits of the taking and receiving environments; and

- in relation to groundwater trading, transfers are not permitted:
 - between management zones (which may include aquifers) unless specifically provided for within the water allocation plan;
 - to areas of high intensity extraction unless a detailed hydrological assessment and a monitoring program suggests minimum risks to the resource and any groundwater-dependent ecosystems; and
 - unless they have positive or neutral effects on water quality outcomes, consistent with the higher value uses required of the water bodies.

Box 6.3: Transfer objectives for confined aquifers in the water allocation plan for the Tintinara Coonalpyn prescribed wells area

- To prevent loss of biodiversity and to protect local and regional ecological processes dependent on underground water from significant degradation, arising from the taking and use of underground water from the confined aquifer.
- To ensure that the management, taking and use of underground water from the confined aquifer protects the environment and prevents and/or addresses significant degradation of any other resource including soil, water and vegetation.
- To promote the efficient use of water according to industry best practice standards.
- To manage the confined aquifer underground water resource in a cautious manner so that it may continue to be utilised by future generations and is available for stock and domestic supply.
- To provide flexible and fair access to the confined aquifer.
- To encourage and expedite an active water market so that water allocations are readily available for future economic development.

Source: South East Catchment Water Management Board (2003)

The transfer of a licence and all or part of the water allocation attached to the licence is subject to Ministerial approval. All parties having a registered interest in the licence must be notified of an application to trade before the Minister can grant approval. The Minister may direct that an expert (approved or appointed by the Minister) undertake an assessment of the effect of granting the application. In reaching a decision, the Minister must ensure that:

- the transferred allocation and conditions placed on the licence are consistent with the relevant water allocation plan; and
- the trade is in the public interest.

The Minister may reduce the allocation or vary the conditions of the transferred licence before approving the trade. The Minister's decision may be appealed.

Trading to date

South Australia was the first State to introduce formal trade in water entitlements. Trade is concentrated in the River Murray, though there is also significant trade, mostly in groundwater, in other areas such as the northern Adelaide plains. Data on trading for selected areas of South Australia for 2002-03 are shown in table 6.2.

Trade may be temporary (for short or long terms) or permanent. In the River Murray, most trade occurs through temporary transfers. In 2002-03, temporary transfers accounted for over 80 per cent of the volume traded in the River Murray. In several other areas, permanent trade exceeds temporary trade. In 2002-03, for example, permanent trade accounted for almost 60 per cent of the total volume traded in the northern Adelaide plains, and for over 90 per cent in the Mallee.

Table 6.2: Water trading in selected areas, South Australia, 2002-03

<i>Region</i>	<i>Temporary transfers (no.)</i>	<i>Volume of temporary transfers (ML)</i>	<i>Permanent transfers (no.)</i>	<i>Volume of permanent transfers (ML)</i>	<i>Volume of total transfers (ML)</i>
Barossa	3	118	32	505	623
Mallee	2	86	4	1 039	1 125
Northern Adelaide Plains	57	2 295	94	3 295	5 590
Padthaway	2	219	2	154	373
River Murray	410	68 809	217	14 912	83 721

Source: www.dwlbc.sa.gov.au/water/trading

While South Australia did not provide recent price information, the State Water Plan released in late 2000 reported indicative water prices for permanent trade in the River Murray and South East Groundwater regions ranging from A\$800 to A\$1200 per megalitre. The plan noted that prices could be five times this in areas of shortage where high value crops are grown. Overall, prices had doubled over the previous decade (South Australia 2000).⁴

⁴ In practice, the buy and sell advertisements on South Australia's water trading noticeboard web site generally do not indicate prices, stating only that price is negotiable.

Changes in the regulatory environment since 2001

South Australia advised that there have been no significant changes to the legislative and institutional arrangements for water trading since previous NCP assessments.

The Department of Water, Land and Biodiversity Conservation recently launched a web site to promote water trading. The web site is aimed at facilitating water trading in all areas of South Australia through the provision of up-to-date, as well as historical, water trading market information. The market information on the web site is updated daily. The web site also provides a mechanism for buyers and sellers to make initial contact. It includes a water trading noticeboard for potential traders to place 'wanted to buy' and 'for sale' advertisements detailing volumes, prices and contact information.

Discussion

Under the CoAG water reforms, the objective of water trading is to ensure water is used to maximise its contribution to national income and welfare, subject to the social, physical and ecological constraints of catchments.

In the 2001 NCP assessment, the Council indicated it was satisfied that water rights in South Australia are sufficiently specified to enable efficient trade. Licences are issued in perpetuity and are separate from land title. In most regulated systems, the irrigation authority holds the water-taking allocation and provides a share of this allocation to individual irrigators. This entitlement is freely transferable within the scheme and able to be traded outside the scheme through the authority. Outside the regulated systems, water licences are vested in the end users and are specifically recognised as personal property. The register of water rights includes provision for the registration of third party interests. Registered third parties must be notified, and have an opportunity to object, before the Minister can approve a trade. South Australia's provision for water 'holding' allocations allows financial institutions to more easily obtain ownership of a water right in the case of default.

South Australia's trading arrangements contain a range of measures to protect the water rights of other users and the environment. In approving trades, the Minister must take into account the relevant water allocation plan and the broader public interest. For longer term trades, approval to use the traded water is also subject to the completion of an Irrigation Drainage and Management Plan, with the water purchaser obliged to offset any salinity impacts over time.

Permanent and temporary water trading in South Australia is undertaken through a variety of mechanisms including private trades, brokers and water

exchanges (including the Central Water Exchange operated by the Central Irrigation Trust). The web site recently established by the Department of Water, Land and Biodiversity Conservation will improve the availability of water market information throughout the State and facilitate contact between buyers and sellers. While South Australia has not provided data on the timeliness of trade, the provision for 'holding' allocations allows water to be traded without the usual delays for environmental and other clearances associated with a 'taking' allocation.

Trade out of irrigation districts

The main outstanding water trading issue identified by the Council in previous NCP assessments is the limit on the volume of water that may be permanently transferred out of some irrigation districts. In particular, the Council identified the Central Irrigation Trust's 2 per cent cumulative limit on the proportion of entitlements that can be permanently traded out of the trust's districts as a significant constraint on trade. South Australia advised that the trust also has a limit on permanent transfers from a property of 25 per cent of the landholder's original water allocation. As noted above, there are reports of other trading restrictions, including on temporary trade out of districts in the Central Irrigation Trust and on permanent trade out of districts in other trusts (Hassall and Associates 2002).

At the time of the 2002 NCP assessment, South Australia reported that the 2 per cent cumulative limit on permanent transfers out of irrigation districts had been reached for approximately 25 per cent of allocations held by the Central Irrigation Trust. The limit had been reached in five of the smaller irrigation districts in the trust's area (each with less than a 5 gigalitre allocation). The three districts holding the majority of the water (20 gigalitres or more per district) had not reached their 2 per cent cumulative limit. South Australia did not provide more recent data. As demonstrated by five of the districts having reached the 2 per cent cumulative limit, the arrangements constrain South Australia's capacity to fully achieve CoAG objectives, although the scope for long-term temporary trade may mitigate the effect of the limit on permanent trade (provided there is no similar restriction on temporary trade in the Central Irrigation Trust).

The Council understands that the trusts developed the limits on trading in response to concern that trade out of a district may result in adverse outcomes including: the diminution of local production and regional economies; a reduction in the rate base for local governments; the loss of economies of scale; and the potential 'stranding' of irrigation infrastructure. South Australia advised that, while the restrictions may have been established initially to limit the rate of change, more recently trust members have imposed trading limits because of concerns about the environment and future uncertainty about the amount of water available for extraction associated with implementing the 'Living Murray' initiative. South Australia also advised that the Central Irrigation Trust's 25 per cent limit on transfers

from individual properties and other internal rules were developed to reflect the operational constraints of running the irrigation infrastructure efficiently.

No legislative or regulatory limits on trade out of the irrigation districts are imposed by the South Australian Government. The trading rules are set by the irrigation trusts (not by the Government). The trusts are private entities, run by a board consisting of elected irrigators. Nevertheless, the CoAG water agreements place responsibility on the South Australian Government to facilitate trading to enable water to be used to maximise its contribution to national income and welfare, where socially, physically and ecologically sustainable. This qualification does not provide a justification for constraining trade, unless there is rigorous evidence to demonstrate that this would provide a net public benefit and is necessary to achieve the trust's objective: the CoAG agreements clearly oblige governments to encourage trading in water. Moreover, the obligation to devolve irrigation scheme management requires that governments establish appropriate regulatory frameworks for local management. To be effective, such frameworks need to include the ability for governments to require change within the irrigation schemes where CoAG objectives are not being met.

As indicated by South Australia, the Murray–Darling Basin Commission is currently undertaking work on trading restrictions, in consultation with governments, in the context of facilitating interstate trade. The consultancy undertaken for the commission considered several alternatives to restrictions on trade out of districts including exit fees, pricing reforms, long-term contracts and, as an interim strategy, annual limits on trade (Hassall and Associates 2002) (see chapter 10). The commission's work may shed light on the feasibility of using less restrictive alternatives, to the current limits on outward trade, to achieve the objectives of the Central Irrigation Trust.

South Australia advised that the Central Irrigation Trust indicated it would consider implementing exit fees if it was forced to relax the trading limits for its districts. According to South Australia, the trust estimated that exit fees could be up to A\$1500 per megalitre for some districts because of the high cost of infrastructure. The trust considers this would effectively prevent any trade out of its districts given the market price of water is less than A\$1000 per megalitre. South Australia did not provide information to enable the Council to verify the trust's estimates.

Trading provisions in water allocation plans

At the time of the 2002 NCP assessment, South Australia had completed almost all of the water allocation plans associated with its original implementation program but was developing plans for several more recently prescribed areas (see section 6.2). South Australia needs to ensure that as further water allocation plans are progressively completed, and as existing plans are reviewed, the trading provisions in the plans facilitate trading where it is socially, physically and environmentally sustainable.

The Council considered the trading provisions in the two most recently completed plans for the River Murray prescribed watercourse and the Tintinara Coonalpyn prescribed wells area. In both plans, the trading provisions are directed at facilitating trade in a manner that maximises economic benefits while protecting the environment and the interests of other water users. The plans do not appear to contain provisions that conflict with CoAG water trading obligations.

In the 2001 NCP assessment, the Council noted that ‘reduction factors’ on water allocations that are traded had been mooted as a mechanism to reduce allocations in some areas to a more sustainable level. Under such an arrangement, the transfer results in the volume of water allocations acquired by the buyer being less than the volume sold (by the amount of the reduction factor). This approach was proposed, for example, in the draft water allocation plan for the northern Adelaide plains prescribed wells area. Based on its examination of the final plan, however, the Council noted at that time that reduction factors were not applied.

In commenting on changes to trading rules, the South Australian Government stated that:

Of note are the reductions in the volume of allocations when water is traded in the McLaren Vale and Northern Adelaide Plains Prescribed Wells Areas. (Government of South Australia 2003, p. 55)

South Australia subsequently provided further clarification.

- In the northern Adelaide plains, reduction factors have applied to transfers of allocations since 1984. From early 2002, permanent and temporary transfers have been subject to a 20 per cent reduction in the total volume of water allocations transferred.⁵ Previously, only permanent transfers were subject to reductions (generally 10 per cent for commercial irrigation and 70 per cent for other uses). The water allocation plan does not include details of the reduction. The condition on the transfers is applied at the discretion of the Minister. Water licensees were advised of the current reductions by correspondence from the department in early 2002.
 - South Australia advised that, while the groundwater resources in the area have been identified as overallocated, a number of factors (including the recent completion of the Virginia pipeline scheme, which takes significant volumes of treated waste water to the area) meant that proportional reductions were not applied across all licences. South Australia considers that the application of reduction factors to

⁵ At the completion of a temporary transfer, the 20 per cent of water allocations retained by the Minister are returned to the licence holder. Transfers within families, between partners in a partnership, or within the same entity are generally not subject to the reduction. The reduction may be waived where the transfer results from the sale of land.

transfers has a smaller impact on existing operations. It intends to continue these arrangements to reduce the demand on groundwater as a precaution.

- In McLaren Vale, under the water allocation plan, licences were transferred from an area basis to a volumetric basis. As a transitional measure, the plan provides additional water for crops that require more water (per hectare) than grapevines. (The additional water is only a small proportion of the total water allocated, as the area is mostly a grape-growing district.) A reduction factor is applied to transfers of water allocations from use on other crops to grapevines (including where the existing licensee switches to growing grapevines).
 - South Australia considers that the reduction factor applied in McLaren Vale returns a licence to its intended volumetric entitlement and, as such, has no adverse impact on trade.

As the Council noted in the 2001 NCP assessment, reduction factors on traded allocations effectively tax trade and have the effect of limiting water trade rather than water use. Reduction factors on traded allocations are, therefore, likely to be inconsistent with CoAG trading obligations. As the reduction factor in McLaren Vale is intended as a transitional measure and affects only a small proportion of water allocations, it is likely to have only a small effect on trade. South Australia advised that there were 158 water trades (18 per cent of licensees), totalling 5.8 gigalitres (22 per cent of the resource), in the northern Adelaide plains in 2002-03. While significant trade in the area is occurring, it seems likely that the reduction factor is restricting trade at least to some extent. Alternatives to reducing allocations upon transfer include the Government reducing allocations for all water licence holders in an area by a uniform percentage and/or buying allocations in the market. These alternatives are likely to be more effective in reducing water use to a more sustainable level without adversely affecting trade.

Assessment

The limits on trade out of South Australia's irrigation districts represent a significant constraint on both intrastate and interstate trade, and appear to be inconsistent with CoAG obligations. Under the CoAG agreements, it is the responsibility of the South Australian Government to ensure the limits are removed or to demonstrate that they are in the public interest.

Despite the existence of the constraint on water trading, the Council considers that South Australia made sufficient progress against its CoAG obligations on water trading for the 2003 NCP assessment. In the 2004 NCP assessment, however, the Council will look for substantive progress by South Australia towards removing the limits or replacing them with a less restrictive alternative. As a first step, South Australia should pursue removal of the limits, or their replacement by less restrictive measures, through

consultation with the Central Irrigation Trust, accounting for the work being undertaken by the Murray–Darling Basin Commission.

The Council will revisit the trading provisions in the water allocation plans in the 2004 NCP assessment. South Australia will need to demonstrate that the trading provisions — including the ‘reduction factors’ on water allocations that are traded in some areas — facilitate trading, where it is socially, physically and environmentally sustainable, consistent with CoAG obligations. The Council will also expect South Australia to report on the timeliness of trading approvals to confirm that the approval process is not a constraint to trade.

6.4 Institutional reform

Structural separation

Assessment issues: As far as possible, the roles of water resource management, standard setting and regulatory enforcement and service provision are to be separated institutionally. In the 2001 and 2002 NCP assessments, the Council raised concerns about the extent of separation of service delivery and price setting, given the Minister for Government Enterprises is the owner of SA Water and has the power to set prices. The lack of transparency in South Australia’s price determination process meant the Council could not be confident that pricing appropriately reflects CoAG pricing principles (and would do so in the future). The lack of transparency exacerbated the Council’s concerns about pricing-related aspects, including the possibility of cross-subsidies and possible unintended impacts resulting from SA Water being required to pay dividends that exceed 100 per cent of its after tax profits.

Next full assessment: The Council will assess South Australia’s implementation of the CoAG obligations on structural separation relating to the water industry again in 2004. The Council will conduct a full assessment across the entire package of reforms in 2005.

Reference: CoAG water reform agreement, clauses 6(c) and 6(d)

As discussed in urban water and wastewater pricing (section 6.1), the South Australian Cabinet determines SA Water’s water and wastewater prices on the recommendation of the Minister for Government Enterprises. Performance targets for SA Water (set out in its Charter and Performance Statement) are determined by the Minister for Government Enterprises and the Treasurer. The Cabinet considers SA Water’s capital works program and funds work that it considers to be necessary.

Unlike most other jurisdictions, SA Water’s prices and service standards are not the subject of independent regulation. There is no publicly available documentation detailing the decisions taken by the Cabinet and the supporting reasoning. As discussed in section 6.1, the South Australian Government has, however, undertaken to publish an annual transparency

report on SA Water's water and wastewater pricing and its relationship to the CoAG pricing principles.

Discussion and assessment

The lack of transparency in the price setting and related arrangements for SA Water makes it very difficult for the Council to be confident that pricing decisions are consistently based on the principles in the CoAG water reform agreement. In previous assessments, the Council indicated that this concern would be addressed if South Australia were to place responsibility for advising on water and wastewater pricing and service regulation with an independent body and/or conduct a public price-setting process. Under such an arrangement, the independent body or public price-setting process would recommend on SA Water's prices (determining the level of revenue for SA Water based on efficient resource pricing and business costs) and release a public report containing its recommendations. The Government could then respond publicly to that report and outline its rationale where it adopts an approach that diverges from that recommended.

South Australia's current arrangements do not satisfactorily address the structural separation obligations. The Government's proposed annual transparency reports on SA Water's water and wastewater pricing and the relationship of pricing decisions to the CoAG pricing principles will, however, help to address the Council's questions about the extent of separation in decision making on pricing and service delivery matters.

Devolution of irrigation scheme management

Assessment issue: Constituents are to 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.

In the 2002 NCP assessment, the Council reported that South Australia had established the Loxton Irrigation District as a private irrigation district and was progressing the devolution of management in the remaining Government irrigation districts — the nine districts in the Lower Murray Reclaimed Irrigation Areas.

Next full assessment: The Council will assess institutional reform in 2005 as part of a full assessment across the entire package of water reforms.

Reference: CoAG water reform agreement, clause 6(g)

In the 2002 NCP assessment, the Council reported that South Australia had established the Loxton Irrigation District as a private irrigation district. It was also progressing the devolution of management in the remaining Government irrigation districts, in the Lower Murray Reclaimed Irrigation Areas. The South Australian Government owns and operates nine of 24 irrigation schemes in the lower Murray, representing 70 per cent of the irrigation areas.

The Government completed a major study of options for improved management and rehabilitation in the Lower Murray Reclaimed Irrigation Areas in June 2001. The study concluded that the preferred option is rehabilitation of the most viable parts of the irrigation areas after restructuring the dairy industry. (Further details of the study are reported in section 6.7.) During 2002-03, the Government approved the study's preferred option. To assist with restructuring and rehabilitation works, the Government is providing financial assistance to eligible landowners. For irrigators in the Government irrigation districts, the conversion of the district into a private irrigation district is a condition of accepting the financial assistance for infrastructure rehabilitation. The Government expects assistance for rehabilitation to commence in late 2003-04.

The conversion of the Government irrigation districts into private irrigation districts will require the establishment of an irrigation trust (or several trusts). The owners of irrigated properties become members of the trust and jointly make decisions about the management of the irrigation district. Irrigation and drainage infrastructure assets will be transferred to the trust (including land occupied by drainage pump stations and existing supply and drainage channel reserves). The trust will be responsible for the operation, maintenance and future replacement of the infrastructure. Levee banks and waterfront land will remain Government owned.

Discussion and assessment

South Australia has made significant progress in developing arrangements for devolving management in the remaining Government irrigation districts, in the Lower Murray Reclaimed Irrigation Areas. By making assistance for infrastructure rehabilitation in Government irrigation districts conditional on conversion into a private irrigation district, the Government has provided a financial incentive for the conversion to occur.

The Council is satisfied that South Australia continues to meet its CoAG obligations on the devolution of irrigation scheme management. It will consider South Australia's progress with devolving management in the Lower Murray Reclaimed Irrigation Areas in the 2004 NCP assessment. The Council will look for South Australia to retain appropriate regulatory arrangements to ensure the restrictions on water trading out of other irrigation districts (see section 6.3) are not extended to the Lower Murray Reclaimed Irrigation Areas.

Integrated catchment management

Assessment issue: South Australia is to:

- develop administrative arrangements and decision-making processes to ensure an integrated approach to natural resource management;
- adopt 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; and
- support the consideration of establishing land care practices that protect areas of rivers that have a high environmental value or are sensitive for other reasons.

In the 2001 NCP assessment, the Council was satisfied that South Australia was meeting its 2001 obligations in relation to integrated catchment management, but raised concerns about the pace of reform in parts of the State. The Council found that South Australia had met commitments in this area for the 2002 assessment.

Next full assessment: In 2004, the Council will assess South Australia's progress in enacting its proposed reforms to reduce the administrative complexity of natural resource management. The Council will conduct a full assessment across the entire package of water reforms in 2005.

Reference: CoAG water reform agreement, clauses 6(a), 6(b), 8(b) and 8(c)

South Australia is moving to integrate its natural resource management arrangements. Currently, the State has separate arrangements for catchment management and integrated natural resource management (INRM) planning. In July 2003, the Government released a draft consultation Bill to merge legislative and administrative arrangements for these processes.

Catchment water management plans

The *Water Resources Act 1997* provides for the sustainable management of South Australia's water resources through an integrated hierarchy of water plans under an overarching State Water Plan (completed in 2000). At the regional level, the Act provides for statutory catchment management water boards to develop and implement catchment water management plans for designated areas. The plans establish programs to monitor and improve the health of ecosystems.⁶ The boards' activity is primarily funded through land-based and water-based levies, supplemented by State Government appropriations and funding under the National Action Plan for Salinity and Water Quality and the Natural Heritage Trust extension.⁷

⁶ Water allocation plans, which are subsets of the catchment plans can provide legal protection of environmental water needs through the licensing of water use.

⁷ The Commonwealth Government extended the Natural Heritage Trust to 2006-07 in the May 2001 Budget. The implementation framework was endorsed in October 2002

South Australia has eight catchment areas, covering 95 per cent of the State. The Government adopted catchment management water plans for six catchments, while plans for the arid areas and Eyre Peninsula are not expected until 2004. Table 6.3 details the status of the various plans.

Table 6.3: Catchment water management plans in South Australia

<i>Catchment board</i>	<i>Status</i>
Torrens	Adopted May 2002
Patawalonga	Adopted May 2002
River Murray	Adopted March 2003
Northern Adelaide and Barossa	Adopted March 2001
Onkaparinga	Adopted December 2000
South East	Adopted May 2003
Arid areas	Plan initiated; adoption not expected until 2004
Eyre Peninsula	Plan initiated; adoption not expected until 2004

Source: Government of South Australia 2003

The catchment framework provides for close coordination of water quality and water quantity issues. In particular, the catchment boards are responsible both for water allocation planning and qualitative issues associated with water management planning, including revegetation and erosion control in riparian zones, and structural works. More generally, all water resource management decisions must comply with the State Water Plan 2000, the relevant water allocation plan and the relevant catchment management water plan.

In accord with the Act, the South Australian Water Resources Council reviewed the implementation of catchment management water plans in 2002. The review demonstrated that the boards are achieving, or working towards achieving the objectives set out in the plans. It found that a large number of on-ground works are established and that measurable improvements in water resource condition are emerging. The review report cited initiatives in wetland management, stormwater pollution management and riparian restoration (WRC 2002a, pp. 68–70). It also made recommendations to improve administrative efficiency and win stronger community support for water resource management (WRC 2002a, pp. 21–22). The catchment management water boards are required to account for the review recommendations.

by the Natural Resource Management Ministerial Council and State, Territory and Commonwealth Ministers. A significant focus is on measures to improve water quality.

Integrated natural resource management

South Australia signed a bilateral agreement with the Commonwealth Government to implement the National Action Plan for Salinity and Water Quality in June 2001,⁸ and the Natural Heritage Trust extension in April 2003. To facilitate its participation in these initiatives, South Australia established eight regional groups to develop INRM plans and investment strategies. The eight groups are established administratively and are incorporated bodies. Membership comprises stakeholder organisations, government and the community. Some groups are largely skills based, while others are representative. The boundaries of INRM regions correspond to those designated under the national action plan and Natural Heritage Trust extension, but differ from the areas designated under catchment management water plans.

INRM plans for the five regions designated under the national action plan are nearing completion. The plan for the Mt Lofty Ranges and Greater Adelaide region has been formally accredited by the Commonwealth and South Australian governments. Plans for the Northern and Yorke agricultural district, Kangaroo Island, the South Australian Murray Darling Basin and the South East have been submitted for accreditation following extensive consultation in their respective regions. South Australia expects the plans to be accredited by December 2003. The five regions are also well advanced in the development of investment strategies⁹ under their INRM plans. The Mt Lofty Ranges and Greater Adelaide group has released an advanced draft for public consultation. All five regions have undertaken to submit investment strategies for accreditation by 30 September 2003.

The three remaining regions (not funded under the national action plan) are less well advanced, but have received funding from the Natural Heritage Trust extension to commence work on their INRM plans. South Australia has set milestones for these groups to submit their INRM plans and investment strategies by February 2004.

The regional groups are drawing on the National Framework for Natural Resource Management Standards and Targets 2002 in developing their INRM plans, to the extent that appropriate data, scientific knowledge and expertise within the groups are available. The South Australian Government supports the INRM groups through measures that include foundation funding, Government agency representation on each group, guidance on the form and content of the INRM plans and investment strategies, workshops, and support from regional coordinators.

⁸ Negotiations on implementation of the plan were continuing in 2003, including on funding of investment strategies for the INRM plans.

⁹ The investment strategies are the basis for funding under the national action plan and Natural Heritage Trust extension.

Reform of natural resource management arrangements

South Australia has been refining its legislative and administrative arrangements for natural resource management for a number of years. The 2002 review of the Water Resources Act found a strong case for better coordination. The review stated:

The issue of consistency between the plethora of natural resource management plans, strategies and agreements which currently exist, highlights the need for INRM arrangements to be expedited. Rather than a number of processes which result in the preparation of numerous plans relating to the management of natural resources and requiring that they be consistent with each other — which gives rise to issues of precedence — a serious effort at the coordination of natural resource management planning processes is required. This is expected to be the outcome of the new natural resource management arrangements currently being developed. (DWLBC 2002a)

A recent natural resource management newsletter made a similar point, stating:

natural resource management has become synonymous with a myriad of natural resource management groups, plans, projects and offices which is creating confusion. (DWLBC 2003b)

The previous State Government released a draft consultation Bill on INRM reform in February 2001. The Bill lapsed in Parliament leading up to the 2002 State election. The new Government then released a discussion paper, *New directions in natural resource management*, in November 2002 and a draft Natural Resource Management Bill for public consultation in July 2003. Workshops are being held in 18 locations across the State, after which the Bill will be redrafted. South Australia expects the Natural Resource Management Act to be proclaimed in early 2004 (DWLBC 2003a).

The Bill proposes to bring together three Acts: *the Animal and Plant Control (Agricultural Protection and Other Purposes) Act 1986*, *Soil Conservation and Land Care Act 1989* and *Water Resources Act 1997*. The Bill would also merge the State's eight catchment management water boards and 56 soil, animal and plant control boards with the eight INRM groups to form eight new regional natural resource management boards (DWLBC 2003b). South Australia proposes to establish the boards in regions based on the current water catchment areas.

Under the proposed reforms, the Minister for Environment and Conservation would be responsible for the overall direction of natural resource management. A coordinating natural resource management council would provide strategic advice to the Government, periodically review the regional natural resource management plans and prepare a State natural resource management plan to coordinate planning.

The natural resource management boards and local groups operating at the subregional level would assume many responsibilities currently undertaken by the catchment management water boards, regional INRM groups and other bodies. In particular, the natural resource management boards would develop and implement natural resource management plans that take into account existing:

- catchment water management plans and water allocation plans;
- soil conservation and management plans;
- animal and plant control management processes; and
- INRM plans and investment strategies.

The boards will review the plans, policies and strategies that the catchment management water boards and INRM groups developed (or are developing) under current arrangements, and incorporate them as appropriate into natural resource management plans under the new framework (DWLBC 2003c, p. 4). Amalgamation of these plans will not occur until the new system is in place.

The Government took the following preliminary steps to implement the proposed reforms.

- It established an Environment and Conservation portfolio to bring together major natural resource management agencies, and a Department of Water, Land and Biodiversity Conservation within that portfolio.
- It established a central interim natural resource management council, made up of representatives from major natural resource management organisations. The interim council is working with existing catchment, regional and local bodies to develop INRM arrangements and advise the Government on developing and implementing the new arrangements. The membership and functions of the interim council will be revisited once arrangements for natural resource management are finalised.
- It established a natural resource management integration taskforce and project team to support the natural resource management council in developing and implementing policy and legislation. The taskforce comprises senior officers from the Department of Water, Land and Biodiversity Conservation, the Department for Environment and Heritage, and Primary Industries and Resources SA. It is directed by a project steering committee comprising the chief executives of the first three departments, the executive director of Planning SA, and the chair of the natural resource management council (Government of South Australia 2002, p. 4).

South Australia developed its proposed model, including the operation and composition of the natural resource management council and the boards, for consistency with the accreditation requirements of the national action plan and the Natural Heritage Trust extension.

Salinity

Salinity is a major and growing issue for South Australia. The National Land and Water Resources Audit 2000 estimated that South Australia has 390 000 hectares affected by dryland salinity, which could grow to 6 million hectares by 2050 (NLWRA 2001). Groundwater is too saline for irrigation in most of the South Australian Murray–Darling Basin. The Murray–Darling Basin Commission’s salinity and drainage strategy has reduced river salinity in the River Murray, but the problem remains serious.

The South Australian Government formed the State Salinity Committee in 1999 to progress State salinity action. The Committee oversaw the development of the Directions for Managing Salinity in South Australia statement, the South Australian River Murray Salinity Strategy 2001–2015 and a draft State Dryland Salinity Strategy.

At the regional level, salinity issues are addressed through a range of mechanisms, including catchment plans developed by the catchment management water boards, the work of soil conservation boards, and legislation controlling native vegetation clearing. The INRM groups also develop and implement regional plans and investment strategies that address salinity issues under the national action plan. South Australia’s Natural Resources Management Bill 2003 proposes to progressively shift the responsibilities of these bodies to regional natural resource management boards from 2004 (see above).

The River Murray Salinity Strategy 2001–2015 establishes a partnership arrangement with the River Murray Catchment Management Water Board to determine investment priorities in salinity management. Within this framework, local action plans will address subcatchment issues. The strategy sets time-based targets as a means of measuring and reporting progress. Implementation will be supported through funding under the national action plan. To ensure continued funding, South Australia will explore market mechanisms including salinity credit trading.

Land care

Landcare began as a formal movement in South Australia in 1990 and has developed to involve approximately 300 Landcare groups, consisting of people from Indigenous and ethnic communities, farmers and pastoralists, urban and rural community groups. The groups work in partnership with government, industry, schools and their communities on projects addressing issues of dryland salinity, erosion, reduction in biodiversity, feral animals,

weeds, and marine and coastal issues. Landcare groups are funded from sources that include the Commonwealth Envirofund, the Natural Heritage Trust extension, and the national action plan. Some Landcare groups receive funding and support from catchment water management boards to progress priority actions in their catchment water management plans.

Other programs

South Australia supported the development of river management plans for 11 catchments. Nine of the plans are completed and the remaining two are being edited. The plans, which comprise actions to protect and/or rehabilitate rivers, were developed with community input. Their actions focus on erosion control, riparian revegetation, water quality improvement and biodiversity conservation. Catchment water management boards have drawn on the plans to develop catchment plans, through which funding has been acquired to protect and rehabilitate rivers. Landcare groups have also used the plans to attract funding for river works.

In the few areas in South Australia without a catchment water management board, soil conservation boards have taken an active role in improving land and riparian management practices to reduce adverse impacts on watercourses, and to protect areas of high environmental values.

Discussion

South Australia continues to progress in implementing integrated catchment management. Developments since the 2001 NCP assessment include:

- the finalisation and adoption of six catchment management water plans, including the River Murray and South East plans in 2003;
- a review by the Water Resources Council of the implementation of catchment management water plans;
- significant progress in the development of INRM plans and investment strategies by the regional INRM groups;
- bilateral agreements with the Commonwealth Government on the national action plan and Natural Heritage Trust extension;
- the release of a discussion paper on natural resource management reform in November 2002 and a draft Bill in July 2003, with a view to proclaiming the Natural Resources Management Act in early 2004; and
- preliminary steps towards implementing natural resource management reform, including the establishment of the Department of Water, Land and Biodiversity Conservation, a central natural resource management council and a natural resource management integration project taskforce.

While six of the catchment management water plans are finalised, the State has been slower in developing plans for the arid areas and Eyre Peninsula. In addition, one INRM plan was published, but most are still in development. To some extent the pace of INRM planning may reflect (1) the continuing negotiations on the national action plan and Natural Heritage Trust extension into 2003, and (2) the INRM framework's focus on developing plans and investment strategies under the national frameworks.

The administrative inefficiencies of the concurrent operation of multiple natural resource management and related frameworks have been widely identified by stakeholders in South Australia and acknowledged by the Government. The Natural Resources Management Bill 2003, currently released for consultation, proposes to improve coordination by consolidating the 72 regional groups involved in natural resource management into eight natural resource management boards.

Assessment

The Council is satisfied that South Australia:

- is developing appropriate administrative arrangements and decision-making processes to ensure an integrated approach to natural resource management;
- adopted an integrated catchment approach to water resource management, and set in place arrangements to consult with local government and the wider community in individual catchments; and
- recognises the need to continue to improve the legislative and administrative framework for natural resource management in the State.

Moreover, the natural resource management framework in South Australia appears to facilitate the consideration of, and support for, land care practices to protect rivers with high environmental values.

The review of the Water Resources Act found that the reform of administrative arrangements for natural resource management should be progressed as a matter of urgency. In accord with the milestones published by South Australia, the Council would expect the reforms to be in place by early 2004. In the 2004 NCP assessment, the Council will consider South Australia's progress in enacting its proposed reforms to reduce the administrative complexity of its natural resource management arrangements.

6.5 National Water Quality Management Strategy

Assessment issue: South Australia is to demonstrate a high level of commitment to the ongoing implementation of the objectives of the National Water Quality Management Strategy (NWQMS), including action (through market-based and regulatory measures, water quality monitoring, catchment management policies, town wastewater and sewage disposal, and community consultation and awareness) to achieve the agreed objectives.

In the 2001 NCP assessment, the Council found that South Australia was meeting its NWQMS obligations for 2001, but raised concerns about the State's lack of progress in implementing the Environment Protection (Water Quality) Policy. In the 2002 NCP assessment, the Council found that South Australia had not met its outstanding commitment to implement the policy, but accepted the Government's reasons for the delay. The Council stated that if the policy was not in place for the 2003 NCP assessment, then the Council would account for this noncompliance in its NCP payments recommendations. The Council also stated that the Government should have released, by 2003, draft modules for public consultation, showing the proposed implementation of specific guidelines for freshwater and marine water quality, drinking water, and water quality monitoring and reporting.

Next full assessment: The Council will conduct a full assessment across the entire package of water reforms in 2005.

Reference: CoAG water reform agreement, clauses 8(b) and 8(d)

Environment Protection (Water Quality) Policy

South Australia gazetted the Environment Protection (Water Quality) Policy (hereafter called the Water Quality Policy) on 10 April 2003, to commence from 1 October 2003. The policy is a legislative instrument under the *Environment Protection Act 1993*. The Environment Protection Authority, which developed the policy, is producing supporting material due to be available on 1 October.

The State Water Plan 2000 originally required the Government to establish a water quality policy in 2000-01. South Australia deferred the development of the policy on a number of occasions, and reported in 2002 that development had taken longer than expected due to the public consultation required under the Environment Protection Act.

Prior to authorisation of the Water Quality Policy, South Australia lacked a consistent Statewide approach to the protection of water quality, particularly for inland waters. This posed the risk that the quality of South Australian waters would be degraded further, with economic, social (including public health) and environmental impacts (EPA 2003, p. v).

The Water Quality Policy applies to all inland surface water, groundwater and marine water. It covers:

- water quality objectives;
- the management and control of point sources of pollution;
- obligations relating to particular activities;
- management and control of diffuse sources of pollution;
- monitoring and reporting; and
- water quality criteria, discharge limits and listed pollutants.

Water quality objectives

Under the Water Quality Policy, water quality objectives are determined by:

- setting the environmental values that are required to be protected (protected environmental values);
- determining water quality characteristics that are important for these values;
- setting criteria for each characteristic that adequately protect each environmental value; and
- choosing the most stringent criteria for the environmental values applicable to each water body.

The Environment Protection Authority considers this process to be consistent with the approach set out in NWQMS paper no. 2: Policies and Principles. Under the Water Quality Policy, the protected environmental values considered for a particular body of water are the environmental values set out in the NWQMS framework: aquatic ecosystem, potable use, recreation and aesthetics, agriculture/aquaculture and industrial use. The policy sets default values that may subsequently be amended following a proposal from a stakeholder body such as a catchment management water board or INRM group. In assessing whether a default value for a particular body of water should be varied, the Environment Protection Authority is required to account for, where relevant, the Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 (NWQMS paper no. 4).

A water quality characteristic is a chemical, physical, microbiological or biological measure that can be used to describe water quality condition. Examples of characteristics include the pH level, salinity, faecal coliforms, chlorophyll, colour and turbidity. Water quality criteria are numerical values that have been set for each characteristic which, if not met, may prejudice the ability to achieve or maintain the designated environmental values.

The Water Quality Policy lists water quality criteria for each environmental value. The Environment Protection Authority adopted these criteria from

nationally accepted criteria, including those set out in NWQMS paper no. 4 and the Australian Drinking Water Guidelines 1996 (NWQMS paper no. 6); it may revise them in accord with revisions to the national criteria (EPA 2003, pp. 9–10).

In accord with the NWQMS framework, the Water Quality Policy adopts the national criteria as a starting point, but allows for criteria to be set at higher or lower levels for particular sites as appropriate to site-specific conditions. It may be appropriate in some instances to set more stringent criteria than those specified in the policy, so as to protect a particularly sensitive aquatic environment.

The water quality objectives that are adopted are the most stringent water quality criteria applicable for each characteristic across each protected environmental value.¹⁰ The Water Quality Policy makes it an offence to discharge waste into a water body if it results in these criteria being exceeded (or if the criteria are already exceeded, to be further exceeded).

Codes of practice and guidelines

The Water Quality Policy uses codes of practice and guidelines to describe how a person undertaking a particular activity can comply with their general environmental duty. South Australia adopts the NWQMS guidelines as a basis for these codes and guidelines, but makes some variations to meet local requirements. Environment Protection Authority codes and guidelines explicitly linked to the Water Quality Policy include the:

- the Code of Practice for Milking Shed Effluent (2003);
- the Code of Practice for Vessels on Inland Waters (2003);
- Guidelines for the Establishment of Intensive Piggeries in South Australia (1998);
- Guidelines for the Establishment and Operation of Cattle Feedlots in South Australia (1994);
- Guidelines for Major Solid Waste Landfill Depots (1998);

¹⁰ For example, suppose the protected environmental values for a water body are potable use and protection of the aquatic ecosystems. The water quality objective for say, arsenic, would be 0.007 mg/L as this is the lower of the two criteria values for arsenic (0.050 mg/L for aquatic ecosystem protection and 0.007 mg/L for potable water use). The criteria values are published at Schedule 2 of the Water Quality Policy. The policy makes it an offence to discharge waste into the water body that results in the concentration of arsenic in the receiving water exceeding 0.007 mg/L.

- South Australian Biosolids Guidelines for the Safe Handling, Reuse or Disposal of Biosolids (1996);
- South Australian Reclaimed Water Guidelines (1999);
- the Stormwater Pollution Prevention Code of Practice for Local, State and Federal Government Agencies (1997); and
- the Stormwater Pollution Prevention Code of Practice for the Building and Construction Industry (1999).

South Australia is developing additional codes or guidelines, including:

- a code of practice for aquifer storage and recovery (expected by October 2003);
- a code of environmental practice for pesticides (expected by March 2004); and
- a code of practice for wastewater system overflows (expected by December 2004).

Point source pollution

The Environment Protection Act provides for the licensing of larger industries' waste discharges that may have an impact on water quality. Smaller, unlicensed industries have been obliged to meet a general environmental duty of care under the Act but are not subject to the same constraints that apply to licensed industries. The Water Quality Policy goes beyond the general environmental duty by setting specific obligations for industries considered likely to have wastewater discharge. The listed activities include abattoirs, slaughter houses and poultry processors, milk processing works, septic tanks, tanneries and fellmongers, waste depots, applying antifoulants, extractive industries, milking sheds, piggeries, sewage treatment works, vessels on inland waters and wineries and distilleries.

Diffuse source pollution

The Water Quality Policy, through the development and implementation of best practice environmental management, aims to reduce and manage waste discharges from diffuse sources of pollution. The policy thus proposes the adoption of codes of practice or guidelines for a range of activities. The Environment Protection Authority intends to progressively develop, in conjunction with stakeholders, additional codes of practice or guidelines for particular activities where they can lead to improved outcomes for the environment.

Water quality monitoring

Several government agencies are involved in water monitoring and reporting in South Australia. The Environment Protection Authority undertakes ambient and point source pollution monitoring of surface water and groundwater. The Department of Water, Land and Biodiversity Conservation monitors flow, salinity and temperature of surface water and groundwater.

Following a number of water quality incidents in 1998, the Government established the State Water Monitoring Coordinating Subcommittee¹¹ to:

- review South Australia's water monitoring programs, and develop an integrated and cost effective Statewide water monitoring program that meets the legislative and business requirements of Government agencies;
- make recommendations to improve the accessibility of water monitoring data; and
- make recommendations for funding needs and responsibilities.

The subcommittee published a monitoring partnerships paper in December 2000 aimed at addressing overlaps in agency requirements. The paper also identified issues associated with monitoring programs. The paper was endorsed by agencies, as part of the State Water Monitoring Review.

The subcommittee is considering monitoring arrangements at both the State and regional (or catchment) level. A review of existing arrangements and the development of integrated monitoring strategies is under way on a regional basis. The subcommittee has completed the Integrated Water Monitoring Review of the Northern Adelaide and Barossa catchment area, and expects to complete similar work for the Western Mount Lofty Ranges by November 2003, Eastern Mount Lofty Ranges by February 2004, River Murray by October 2004, South East by 2006, and the staged initiation of regional review programs after July 2004 in the Northern and Yorke agricultural district, Kangaroo Island, Eyre Peninsula, arid areas and the Fleurieu Peninsula.

In addition, the subcommittee developed a database of current water research projects in South Australia. The database holds the details of approximately 300 research projects, which can be queried by project type and by regions.

¹¹ The subcommittee is made up of representatives from the Department of Water, Land and Biodiversity Conservation, Environment Protection Authority, SA Water Corporation, Department of Primary Industries and Resources, Department of Primary Industries and Resources – Fisheries, Department of Human Services Department of Transport, Urban Planning and the Arts – Planning SA, Department of Administrative and Information Services – Forestry SA, Catchment Water Management Boards and Local Government.

The database is maintained by the Department of Water, Land and Biodiversity Conservation.

The subcommittee completed a review of water resource management information in July 2003. The report provides an overview of water information according to the roles and responsibilities of key stakeholders, and identified gaps and overlaps in information. The review made recommendations to improve the collection, management and provision of water information.

The Department of Water, Land and Biodiversity Conservation has commenced a major upgrade of South Australia's surface water monitoring network, in line with early outcomes from the subcommittee's review of water monitoring requirements. Monitoring upgrades have commenced for the Onkaparinga and Marne rivers, the Mount Lofty Ranges and the Cygnet River on Kangaroo Island, with work in progress for the Torrens River, catchments flowing east to the River Murray, the southern Fleurieu Peninsula and the mid-north. Several of these monitoring upgrades rely on the cooperation of catchment management water boards and INRM groups. Monitoring reports on groundwater trends across the State are also being prepared (DWLBC 2002b). Other initiatives to improve water quality monitoring include a review by the Environment Protection Authority of the State Ambient Water Quality Monitoring Program. The review report is expected to be available in late 2003.

The Water Resources Council's *Report on the Implementation of the State Water Plan* (WRC 2002b) noted that South Australia had made little progress in developing an index of stream condition, which the report identified as a core indicator in evaluating implementation of the plan. The report stated:

There has been limited progress from the State on an Index of Stream Condition and no general agreement on what to measure, how, frequency, scale issues has been made. AusRivAS has good coverage but some areas have not been subject to regular assessments. This is a significant data gap which requires considerable development as little progress has been made (WRC 2002b, Annex 3, Indicator 14).

South Australia reported in 2003 that the Onkaparinga Catchment Water Management Board established a project through Land and Water Australia to develop an index of stream condition for its catchment. This will form a model for the development of an index of stream condition for the higher rainfall catchments elsewhere in the State.

Drinking water guidelines

The Department of Human Services, in consultation with the Standing Committee on Health Aspects of Water Quality (of which SA Water is a member) sets drinking water standards. The department oversees the performance of SA Water's drinking water quality monitoring program

according to agreed levels of service and the 1996 Australian Drinking Water Quality Guidelines (NWQMS paper no. 6). SA Water reports on the performance of metropolitan and country supply systems against the 1996 guidelines in its *Drinking water quality annual report* (SA Water 2002, available at www.sawater.com.au).

SA Water complied with the microbiological and physical/chemical requirements of the 1996 Australian Drinking Water guidelines in 2001-02 (WSAA 2003). A review of the Country Water Quality Monitoring Program, initiated in 2001-02, highlighted major monitoring gaps, so SA Water proposed to complete a more thorough review in 2002-03 (SA Water 2002).

Discussion

The Council raised concerns in 2001 and 2002 about South Australia's lack of progress in implementing its Water Quality Policy, which was originally proposed for implementation in 2000-01. The Council indicated that the Government should have released by 2003 draft modules for public consultation, showing the proposed implementation of specific guidelines for freshwater and marine water quality, drinking water, and water quality monitoring and reporting.

The gazettal of the Water Quality Policy in April 2003 and the policy's commencement in October 2003 are significant milestones in the State's implementation of the NWQMS. The policy establishes protected environmental values and water quality criteria for fresh and marine waters. These processes adopt methods set out in NWQMS papers 2, 4 and 6. South Australia has also introduced codes of practice that draw on several NWQMS guidelines on point source pollution.

Implementation of the Water Quality Policy underlines the importance of appropriate water quality monitoring arrangements. South Australia is reviewing regional monitoring arrangements, and has commenced upgrades in some areas. The State Water Monitoring Coordinating Subcommittee's review of water monitoring arrangements made a number of recommendations to improve the collection, management and provision of water information. The Environment Protection Authority's review of the State Ambient Water Quality Monitoring Program should provide further guidance on work needed in this area.

Assessment

The Council considers that South Australia made satisfactory progress for the 2003 NCP assessment in implementing policies that reflect the NWQMS guidelines. As part of its full assessment of water reform in 2005, the Council will consider South Australia's progress in water quality monitoring, including implementation of the recommendations of:

- the State Water Monitoring Coordinating Subcommittee's review of water monitoring arrangements; and
- the Environment Protection Authority's review of the State Ambient Water Quality Monitoring Program.

6.6 Water legislation review and reform

Assessment issue: South Australia is to have reviewed and, where appropriate, reformed all legislation that restricts competition. Completion of review and reform obligations is a key element of the 2003 assessment. Where a review and/or reform implementation are not complete (or an appropriate transitional path to reform is not in place), the Council will consider that the relevant government has not complied with National Competition Policy obligations. In the 2002 NCP assessment, South Australia was yet to implement the recommendations of several reviews of water industry legislation.

Next full assessment: This is the final assessment for legislation review and reform matters.

Reference: Competition Principles Agreement, clause 5

South Australia listed 14 water Acts for NCP review. It completed reviews of 13 of these, and approved repeal of the remaining Act (without review) to occur in October 2003. The reviews recommended repealing four Acts, three of which have been repealed. The Government has approved repeal of the fourth Act, scheduled to occur in September 2003.

Reviews did not recommend reform, or did not identify competition issues for nine Acts. Of these, reviews of the *Sewerage Act 1929*, *South Australian Water Corporation Act 1994* and *Waterworks Act 1932* found that the primary restrictions to competition and constraints on market entry arise from the inherent natural monopoly of relevant infrastructure rather than specific provisions of the legislation. The review considered that the majority of the identified restrictions to competition are appropriate in the context of the Acts' objectives, and found that there are net public benefits from their retention. While the review report identified a number of 'trivial and intermediate' restrictions and recommended some minor amendments, South Australia considered that existing arrangements adequately address the issues raised in the review report. Accordingly, while South Australia is reviewing the recommendations, the Government is not proposing legislative changes.

Assessment

South Australia has substantially advanced its review and reform program for water industry legislation, and will complete its program with the repeal of two Acts scheduled for later in 2003. With the repeal of the remaining two Acts, South Australia will meet review and reform obligations relating to the stock of water industry legislation.

6.7 Investments in new rural water schemes

Assessment issue: Investments in new rural water schemes or extensions to existing schemes are to be undertaken only after appraisal indicates the scheme or extension is economically viable and ecologically sustainable.

In the 2002 NCP assessment, the Council reported that South Australia was considering two rural water scheme proposals: for the supply of irrigation water to the Clare Valley and for the refurbishment of water supply infrastructure in the Lower Murray Reclaimed Irrigation Areas. A decision to proceed with the projects had yet to occur.

South Australia will need to demonstrate that the Clare Valley Water Supply Scheme, which proceeded during 2002-03, satisfies the CoAG tests of economic viability and ecological sustainability. South Australia also needs to report on the status of the Lower Murray rehabilitation project.

Next full assessment: The Council will examine investments made by the Government when the Government decides to proceed, to ensure that it has demonstrated that the project meets the tests of economic viability and ecological sustainability.

Reference: CoAG water reform agreement, clause 3(d)(iii)

At the time of the 2002 NCP assessment, South Australia was considering two rural water scheme proposals: for the supply of irrigation water to the Clare Valley and for the refurbishment of water supply infrastructure in the Lower Murray Reclaimed Irrigation Areas. A decision to proceed with the projects had yet to occur.

Developments since the 2002 NCP assessment

Clare Valley Water Supply Scheme

The Clare Valley Water Supply Scheme involves the transfer of up to 7.3 gigalitres per year of filtered and treated River Murray water via a pipeline to the Clare Valley. The project involves the construction of 83 kilometres of new pipeline, two pumping stations and a 4 megalitre water storage. The scheme has three main objectives:

- to provide reticulated water to the townships of Watervale, Penwortham, Sevenhill, Leasingham and Mintaro, and improve the supply to Clare and Auburn;
- to enable improved water supplies to other areas of the Mid-North region, particularly Yorke Peninsula; and
- to provide water to the Clare Valley region for irrigation and other bulk water purposes.

South Australia indicated that the initial impetus for the scheme was to provide township water supply and to augment the supply to other regions. It advised that the provision of irrigation water is necessary, however, to ensure the scheme is financially viable. The financial evaluation of the scheme assumes that over 95 per cent of the water will be used for irrigation. While initially expected to be undertaken by the private sector, the scheme proceeded as a SA Water project during 2002-03. Construction is expected to be completed in late 2003.

Ecological sustainability

SA Water engaged Resource and Environmental Management to assess the potential environmental effects of the transfer and use of the water. This environmental study was finalised in September 2002 (Resource and Environmental Management et al 2002). While noting that the project would increase the amount of water that enters the Clare Valley region via rainfall by less than 1 per cent, the study identified a number of potential environmental effects, including:

- waterlogging and drainage hazard formation — water use efficiencies exceeding 90 per cent are predicted to result in only small water table rises and a low to immeasurable impact (although in some locations water tables are close to the surface and even small rises would be problematic);
- increased stream baseflow and baseflow salinity in the vicinity of new and existing irrigation — while 90 per cent water use efficiency is expected to contribute only slightly to stream baseflows, baseflow salinity may increase;
- the salinisation of the groundwater resource as a result of the increased salt load from importing River Murray water;
- the release of chloraminated water (from the water treatment process) to the environment;
- disruption to the environment from the pipeline construction works; and
- ecosystem impacts resulting from changes to the water balance and salinity levels, including potential threats to the endangered Spalding blown-grass and the vulnerable Krefft's tiger snake, which may require

the project to be referred to the Commonwealth Minister for the Environment and Heritage for approval under the *Environment Protection and Biodiversity Conservation Act 1999*.

The study concluded, however, that importing River Murray water into the Clare Valley region for use in irrigation can be managed to avoid adverse environmental effects. To ensure this outcome, the study identified several issues that would need to be addressed, including:

- increasing the awareness of growers of the opportunities and threats associated with using River Murray water for irrigation;
- establishing a comprehensive baseline and ongoing groundwater and surface water monitoring program; and
- undertaking detailed flora and fauna surveys to identify the area of occurrence of a number of species that may be threatened by an expansion of the irrigation industry in the region.

To address these issues, the study recommended that:

- the existing groundwater and stream monitoring network be expanded across the entire area that could be affected, to establish a comprehensive baseline from which to monitor the effects;
- each landholder involved in the Clare Valley scheme be required to prepare an irrigation and drainage management plan to address the potential risks in using River Murray water, to be ratified by an appropriate body, and to attend irrigation awareness courses prior to being granted access to water from the scheme;
- the Clare Valley Prescribed Water Resources Area Water Allocation Plan be amended to allow more flexibility in the use of treated water imported from the River Murray for irrigation and municipal bulk water supply;
- investigations be undertaken into the composition and extent of groundwater-dependent ecosystems potentially at risk due to altered groundwater conditions, and to identify sites where changed groundwater conditions do not threaten ecosystems;
- surveys be conducted of the tolerance of in-stream and other natural ecosystems to ranges of surface water and groundwater salinity;
- a monitoring and reporting program be implemented to routinely assess and communicate the response of environmental receptors to scheme operation; and

- a flora and fauna survey be undertaken to establish the occurrence and range of at-risk species in areas likely to be affected and the extent to which the project poses a risk to their habitats — with the survey to be undertaken before considering whether the project requires referral to the Commonwealth Minister for the Environment and Heritage.

SA Water advised that the South Australian Government's approval of the scheme in November 2002 was subject to the establishment of an appropriate groundwater and surface water monitoring program. In cooperation with the Department of Water, Land and Biodiversity Conservation, SA Water indicated that it is committed to implementing management measures at several levels to ensure the potential impacts of the scheme are appropriately controlled.

- Monitoring program. The regional groundwater and surface water monitoring program is being expanded. The program includes additional groundwater observation wells, stream gauging stations, chemical water sampling sites, and habitat and invertebrate monitoring.
- Subcatchment modelling and land capability mapping. Detailed modelling and mapping will be undertaken to determine locations where irrigation using River Murray water will be restricted or not permitted because of the increased environmental risks of salinisation or rising water tables.
- Permit and licensing requirements. To use water from the scheme, irrigators will be required to obtain a permit or licence under the Water Resources Act. The department will not grant approvals in areas where there is an unacceptable risk to the environment. Permits and licences will include the following conditions: property owners will be required to prepare an irrigation drainage management plan; the use of River Murray water will be restricted where adverse environmental impacts are detected through the monitoring program; and annual irrigation reporting will be required and will provide additional property level monitoring.
- Increased grower awareness of issues associated with irrigation using River Murray water. SA Water is undertaking a community information program, which includes discussions with and the distribution of information to irrigator organisations.
- Flora and fauna surveys. Detailed surveys were undertaken, particularly in relation to nationally significant species, before construction of the pipeline commenced.

In relation to the potential threats to listed threatened species, South Australia advised that the Commonwealth initially declared the pipeline to be a controlled action under the Environment Protection and Biodiversity

Conservation Act in April 2003.¹² Following the provision of further information by South Australia, however, in June 2003 the Commonwealth revoked its initial decision. The revocation was based on detailed information on the pipeline route and the associated flora and fauna surveys that demonstrated the route would avoid the listed species and suitable habitat.

Economic viability

In September 2002, SA Water commissioned EconSearch to conduct a detailed evaluation of the financial and economic viability of the Clare Valley project. The analysis and results were reported by the Public Works Committee of the South Australian Parliament in its report on the project in December 2002 (Public Works Committee 2002).

The capital cost of the project to SA Water is estimated at A\$27.1 million. Operations and maintenance costs for SA Water are projected to increase over time from approximately A\$700 000 to A\$1.3 million per year. Revenue estimates were based on a separate consultancy study of future demand for water for irrigation, commercial and residential purposes. The estimates for irrigation were reduced to 75 per cent of the consultant's projections. Cost savings were expected from deferral of a A\$15 million system augmentation.

For SA Water, the financial evaluation estimated the project would have a positive net present value of approximately A\$2 million, based on a real discount rate of 8 per cent. Sensitivity analysis indicated that the net present value could range from negative A\$0.4 million, if irrigation sales were only 65 per cent of projected volumes, to positive A\$3.8 million at 85 per cent of projected volumes. Using alternative discount rates, the estimated net present value ranged from negative A\$0.7 million (at a 10 per cent discount rate) to positive A\$9.9 million (at 4 per cent).

The broader economic evaluation encompassing the wider economic benefits and costs to the State showed a positive net present value of A\$25.5 million, based on a discount rate of 7 per cent. This analysis took into account additional costs including the capital and operating costs of private connections and on-farm storage for off-peak irrigation water, as well as the cost of purchasing River Murray water licences. It also took into account additional benefits such as increased production from existing and new vineyard developments. The analysis assumed grape prices at a level 5 per cent below the 2002 price. Sensitivity analysis indicated the project would not be economic at grape prices 15 per cent below 2002 prices. The economic analysis also identified additional benefits that were not able to be quantified, including reduced health risks due to wider availability of potable water and increased regional tourism.

¹² The Commonwealth's decision related to the following listed threatened species: White-beauty Spider-orchid, Osborne's Eyebright, Hairy-pod Wattle and Trailing Hop-bush.

SA Water advised that the financial and economic evaluations included the costs of the catchment modelling (estimated at A\$70 000), establishment of the monitoring program (A\$150 000) and grower awareness and other information programs (A\$50 000) in the capital cost of the project. While the ongoing cost of the monitoring program (A\$66 000 a year) was not included, SA Water considered that its inclusion would not alter the viability of the scheme. It also considered that the costs associated with any rehabilitation measures were likely to be minor because of the environmental management regime.

Lower Murray rehabilitation project

The Government has previously advised that the Lower Murray Reclaimed Irrigation Areas require improved management and rehabilitation in order to reduce their environmental impact on the River Murray and improve farm productivity. The main agricultural activity in the area is flood-irrigated dairying.

A major options study, completed in June 2001, evaluated the benefits and costs of alternative management options such as abandonment, rehabilitation or conversion to alternative uses. The study concluded that the best option is rehabilitation of the most viable parts of the irrigation areas, after a period of restructuring of the dairy industry. The proposed rehabilitation designs for flood irrigation are expected to greatly improve water use efficiency (up from about 40 per cent to 80 per cent) and significantly reduce the pollutant load to the river (down by 70–80 per cent). The study considered that there would be significant benefits if, before rehabilitating the most viable areas, farmers were provided time to restructure in response to water trading, dairy industry deregulation and new drainage management requirements. This would allow poorer areas to be retired, and farms to consolidate, both of which would reduce rehabilitation costs.

As noted in section 6.4, the South Australian Government approved the study's preferred option. As part of this, landowners will be subject to new requirements in relation to water use and drainage management. In accordance with new water licences issued under the Water Resources Act, irrigators will be required to achieve a water use efficiency of at least 65 per cent, install a water meter to measure water use and use no more water than their allocation, with effect from 30 June 2007. In addition, from 1 July 2003 farmers are required to be licensed under the Environment Protection Act in order to undertake irrigated agriculture in the Lower Murray area. Under the licensing arrangements, irrigators will be required to comply with a code of practice, progressively implement an environmental improvement program to ensure no irrigation runoff reaches the river by 30 June 2008, and implement a water quality monitoring program. Penalties apply for noncompliance.

Where appropriate arrangements are not already in place, irrigators will need to establish management and funding arrangements, jointly with other irrigators within their irrigation district, to take responsibility for the future

operation, maintenance and replacement of shared irrigation and drainage infrastructure. This will be a condition of accepting the financial assistance the Government proposes to make available for infrastructure rehabilitation (see section 6.4).

During 2002-03, the Government approved a contribution of A\$22 million towards trials and to provide financial support to eligible landowners to assist with restructuring and rehabilitation works. An initial A\$2.6 million in joint Commonwealth–State Government funding has been made available for a 12 month period to assist restructuring. The aim is to encourage changes in land ownership and land use that will reduce the cost of subsequent rehabilitation for irrigators and taxpayers. Assistance is being provided to eligible landowners to undertake farm business planning, to acquire land to consolidate or relocate farms (in which case the assistance is in the form of a credit towards future rehabilitation costs), or to exit the industry by retiring or selling their landholdings. Funding is being sourced under the National Action Plan for Salinity and Water Quality.

The South Australian Government expects assistance for rehabilitation to commence in late 2003-04, though national action plan funding for this purpose is still to be approved. The assistance is to cover part of the cost of approved irrigation supply and reuse infrastructure works to serve the reclaimed areas. The Government proposes to offer financial assistance of A\$2 for every A\$1 contributed by irrigators up to a maximum amount per hectare. The Government considered this level of public funding reflects the extent of the wider public benefits from the rehabilitation, through reducing water diversion from the River Murray and drainage discharge to the river. The assistance is to be provided to the relevant irrigation authority rather than to individual irrigators. To be eligible for assistance, the authority will need to develop a rehabilitation plan, which will be assessed by the Government to ensure it is capable of meeting longer term water use and water quality outcomes, and submit an application for assistance by May 2004. The assistance will be contingent on irrigators committing funding to the required works and, in Government irrigation districts, agreeing to convert to a private district. The rehabilitation program is expected to be completed by June 2008.

Discussion and assessment

The Council aims to assess new rural schemes against the CoAG obligations on economic viability and ecological sustainability in the year in which the relevant Government decides the scheme can proceed.

In relation to the Clare Valley project, the study by Resource and Environmental Management found that importing River Murray water into the Clare Valley region for use in irrigation can be managed to avoid adverse environmental effects. SA Water advised that the South Australian Government's approval of the scheme was subject to the implementation of appropriate management measures, including the monitoring program. SA

Water, in cooperation with the Department of Water, Land and Biodiversity Conservation, is committed to implementing the necessary management measures. The department advised that, until the measures are in place, water from the pipeline will not be able to be used. Environment Australia notified South Australia that the project does not require approval under the Environment Protection and Biodiversity Conservation Act.

The study indicates that the project is ecologically sustainable, but this is dependent on South Australia implementing appropriate responses to the study's recommendations. Based on the information provided by SA Water, it appears to the Council that the environmental issues associated with the construction of the pipeline were appropriately addressed before construction commenced and the remaining issues will be addressed before water from the pipeline can be used for irrigation. The Council's preliminary view, therefore, is that South Australia complied with the CoAG obligation on ecological sustainability. For the 2004 NCP assessment, however, the Council will seek a report from the South Australian Government on: (1) how it has acted to address the matters raised in the ecological study and (2) the initial outcomes of the regional monitoring of groundwater and surface water.

In relation to economic viability, the study by EconSearch concluded that the Clare Valley project is commercially viable for SA Water. As a Government business, SA Water is undertaking the project on a commercial basis and is not expecting Government subsidies. The study also concluded that the project is economically viable accounting for wider benefits and costs, with a net present value of A\$25.5 million (based on a discount rate of 7 per cent). The study appears to account for relevant benefits and costs (except for the ongoing cost of the water monitoring program) and uses appropriate discount rates. At a present value of around A\$750 000, inclusion of the ongoing cost of the monitoring program would not alter the study's conclusions on the commercial or economic viability of the scheme. The Council, therefore, considers that South Australia complied with the CoAG obligation on economic viability for the Clare Valley project.

Based on the information now available, the Council considers that the Lower Murray rehabilitation project is not a new rural water infrastructure project or an extension to a project. The Council understands that the project, at least at this stage, is a refurbishment rather than an extension of the existing irrigation scheme. The project does not, therefore, require assessment against CoAG requirements for investment in new rural water schemes or extensions to existing schemes. The components of the project relating to the devolution of irrigation scheme management — an institutional reform obligation of the CoAG water agreement — are considered in section 6.4.