



Water Rights Arrangements in Australia and Overseas

Annex E *South Australia*

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Abbreviations

CIT	Central Irrigation Trust
CoAG	Council of Australian Governments
CWMB	Catchment water management board
CWMP	Catchment water management plan
DWLBC	Department of Water, Land and Biodiversity Conservation
EPA 1993	Environment Protection Act 1993
EPA	Environmental Protection Authority
ERD Court	Environment, Resource and Development Court
GL	Gigalitres
IA 1994	Irrigation Act 1994
IDMP	Irrigation drainage management plan
LAP	Local area plan
LWMP	Land and water management plan
MDBC	Murray–Darling Basin Commission
NCC	National Competition Council
PAV	Permissible annual volume
RMW	River Murray Water
SA Water	South Australian Water Corporation
SAWPC	South Australian Water Policy Committee
WAP	Water allocation plan
WRA 1997	Water Resources Act 1997
WRC	Water Resources Council
WRPC	Water resources planning committee

Glossary

Confined aquifer	An aquifer that is bound above and below by an impermeable confining bed. The pressure in confined aquifers is usually greater than atmospheric pressure, resulting in water levels in wells rising above the top of the aquifer.
Drawdown	A reduction in water level and or pressure level in an aquifer as a result of underground water extractions.
Permissible annual volume	The total volume of water that can be taken annually for licensed purposes from the Murray Group limestone aquifer. A permissible annual volume can apply to part of the Murray Group limestone aquifer within a Hundred or a border zone or to the Murray Group limestone aquifer within the Mallee Prescribed Wells Area as a whole.
Unconfined aquifer	An aquifer which has the watertable as its upper surface which may be recharged directly by infiltration from the ground surface.

Preface

Water Rights Arrangements in Australia and Overseas is a study that forms part of the Commission's program of benchmarking the performance of economic infrastructure industries. It continues previous work undertaken into the arrangements for setting drinking water quality standards. The study compares the legal, organisational and regulatory arrangements for managing water rights, against accepted best practice principles.

This annex is one of twelve case studies prepared to assist readers understand the complex legal, organisational and management arrangements of the jurisdictions studied. Case studies were prepared for the Murray–Darling Basin, NSW, Victoria, Queensland, South Australia, the ACT, the Colorado River Basin, California, Colorado, Chile, Mexico and South Africa. These case studies should be read in conjunction with the main report.

Research for the study and each of the annexes was undertaken by the Economic Infrastructure Branch, with Dr Neil Byron as mentoring Commissioner.

Many persons and organisations have assisted in the preparation of this case study. Further feedback from readers would also be welcome.

1 The water sector

South Australia uses around 1240 GL of water per year, significantly less than NSW (10 000 GL), Victoria (5800 GL) and Queensland (3200 GL). Around 740 GLs is sourced from surface waters, while the remainder comes from groundwater supplies (NLWRA 2000).

Water is a scarce resource in South Australia. Eighty-five per cent of the state is arid or semi-arid. In these areas, rainfall occurs sporadically, evaporation rates are high and surface water dries out very quickly.

In the southern and coastal areas, annual rainfall ranges from 300 mm to 1000 mm. However, internally sourced surface water is limited. Consequently, South Australia has to depend on water flowing in from other states to meet most of its requirements.¹

The majority of surface water is sourced from the Murray–Darling and Lake Eyre basins. Surface water enters South Australia from NSW, Victoria and Queensland via the River Murray and its tributaries, and enters the north of the state from Queensland and the Northern Territory via the Lake Eyre basin streams.

The River Murray however, is the most important source of surface water. In an average year, the River Murray supplies over 50 per cent of the state’s needs, but in a drought year this can increase to 90 per cent.

Groundwater is also a major source of supply over much of South Australia — in particular, the South East, Eyre Peninsula, Adelaide Plains and Murray Mallee regions — and accounts for around 40 per cent of total water use.

In South Australia, irrigated agriculture accounts for around 80 per cent of all water use. Other non-urban users include dryland farming (4 per cent) and mining (1 per cent). Of the water used for irrigated agriculture, around 40 per cent comes from the River Murray, 50 per cent from South East groundwater and the majority of the remaining 10 per cent is extracted from smaller groundwater basins around Adelaide (NCC 2001).

¹ The mean annual stream flow generated within the State is 1940 GL, compared with a mean annual stream flow entering the State of 9300 GL (NLWRA 2000).

In many areas of South Australia, it is common for irrigators to have more than one source of water. For example, farm dams often provide better quality water, but at a lower reliability than local groundwater. The mixing of the two water sources provides the optimum supply. Alternatively, the use of surface water, when it is available, allows the recovery of groundwater for use during stream-drought years (NLWRA 2000).

2 Legal framework

South Australia inherited its water policies from English common law. However, over time common law rights to access water have been progressively restricted by statute.

For most of the 19th century, water law in South Australia focussed on the development and delivery of water services and supply. It was more common during this period to respond to a long-term water shortage by constructing a new reservoir rather than managing the scarce resource.

This focus changed significantly with the enactment of the *Water Resources Act 1976*. This was the first integrated water resources management legislation in Australia which focussed on the management of water resources, including their development, use, conservation and quality.

2.1 Evolution of water law

English common law principles were initially used to define the rights and duties with respect to the use of water resources in South Australia. The rights were defined as the right to control the flow and the right to take water, but did not confer ownership of the water resource.

Under common law, surface water management was based on the riparian doctrine. The rights to take water were confined to a watercourse (that is, the bed and banks of a defined channel in which water flows) and were limited to the taking of water for stock and domestic purposes. The beneficiaries of the water right were landholders who owned and occupied the land adjacent to the watercourse. In addition, a landholder had an obligation not to foul or obstruct a watercourse such that it could not be used by landholders downstream (DWR 2000a).

Common law also created rights that applied to water occurring on or under land that was not a watercourse. These rights allowed a landholder unlimited use of the groundwater under the land and water flowing over the land.

Common law rights were first restricted by the *Control of Waters Act 1919* (surface waters) and later the *Underground Waters Preservation Act 1970*, although these Acts applied to limited areas of the state (Dyson 1997).

Significant changes to water rights occurred with the enactment of the *Water Resources Act 1976*. For example:

- rights to use and control water resources were vested in the Crown;
- the Crown licensed the use of watercourses and underground water;
- the licence was only a right to use and could not be transferred, sold or divided. However, as the licence could be varied by consent, divisions of allocation, transfers and amalgamations were effected in some instances;
- landowners had the right to use water flowing on or past their land for domestic and stock purposes (DWR 2000a).

Legislative amendments in 1990, enabled the Governor to declare a particular water resource a proclaimed resource. As a result, any rights to water in that area were removed entirely (except for stock and domestic use) and could only be obtained by the granting of a licence. Resources, were only proclaimed where there was likely to be harm caused to the resource or inequities existed between users (DWR 2000a).

In addition, the 1990 Act restricted the right to interfere with proclaimed watercourses. It was an offence to obstruct the bed or banks of such a watercourse in any way, destroy vegetation growing in the watercourse, excavate the watercourse, vary its course, or deposit anything into the watercourse without a permit. The Act also prohibited the building of a well without a permit (Dyson 1997).

Under the *Water Resources Act 1990*:

- a licence expired where the licensee lost possession of the land to which the licence was tied;
- the transfer of a water allocation was reflected on the licence as a variation;
- the conditions on a licence could be varied (but only with consent of the licensee);
- a licence holder could transfer a water allocation to a purchaser of the property to which the licence related, with the permission of the Minister;
- common law rights to take water from groundwater resources and from watercourses were retained unless the resource was proclaimed, whereupon such rights were extinguished;

-
- no provisions existed in relation to the taking of surface water not contained within a watercourse; and
 - rights to water could be affected either by:
 - a direction of the Minister prohibiting or restricting the taking of water where there was a risk that there would be insufficient water to meet demands or there was unfair distribution;
 - a proclamation of the Governor declaring the resource to be under a licensing regime;
 - the restriction of certain water affecting activities; and
 - the introduction of a levy (DWR 2000a).

Amendments to the 1990 Act and its regulations allowed a licensee to retain the licence when the property was sold. There was no obligation on the licensee to transfer it to the new purchaser of the land.

2.2 Current legislative framework

The *Water Resources Act 1997* (WRA 1997) is the principal legislation governing the management, allocation and use of water resources in South Australia.

The Act builds on the key principles contained in previous legislation. It also embodies the principles of sustainability described in the 1992 *National Strategy for Ecologically Sustainable Development*, and incorporates the requirements of the national water reform framework endorsed by the Council of Australian Governments (CoAG) in 1995.

The stated objective of the Act under s. 6(1) is to establish a system for the use and management of the water resources of the state:

- that ensures the use and management of those resources sustain the physical, economic and social well-being of the people of the state and facilitate the economic development of the state while
 - ensuring that those resources are able to meet the reasonably foreseeable needs of future generations;
 - protecting the ecosystems (including their biological diversity) that depend on those resources; and
- that, by requiring the use of caution and other safeguards, reduces to a minimum the detrimental effects of that use and management.

The Act provides for a number of mechanisms to achieve these objectives including:

- the devolution of water resource management responsibilities to local communities primarily through the establishment of catchment water management boards (CWMBs) and water resources planning committees (WRPCs) throughout South Australia;
- the management of water resources through a hierarchy of water plans prepared and regularly reviewed through a comprehensive process of community involvement. The plans include:
 - the State Water Plan (SWP), prepared by the Minister to provide the policy framework for water resource management and use throughout South Australia;
 - catchment water management plans (CWMPs), prepared by CWMBs to establish and provide for the implementation of catchment priorities at the regional level;
 - water allocation plans (WAPs), prepared for prescribed water resources by either CWMBs or WRPCs;² and
 - land and water management plans (LWMPs), prepared by local councils for water resources within the relevant council's area. However, there is no mandatory requirement under the Act for a council to prepare these plans.
- promoting public awareness of the importance of the South Australia's water resources; and
- better integration between the administration of the WRA 1997 and other pieces of legislation relating to planning and natural resource management, including:
 - the EPA 1993, *Native Vegetation Act 1991*, *Animal and Plant Control (Agricultural Protection and Other Purposes) Act 1986*, *Coast Protection Act 1972*, *National Parks and Wildlife Act 1972*, *Pastoral Land Management and Conservation Act 1989*, *Soil Conservation and Land Care Act 1989*, *Development Act 1993*, and the *Local Government Act 1999*.

One important feature of the WRA 1997 is that rights at common law in relation to the taking of naturally occurring water were abolished and incorporated in legislation (WRA 1997, s. 7(9)).

² Water resources can be prescribed under the WRA 1997 when intense development and regional issues cause stress on the resource, warranting a higher level of management than in other areas. The taking of water in a prescribed area, other than for stock and domestic purposes, requires an authorisation in the form of a licence issued by the Minister.

In particular, the rights to surface water flowing in an undefined channel are now controlled by the Crown. This includes rights to obstruct and capture such water. This removes the previously existing right to the unconditional use of ‘non-riparian’ water (DWR 2000a).

Other significant changes to water rights in the WRA 1997 include the:

- separation of property rights to water from property rights to land and the ability to divide interests in water;
- formal allocation of rights to take and use water;
- recognition of the need to allocate water for environmental purposes; and
- establishment of a system for trading rights to water so that water can be used in the most efficient, productive and environmentally sustainable way.

3 Organisations

In South Australia, the Minister for Environment and Conservation (the Minister) is the principal manager of the state's water resources. The Minister is responsible for the administration of the WRA 1997.

The Water Resources Council (WRC), the South Australian Water Policy Committee (SAWPC) and the Department of Water, Land and Biodiversity Conservation (DWLBC) provide policy advice to the Minister.

The organisations involved in water resource management including CWMBs, WRPCs and local councils.

The Environment, Resources and Development (ERD) Court primarily deals with disputes about development and the environment. It has criminal and civil enforcement powers to handle breaches of the law affecting conservation and the management of the environment. The Court derives its jurisdiction from a number of Acts including the WRA 1997, the *Environment Protection Act 1993* (EPA 1993), the *Irrigation Act 1994* (IA 1994), the *Development Act 1993* and the *Local Government Act 1999*.

Water quality protection and pollution control issues are dealt with by the Environment Protection Authority and the Department of Human Services.

South Australian Water Corporation (SA Water) is the major provider of drinking water and wastewater services to metropolitan and non-metropolitan customers.

In private irrigation districts, irrigation trusts are responsible for the delivery of water to irrigators. In the nine remaining government owned irrigation districts in the Lower Murray Reclaimed Irrigation Zone, Lower Murray Operations Pty Ltd (under contract to the Minister for Environment and Conservation) is responsible for maintaining infrastructure and providing water to irrigators in these districts.³

³ Since the enactment of the *Irrigation Act 1994*, most government owned irrigation districts have been converted to private irrigation districts and are now managed by an irrigation trust. The remaining nine government owned districts are in the process of being rehabilitated and converted to private irrigation districts (DWLBC, Adelaide, pers. comm., 14 July 2003).

Unlike NSW, Victoria and Queensland an Independent Pricing Authority has not been established in South Australia to oversight the prices charged for bulk water supplies and those charged to households and business customers by SA Water.

3.1 Minister for Environment and Conservation

The Minister has policy and regulatory functions to perform under the WRA 1997. As a policy setter; the Minister must:

- Develop and coordinate policies relating to water resource management.
- Review and amend the SWP when necessary, and report to Parliament by 30 September each year on the extent to which the SWP has been implemented and has succeeded in achieving the object of the Act (WRA 1997, s. 46). The report must be tabled in Parliament within 12 sitting days after the report was prepared.
- Ensure that CWMPs, WAPs and LWMPs meet the policy requirements of the SWP before final adoption of the plan.
- Submit levy proposals to the Economic and Finance Committee of Parliament for consideration if the adopted plan includes a water-based or land-based catchment environment levy (or both).

As a regulator, the Minister must:

- administer the water licensing and allocation system for prescribed areas based on the adoption of the WAPs and ensure proper compliance with, and enforcement of, the requirements of the Act;
- review the state and condition of water resources, and compile, maintain and update information on those water resources;
- keep a register of all water licences and permits granted under the Act; and
- promote public awareness of the importance of the state's water resources and encourage the conservation of those resources.

The Minister may delegate any of his or her functions, powers or duties to a CWMB, a WRPC, a municipal or district council or any other person or body (WRA 1997, s. 48).

3.2 Water Resources Council

The WRC is an independent advisory body to the Minister and has no direct statutory powers.

The Council consists of a Chairperson with relevant water resource management skills and knowledge. The other four members must be nominated from local government, the conservation council, the farmer's federation and from one of the CWMBs.

The Council focuses on strategic water resource issues and is primarily concerned with reviewing progress on the SWP and its implementation through catchment based plans.

3.3 South Australian Water Policy Committee

On 25 March 1996, the South Australian Government approved the establishment of the SAWPC. The Committee is chaired by the Chief Executive of the DWLBC and comprises Chief Executives (or senior representatives) from the Department of Primary Industries and Resources, Department for Environment and Heritage, Department of the Premier and Cabinet, Department of Treasury and Finance, Department for Business, Manufacturing and Trade, Department for Administrative and Information Services, Department of Justice, Department of Human Services and SA Water (DWR 2000a).

The Committee is required to undertake reviews and develop policy positions for the water industry, including sustainable water resources management and the development of industries using water as an input. One of its main functions is to provide high level, whole-of-government oversight of South Australia's implementation of the CoAG strategic water reform framework.

3.4 Department of Water, Land and Biodiversity Conservation

Although not explicitly mentioned in the WRA 1997, the DWLBC is responsible to the Minister for Environment and Conservation for the delivery of a range of services (or outputs) and ultimately, the South Australian Parliament. The DWLBC must provide an annual report to Parliament on the outcomes of its activities.⁴

⁴ On 1 May 2002, the Department for Water Resources became the Department of Water, Land and Biodiversity Conservation.

The objectives of the DWLBC are:

- to be the lead government agency for the policy, management and administration of the state's water resources;
- to achieve a strong, consistent and collaborative focus on water issues for the benefit of South Australia (by drawing together the key water-related activities into this portfolio);
- at a national level, to ensure that South Australia's interests are recognised and protected in water reform initiatives and the key water resources shared with other states, and to take a lead role at the national level in managing water resources in the important areas of the Murray–Darling, Lake Eyre and Great Artesian basins;
- to ensure a continual supply of good quality water for South Australia within sustainable limits from the Murray–Darling Basin system (DWR 2001a).

The DWLBC is also responsible for the ongoing implementation of a number of CoAG reforms.

In addition to providing policy advice to the Minister, the DWLBC provides administrative support to the WRC, the SAWPC, CWMBs, WRPCs and local councils.

The DWLBC has a number of operational functions including:

- the assessment of applications for water licences and permits, the issuing of those licences and permits, and the collection of water-based levies;
- monitoring and assessing the state and condition of South Australia's water resources, identifying the pressures and future risks through the collection of data and information;
- undertaking technical assessments of groundwater resources;
- maintaining a database on water volumes, and all water licences and permits granted under the WRA 1997.

3.5 Catchment water management boards

Since 1995, eight CWMBs have been established by the *Catchment Water Management Act 1995* or the WRA 1997.⁵ CWMBs cover 95 per cent of the state (NCC 2001).

⁵ On 2 July 1997 the *Catchment Water Management Act 1995* was repealed and its contents incorporated within the WRA 1997.

CWMBs are directly responsible to the Minister for Environment and Conservation for fulfilling their duties according to the WRA 1997, and are subject to stringent accountability provisions in respect to the management of their funds.

CWMBs have community, agency and scientific representation. Community members are appointed by the State Government from relevant catchments on the basis of skills (not representation) by the Minister for Environment and Conservation. A CWMB must consist of at least five members but not more than nine.

Under the WRA 1997, CWMBs have wide ranging responsibilities and powers, including the ability to raise funds through a catchment levy. CWMBs must work to achieve the object of the Act. In doing so, they must

- manage the sustainable development and use of all water resources in their catchment area; and
- ensure that water dependent ecosystems and the health and biodiversity of the catchment generally are maintained and improved.

CWMBs have a number of statutory functions under the Act, including the development and implementation of a CWMP and WAPs for prescribed water resources in their catchments (WRA 1997, s. 92 (1), s. 101 (4)(a)).

In undertaking these functions, the plans must be consistent with the SWP and must be developed following consultation with each of the constituent councils, owner(s) of the land, SA Water (if they discharge water into a watercourse or lake in the catchment), the public and any other person prescribed by regulation (WRA 1997, s. 94, s. 104). The plans must include information regarding the quality and quantity of the water resources as well as the health of dependent ecosystems.

Other functions of the board include providing advice to the Minister and constituent councils on the management of the water resources in their catchment, and promoting public awareness of the importance of proper management and sustainable use of those resources (WRA 1997, s. 61).

A CWMB must also prepare an annual report at the end of each financial year (WRA 1997, s. 75). The report must be submitted to the Minister and constituent councils by 30 September each year and include among other things:

- the extent to which the board has succeeded in implementing its CWMP;
- the extent to which the implementation of the plan has succeeded in achieving the object of the Act; and
- audited financial statements of the CWMB.

The report must be tabled in Parliament 12 sitting days after the Minister receives the report. A CWMB must make copies of its annual reports available for inspection and purchase by members of the public.

CWMPs and WAPs are in various stages of development and implementation (see table 3.1).

3.6 Water resources planning committees

Where a prescribed water resource is not located within the catchment area of a CWMB, the Minister must establish a WRPC (WRA 1997, s. 81). The primary task of the committee is to prepare a WAP for each prescribed water resource that a committee is responsible. Support is provided by the DWLBC.

A WRPC developed the WAPs for the Clare Valley Prescribed Water Resources Area and the Mallee Prescribed Wells Area. The WAP for the River Murray Prescribed Watercourse was prepared in partnership with the River Murray Catchment Water Management Board (see table 3.1).

3.7 SA Water

SA Water is the major provider of water and wastewater services to metropolitan and non-metropolitan customers.

SA Water was established under the provisions of the *South Australian Water Corporation Act 1994*, and is a statutory corporation. As a body corporate under the *Public Corporations Act 1993*, SA Water is subject to control and direction by the Minister for Government Enterprises.

The key objectives of the Corporation are to:

- ensure South Australia's water and wastewater services are operated in a way that provides continuous high quality supply, protects the health of the public and minimises environmental impact;
- ensure South Australia's water and wastewater services are operated in a commercial manner, delivering high quality, value for money services to customers and adequate financial returns to the Government as owner within the context of government pricing decisions; and
- facilitate the development of a viable, export focussed, vigorous water industry in South Australia.

Table 3.1 Status of CWMPs and WAPs — South Australia, 2003

<i>CWMBs</i>	<i>Status of CWMPs</i>	<i>Prescribed water resource</i>	<i>Status of WAPs</i>
No CWMB		Clare Valley Prescribed Water Resources Area	Adopted December 2000
Northern Adelaide and Barossa	Adopted March 2001	Barossa Prescribed Water Resources Area	Adopted December 2000
		Northern Adelaide Plains Prescribed Wells Area	Adopted December 2000
		Little Para River prescribed watercourse	WAP not developed
		Bolivar outfall channel prescribed watercourse	WAP not developed
		Greenock Creek catchment Kangaroo Flat	Notice of restriction applies Notice of restriction applies
Onkaparinga	Adopted Dec 2000	McLaren Vale Prescribed Wells Area	Adopted November 2000
River Murray	Adopted March 2003	River Murray Prescribed Watercourse	Adopted July 2002
		Angas Bremer Prescribed Wells Area	Adopted January 2001
		Noora Prescribed Wells Area	Adopted January 2001
		Mallee Prescribed Wells Area	Adopted December 2000
		Saunders Creek and Marne River prescribed catchments	Developing WAP
		Prescription of a number of other eastern Mount Lofty catchments are also being considered including, Angas (surface), Bremer, Finiss and Currency Creek systems.	
South East	Adopted May 2003	Comaum–Caroline Prescribed Wells Area	Adopted June 2001
		Lacepede Kongorong Prescribed Wells Area	Adopted June 2001
		Naracoorte Ranges Prescribed Wells Area	Adopted June 2001
		Padthaway Prescribed Wells Area	Adopted June 2001
		Tatiara Prescribed Wells Area	Adopted June 2001
		Morambro Creek Prescribed Watercourse and Surface Water Area	Developing WAP
		Tintinara Coonalpyn Prescribed Wells Area	Adopted January 2003
Torrens	Adopted June 2002	na	na
Patawalonga	Adopted July 2002	na	na

(Continued next page)

Table 3.1 (continued)

<i>CWMBs</i>	<i>Status of CWMPs</i>	<i>Prescribed water resource</i>	<i>Status of WAPs</i>
Patawalonga	Adopted July 2002	na	na
Eyre	Process of completing	Southern Basins Prescribed Wells Area	Adopted January 2001 Managed under the <i>Roxby Downs Indenture Ratification Act 1982</i>
		Musgrave Prescribed Wells Area	Adopted January 2001 Managed under the <i>Roxby Downs Indenture Ratification Act 1982</i>
Arid areas	Process of completing	Curdimurka Prescribed Wells Area	No WAP required Managed under the <i>Roxby Downs Indenture Ratification Act 1982</i>
		Muloorina Prescribed Wells Area	No WAP required Managed under the <i>Roxby Downs Indenture Ratification Act 1982</i>
		Far North Prescribed Wells Area	Developing WAP

Source: Northern Adelaide and Barossa Catchment Water Management Board, pers. comm., 15 July 2003; Arid Areas Catchment Water Management Board, pers. comm., 14 July 2003; River Murray Catchment Water Management Board, pers. comm., 15 July 2003; South Australian Catchment Water Management Boards, <http://www.catchments.net/> (accessed 14 July 2003).

The Corporations primary functions as set out in s. 7 of the *South Australian Water Corporation Act 1994*, are to provide services for the:

- supply of water by means of reticulated systems;
- storage, treatment and supply of bulk water; and
- removal and treatment of wastewater by means of sewerage systems.

In addition to these functions, SA Water is required by the Minister to:

- operate, maintain and manage the Murray–Darling Basin Commission (MDBC) assets including locks and weirs numbers 1 to 9, Lake Victoria, the barrages and salt inception schemes on behalf of the MDBC;
- provide technical and engineering support for the MDBC initiative on behalf of the State of South Australia.

SA Water liaises regularly with the Department of Human Services (Public and Environmental Health Service) in relation to the results of health-related monitoring.

Under the EPA 1993, SA Water is also required to monitor the quality and volume of discharges from sewage treatment works to ensure any discharges comply with licence requirements.

3.8 Irrigation authorities

In South Australia, irrigation authorities are established under the *Irrigation Act 1994* (IA 1994) to manage and supply water to private and government owned irrigation districts.⁶

An irrigation authority is either an irrigation trust, in relation to a private irrigation district, or the Minister for Environment and Conservation, in relation to a government owned irrigation district.

A private irrigation trust is constituted by the owners of the irrigated properties in the district (IA 1994, s. 18). The trust is a body corporate and has all the powers of a natural person and the powers specifically conferred on it by the IA 1994.

The Minister has the powers to abolish a private irrigation district if it fails to comply with certain provisions set out in the Act (WRA 1997, s. 14). A trust or member of a trust may appeal the Minister's decision to the ERD Court (WRA 1997, s. 67).

Under the WRA 1997, an irrigation trust is issued with a water licence from the Minister for Environment and Conservation. The licence specifies the total volume of water available for supply to the irrigation district the trust serves. Under the IA 1994, individual irrigators are then provided with a sub-allocation (water right) which is tradeable. In contrast, the Renmark Irrigation Trust, established under the *Renmark Irrigation Trust Act 1936*, retains the water right and provides bulk water services to irrigators.

In government owned irrigation districts, the water licence is held by the Minister for Environment and Conservation. Under the IA 1994, individual irrigators are also provided with a sub-allocation (water right), which is tradeable.

A number of irrigation trusts have been established under the IA 1994, including Central, Loxton, Golden Heights, Sunlands, Century Orchards, Greenways, Jubilee Almond, Lock 4, Rilli, Pyap, Riverglades and Woodlane.⁷

⁶ The administration of the *Irrigation Act 1994* was transferred from SA Water to the Department of Water Resources in February 2000 and subsequently transferred to DWLBC in March 2002.

⁷ There are eight trusts that make up the Central Irrigation Trust district. Each of the eight trusts hold a separate water licence for their respective district.

The Renmark Irrigation Trust was established under the *Renmark Irrigation Trust Act 1936*. In the Lower Murray Reclaimed Irrigation Zone, nine government owned irrigation districts are in the process of being rehabilitated and converted to private irrigation trusts, and a further sixteen districts have been privatised (DWLBC, pers. comm., 4 August 2003).

3.9 Environment Protection Authority

The Environment Protection Authority (EPA) is an independent statutory authority established under the EPA 1993. The authority is responsible for the administration and enforcement of that Act including its regulations and environment protection policies.

Since March 2002, the EPA is subject to the control and direction of the Minister for Environment and Conservation.

To protect water quality, the Act requires the licensing of activities that produce particular types of waste. The EPA is responsible for considering the impact that licensed waste discharges are likely to have on surface water and groundwater systems.

In recognition of the need to provide a consistent statewide approach to the protection of water quality across all South Australian water bodies, particularly inland waters, the Authority has developed an *Environment Protection (Water Quality) Policy* (EPA 2003). The policy applies to all inland (surface and groundwaters), estuarine and marine waters.⁸

3.10 Department of Human Services

The Department of Human Services in conjunction with local councils, administers the *Public and Environmental Health Act 1987*. The Act deals with the protection of water supplies for potable and recreational water use and offences for pollution of water and control of wastewater (particularly in un-sewered areas), and reuse.

⁸ Prior to the authorisation of this policy, there was no state legislation that enabled water bodies to be protected on the basis of their environmental value.

3.11 Local government

Local councils are responsible for a wide range of activities in their local government area that can have a direct and indirect impact on the health of the catchment and water resources.

A council, when performing functions or exercising powers under the WRA 1997, the *Local Government Act 1934* or any other Act in the area of a CWMB, must have regard to the CWMP. In particular, a council must consider whether there is a need to implement changes to the way it undertakes any activity that may have been identified in a CWMP as requiring change (WRA 1997, s. 86(3)).

There are also provisions within the WRA 1997, for a council to be the relevant authority:

- for issuing permits for water affecting activities (s. 9(3)(e)(f));
- to maintain a watercourse or lake (s. 14) and to take action to prevent or rectify damage to a watercourse or lake (s. 17); and
- to prepare a LWMP (s. 108).

Under the *Local Government Act 1999*, councils are responsible for most stormwater infrastructure within their area and are required to undertake this responsibility in an ecologically sustainable manner.

Under the *Public and Environmental Health Act 1987*, councils have powers to:

- order a person to take action to prevent the pollution of a water supply; and
- restrict or prohibit the taking of water from a particular water supply where they are of the opinion that the supply is polluted and that the restrictions are necessary to prevent human consumption of water.

Councils are also responsible for the establishment and implementation of development plans, under the *Development Act 1993*. These plans, among other things, contain the land-use policies for each council area to be used in the development assessment process.

4 Definition of water rights

The right to take water from its natural source, is governed by the WRA 1997.⁹ The WRA 1997 does not confer ownership of water itself upon any person (including the Crown), but rather sets out the rights to access and take water.

The Act reserves to the Crown, that is, the Minister administering the Act, the right to control aspects of its use or protection as appropriate — through WAPs or through controlling water affecting activities under the WRA 1997 and through various provisions under the EPA 1993 (DWR 2000a).

All users of water possess either an unlicensed statutory right to take water from a non prescribed water resource or a licensed right to take a specified volume of water from a prescribed water resource (see box 4.1).¹⁰

4.1 Coverage

In areas where water resources are not prescribed, water rights are restricted to owners or occupiers of land (WRA 1997, s. 7). These users have an entitlement to take an unlimited volume of water for any purpose from either surface water or groundwater sources.

All landowners have a right to take an unlimited volume of water for stock and domestic purposes. However, there are provisions in the Act to regulate the taking of water for stock and domestic purposes in a catchment where a water resource is prescribed. In reality, this is not common practice.

⁹ Other rights and responsibilities relating to water, such as flooding and pollution issues, are dealt with by common law and by other statutes such as the *Environment Protection Act 1993*.

¹⁰ The WRA 1997 defines a water resource as a watercourse or lake, surface water, underground water and effluent. Surface water means water flowing over land other than in a watercourse, following rain (or some other precipitation) or from groundwater rising naturally to the surface. Surface water includes water flowing over land that has been collected in a dam or reservoir.

Box 4.1 Water rights in non prescribed and prescribed areas

In South Australia, a licence is not required to take water from a non prescribed water resource. The right to take water depends on ownership or lawful occupation of the land on which the water occurs — the right cannot be separated from the land, and is simply an incident of ownership or occupation of the land.

Under s. 7 of the Act, the right to take water without a licence depends on the nature of the resource and purpose for which the water is taken. For example:

- surface water may be taken, without restriction, by a lawful occupier for any purpose;
- water may be taken from a watercourse, lake or well, by
 - a lawful occupier, without restriction for stock and domestic purposes, ^a and
 - a person with lawful access to the watercourse, lake or well, for any purpose, provided that this does not detrimentally affect either the ability of another person to exercise a right to take water from the watercourse, lake or underground aquifer in question, or the enjoyment of the amenity of water in the watercourse or lake by another occupier of riparian land.

A licence is required to take water from a prescribed water resource, other than for stock and domestic use, or where the taking of water is authorised by a notice issued by the Minister for Environment and Conservation.^b A water taking or a water holding licence can be issued by the Minister and must be consistent with the relevant WAP.

A water taking licence allows the licensee to use the volume of water specified on the licence. In contrast, a water holding licence allows the licensee to hold but not use the volume of water specified on the licence. To convert a holding licence to a taking licence, a licensee must apply to the DWLBC and satisfy hydrogeological assessment criteria.^c

^a Stock purpose does not include intensive farming. Domestic purpose does not include irrigating more than 0.4 hectare of land or for carrying on a business (except for personal use of persons employed in the business). ^b There are provisions in the WRA 1997, for the right to access water for stock and domestic purposes to be licensed. ^c Holding licences have only been issued in the South East and River Murray areas.

Source: WRA 1997; NCC (2001).

In prescribed areas, anyone has a right to take water provided they have a licence to do so. A licence limits the volume of water that can be extracted by the licensee and contains conditions on the use of that water.

Under the WRA 1997, the environment has a statutory right to water. In prescribed areas, the WAPs determine environmental requirements but it is uncommon for the environment to be assigned a volumetric allocation (except in the case of Lower Murray Swamps).

Rainfall before it becomes surface runoff, is not included in the definition of a water resource. Consequently, the ability to capture rainfall in tanks for domestic use is not controlled by the WRA 1997. However, controls may be exercised under other Acts such as the *Development Act 1993* and the *Local Government Act 1999*.

Once rainfall becomes surface runoff, the provisions in the WRA 1997 apply. Under the provisions of the Act, the right to capture and use the water collected from surface runoff, as well as water flowing in from a watercourse, is restricted in some prescribed and designated areas by controlling on-farm dam activities.

Under s. 9(3) of the Act, a permit is required to erect, construct or enlarge a dam, wall or other structure that will collect or divert:

- water flowing in a prescribed watercourse; or
- water flowing in a watercourse in the Mount Lofty Ranges Watershed that is not prescribed; or
- surface water flowing over land in a surface water prescribed area or in the Mount Lofty Ranges Watershed.

Some WAPs also specify where dams must be located, dam capacity and flow regimes. For example, the following principles, among other things, apply to surface water flowing over land in the Barossa Prescribed Water Resources Area:

- dams should not be located in ecologically sensitive areas, and or in areas prone to erosion;
- In order to minimise impacts on downstream water dependent ecosystems:
 - water collected from a watercourse should be diverted to an off-stream dam; and
 - any on-stream dam should incorporate a low flow by-pass mechanism.¹¹
- The capacity of all dams in the catchment shall not exceed 50 per cent of the annual runoff of that catchment.¹²

The right to take groundwater is also regulated by the provisions in the WRA 1997. A permit is required to construct a well anywhere in South Australia and is also

¹¹ This means that the first flows after summer cannot be captured in a dam and the dam can only start to fill when the flow in the watercourse has reached a minimum level.

¹² This principle is intended to share the water equitably between landholders and to ensure that some water is left for the environment.

required for a range of other activities relating to wells in the state (WRA 1997, s. 9(3)).¹³

The right to take non traditional sources of water is not governed by the WRA 1997, nor in a direct sense by any other legislation.¹⁴ The WRA 1997 does, however, provide the ability to control the way in which these non traditional sources of water are used. In particular, the impact such use may have on natural water resources. Issues relating to rights to collect and use such water are also subject to other legislation, such as the *Sewerage Act 1929*, the *Public and Environmental Health Act 1987* and the *Environmental Protection Act 1993* (DWR 2000a).

Native title legislation and the WRA 1997 are not explicitly linked. Although there is no specific reference to native title rights, the Act allows anyone with lawful access to water (whether the landowner or not) to take water for drinking and cooking purposes, as long as the rate does not exceed the rate defined by regulation (s. 7(7)). This provision allows native title holders, as well as anyone else, the right to access water for basic needs (DWLBC 2002a).

No one in South Australia has a right to harvest floodplain water. Similarly, there is no right to take off-allocation water, because the category of off-allocations is no longer available to water users (MDBC 2001).¹⁵

4.2 Specification

Licences must specify the volume of water and the water resource from which the water is to be taken, and any conditions of use. Reliability and quality are not specified on a licence but are dealt with through the WAPs.

The South Australian system of rights only allows for high security water. For example, under the Murray–Darling Basin Agreement, South Australia has a guaranteed entitlement flow of 1850 GL per annum with an expectation of it being received or exceeded in 97 out of 100 years. Consequently, there are no wide fluctuations based on climatic variability and licence holders generally do not see large changes in their water allocations over time.

¹³ Other activities include drilling, plugging, backfilling or sealing of a well, repairing, replacing, or altering the casing, lining or screen of a well, and draining or discharging water directly or indirectly into a well.

¹⁴ Non traditional sources of water include seawater, urban stormwater, domestic and industrial effluent and irrigation drainage.

¹⁵ Off-allocation water is water that has not formally be assigned to right-holders during a water year.

4.3 Record of title

The Minister must keep a register of all water licences and permits in such a form and containing such information as the Minister thinks fit. The register must be available for public inspection (WRA 1997, s. 47).

The South Australian register records permit and water licence information, including details on transfers and sale of water allocations. All transactions on the system are audited on a weekly basis. The register is not available for public viewing but licence information is available on request from any water licensing office.

The register allows for the registration of a third-party interest in the licence or the water allocation of the licence. Such interests cover circumstances where a licence has been mortgaged, leased, conditions imposed or transferred.

An application to register an interest must be made by the licence holder. However, there is provision in the Act for a bank or other interested parties to lodge a notation of interest on a water licence application form (combined with an administration fee) to have their interest recognised on a water licence.

The register guarantees that all interested parties are contacted prior to any permanent transfers of water allocations or approval for sale of a water licence.¹⁶

In private irrigation districts, the irrigation trust keeps a register of all sub-allocations (water rights) made to individual irrigators. This information is not publicly available.

4.4 Duration

A water licence remains in force unless it is terminated under the Act (WRA 1997, s. 29). Although the licence and the allocation are issued in perpetuity, changes to allocations and licence conditions may be made by the Minister or occur as a result of amendments to a WAP at any time.

The Minister may reduce the water taking and water holding allocations if in his or her opinion it is necessary to prevent deterioration of water quality and damage to ecosystems, and if there is insufficient water to meet existing or future demand

¹⁶ A new water licensing system is being developed and will serve as the central and public registers for water access rights (DWLBC 2002b). This system is referred to as WILMA (the Water Information and Licensing Management Application).

(WRA 1997, s. 37). Compensation is not payable where such a reduction has been necessary (DWR 2000a).

A WAP may be amended any time, to take into account new information on system yield or environmental flow requirements. When it is amended (having gone through the required consultation process), it may result in the variation of a water licence, resulting in a reduction or increase in the allocation or some variation to the access conditions. Similarly, no compensation is payable to persons affected in these circumstances (DWR 2000a).

4.5 Exclusivity

The WRA 1997, seeks to ensure that water rights are exclusive by imposing certain conditions on right-holders in non prescribed areas, and limiting the volume of water that can be extracted and stored in on-farm dams to reduce third-party effects.¹⁷

In non prescribed areas, a person must not take water from a watercourse, lake or well if to do so would detrimentally affect the ability of another person to exercise a right to take water from the same water resources, or detrimentally affect the enjoyment of the amenity of water in the watercourse or lake by the occupier of land (WRA 1997, s. 7(4)).

In prescribed areas, WAPs place restrictions on the volume of water that an individual can extract from a water resource. This requirement is intended to:

- improve irrigation water use efficiency; and
- reduce the volume of return flow entering a watercourse or underground aquifer.

The IA 1994, also imposes restrictions and obligations on landowners. For example, a landowner must ensure that irrigation water does not drain or otherwise escape onto or into adjoining land so as to cause detrimental effects to the adjoining landowner. In the event that this happens, the irrigator is guilty of an offence with a maximum penalty of \$2500 (s. 54).

In recognition that the capture of overland flows in on-farm dams can have a detrimental effect on water dependent ecosystems, the WRA 1997 and WAPs restrict on-farm dam activities. As noted previously, these restrictions limit the volume of water that can be captured or restrict the size of the storage facility that can be built in some prescribed or designated areas.

¹⁷ Water rights are exclusive if all the benefits and costs of using water accrue to the right-holder.

The WRA 1997 and WAPs also impose conditions on the right to extract and return water to an aquifer (commonly referred to as an Aquifer Storage and Recovery Scheme). Limits are placed on the volume that can be extracted and the quality of water that can be returned to an aquifer.

4.6 Detached from land title and use restrictions

In South Australia, a licence does not separate the right to take water from the right to use water. However, a licence can be issued as a right to hold water, which allows the licensee to hold but not use the water allocated. All licences to take or hold water (including the water allocation) are separated from land title to facilitate trade.

The right to take water for stock and domestic purposes is not separated from land title and is not transferable.

4.7 Divisibility and transferability

Transferability of water rights between holders of water licences can occur under the WRA 1997.

A water taking and holding licence is divisible — it is not linked to land title, and can be transferred both on a temporary and permanent basis. Subject to the relevant WAP and Ministerial approval, a licensee may:

- transfer the licence (including its water allocation) to another person; and
- transfer the whole or part of the water allocation of the licence to another licensee or the Minister, for an absolute or limited period.

In most irrigation districts, the water right is vested with the irrigator. This right is freely transferable within the district and it is possible to trade outside the district through the respective irrigation authority (NCC 2001).

Although the environment may be licensed to take water, under the SWP environmental water provisions are not tradeable (DWR 2000a).

5 Government involvement in water allocation

Water allocation plans are the main vehicle for the allocation of water to the environment and licensed users in South Australia.¹⁸ A water allocation is notionally a volume of water that is allowed to be taken annually, and is stated on the licence.

Water trading is encouraged to re-allocate water to where water is scarce and most valued. In the River Murray catchment, water trading is used to address water scarcity as annual allocations are reduced under the MDBC's Cap initiative.

As noted previously, WAPs are prepared by CWMBs or WRPCs (where there is no CWMB) and potentially by local councils.¹⁹ The overarching policy document for water resource management in South Australia is the SWP, and all CWMPs, WAPs and LWMPs are required to be consistent with this principal policy document (DWLBC 2002a).

The WAP must also be consistent with plans, policies and guidelines developed under the *Coast Protection Act 1972*, the *Development Act 1993*, the EPA 1993, the *National Parks and Wildlife Act 1972*, the *Soil Conservation and Land Care Act 1989*, and the *Native Vegetation Act 1991*.

The Minister has adopted sixteen WAPs and a further three WAPs are in the process of being prepared (see table 3.1).

5.1 Resource planning

The WRA 1997 sets out the procedures that must be followed in developing a WAP (Division 3, ss. 101–104).

¹⁸ WAPs only apply to a prescribed water resource. Those who take and use water from a non prescribed resource are not subject to the water allocation planning process.

¹⁹ No LWMP has been prepared by a council to date (DWLBC 2002a).

The WRA 1997 requires that either a CWMB, WRPC or local council initially develop a proposal statement in consultation with the community. A proposal statement must specify matters to be investigated before preparation of the draft WAP.

At the stage when a draft proposal statement has the agreement of the Minister administering the WRA 1997, all government departments and other agencies that have a direct interest in the plan and the Minister administering the *Development Act 1993*, are asked to comment on the draft proposal statement. The Minister and the relevant planning body then have the opportunity to amend the draft proposal statement as a result of those comments within six weeks (WRA 1997, s. 93(5)).

When the Minister adopts the final proposal statement, the relevant planning body proceeds to carry out any investigations detailed in the proposal statement.²⁰ Once those investigations are completed and the required information is obtained, a planning body can proceed with preparing the draft plan. In accordance with s. 101(4) of the WRA 1997, all WAPs must address a common set of criteria (see box 5.1).

The process of drafting a water plan involves a board (or committee) consulting with the community again. The community must be invited to make a written submission and attend a public meeting prior to preparing, and on finalising the draft water plan. This invitation must be by advertisement in a newspaper circulating in the area in which the water resource is located.

A public meeting must be held at least 14 days but not more than 28 days after the advertisement was published. Written submissions must be received within a month prior to preparing the draft and up to two months after finalising the draft.

The draft water plan is then subject to Ministerial approval and amendment following the final community consultation. The Minister adopts the WAP by signing a certificate endorsing the plan. The WAP is then implemented through the DWLBC's water licensing system.

All submissions made in respect of the draft WAP must be made available for public inspection and purchase by members of the public.

A WAP is a statutory document developed through a mandated consultation process. It may be amended at any time and any amendments (whether relatively minor or substantial), must follow the same process as that required to prepare a new water plan. This can be resource intensive and time consuming. Most of the

²⁰ The final proposal statement is a project brief which directs preparation of the draft water plan.

WAPs prepared to date have taken between two and four years to complete (DWLBC 2002a).

Under the WRA 1997, the SWP and the CWMP must be reviewed every five years (ss. 51 and 97(2)). The WAP must be amended when required for consistency with the SWP (s. 106 (2)).

Box 5.1 Water allocation plan criteria

A Water allocation plan must:

- include an assessment of the quality and quantity of water needed by ecosystems located either within or downstream of the prescribed resource;
- include an assessment of whether the taking or use of water from the resource will have a detrimental effect on the quantity and quality of water that is available from any other water resource;
- provide for the allocation (including the quantity of water that is to be available for allocation) and use of water so that:
 - an equitable balance is achieved between social, economic and environmental needs for the water; and
 - the rate of use of the water is sustainable.
- take into account the present and future needs of the occupiers of land in relation to existing requirements and future capacity of the land and the likely effect of those provisions on the value of the land;
- assess the capacity of the resource to meet the demands for water on a continuing basis and provide for regular monitoring of the capacity of the resource to meet those demands; and
- provide for the transfer of, and other dealings with, water allocations.

Source: WRA 1997, s. 101(4).

Resource assessment

In preparing the WAP, a board or committee must assess the environmental requirements of the prescribed resource before allocating water for consumptive use (WRA 1997, ss. 35, 45 and 101(4)).

In undertaking this task, a board or committee, or a consultant (on behalf of a board or committee), will determine environmental flow requirements and the volume of water and quality needed by the ecosystem, based on the best available scientific information.

In South Australia, there are no statewide guidelines on the methodology to be used to assess water resources and riverine ecologies (RMCWB, pers. comm., 18 August 2003). However, a range of approaches are used to determine the water needs of the environment including flow percentiles, expert scientific panels, modified habitat assessment methods, and a modified NSW Nature Conservation Council method for assessing groundwater dependent ecosystems.

The community has the opportunity to comment on the assessment of environmental requirements for the prescribed resource.

Once water needs for the environment are determined, the WAP outlines how these environmental requirements will be met. A number of different methods are adopted to meet environmental requirements (see box 5.2).

Box 5.2 Environmental water allocation

To meet the future water needs of ecosystems, no new allocations for consumptive purposes will be granted in the River Murray Prescribed Watercourse. Consequently, any expansion in irrigation must be accommodated through improved water use efficiency or water transfers. The WAP for the River Murray Prescribed Watercourse also provides a volumetric water allocation for the environment in the Lower Murray Swamps.

The WAP for the Clare Valley Prescribed Water Resources Area provides water for the environment by limiting surface water storage and restricting further surface water development, controlling the types and location of dams and wells, and controlling the timing and condition of off-stream pumping or diversion.

Although less common, the WAPs for the Southern Basins and Musgrave Prescribed Wells Area allocate water for the environment and consumptive use on the basis of shares. Each year, the volumetric amount of the percentage share of the resource varies depending on the rainfall of the previous ten years.

This adaptive management approach is considered to provide better protection of the water resource from overuse when climatic variation reduces its capacity to supply water for use.

Source: DWLBC (2002a).

The WAPs also provide a set of criteria for allocating water for consumptive use within a prescribed area. Allocations may be based on metered use, dam storage volume, or an estimation based on the area irrigated and type of crop (in the absence of a meter).

A number of prescribed water resources in South Australia are approaching full allocation or are overallocated in relation to sustainable yield. In response to the

overalllocation of groundwater in the McLaren Vale Prescribed Wells Area, the WAP provides for allocations in excess of sustainable yield up to July 2003.

During the transitional period from 2000 to 2003, licensed allocations were calculated on the basis of average metered use over the period from 1996 to 1999, up to a maximum of 1.5 ML per hectare per year for grapevines, and 2.98 ML per hectare per year for other crops.

From 1 July 2003 most users will receive an allocation of 1.1 ML per hectare per year. Where the water is to be used on crops other than grapevines that have a high historical water use, an additional volume up to 1.6 ML per hectare per year may be allocated (DWR 2001a).

In South Australia, there is a legislative requirement for WAPs to achieve an equitable balance between social, economic and environmental needs for the water (WRA 1997, s. 101). The extent to which this requirement is considered by CWMBs and WRPCs is unclear.

Inter-jurisdictional arrangements

CWMBs determine the volume of water available for allocation and how it will be allocated to the environment and consumptive users in most prescribed areas. However, in the River Murray catchment the Murray–Darling Basin Agreement determines the total volume of water available for allocation from the River Murray Prescribed Watercourse.

Under the *Murray Darling Basin Act 1993*, South Australia is entitled to a minimum flow of 1850 GLs per annum in all but drought years, plus or minus allocations of water that are transferred through inter-state trade (RMCWMB 2001a).

Diversions from the River Murray Prescribed Watercourse are capped under the Murray–Darling Basin Agreement. The Cap restricts the volume of water South Australia can divert for consumptive purposes.

The Cap on extractions is around 724 GL per year. However, allocations endorsed on water licences granted under the WRA 1997, for some consumptive purposes are in excess of both the Cap and actual water use (see table 5.1).

The largest diversion from the River Murray is that lost through evaporation and seepage. Evaporative losses average around 900 GL per year, of which around 550 GL occurs in the lower lakes. In a dry year, evaporation losses can rise to over

1000 GL. Consequently during dry periods, there is little water left for discharge to the sea and to maintain river and ecosystem health (DWR 2000a).

Table 5.1 River Murray Prescribed Watercourse water limits, allocation and average use, 2001

<i>Consumptive purpose</i>	<i>Cap limit on extractions (GL/y)</i>	<i>Licensed water allocation as at October 2001 (GL/y)</i>	<i>Average water use 1996–97 to 2000–01 (GL/y)</i>	<i>Water available for allocation WAP 2002</i>
SA Water metro supply	130	130	123	130
SA Water country town supply	50	50	36	50
Irrigation, industrial recreational, environmental, stock and domestic purposes	441	503.8	383.5	522.1
Lower Murray Swamps consisting of:	103.5	99.6	99.6	98.8
–irrigation, stock and domestic	72.0			
–environmental land m'tment	22.2			22.2
–highland irrigation	9.3			9.3
Industrial		3.4	2.4	
Stock and domestic		1.7	2.1	
Recreational & environmental		5.6	3.8	
Total	724.5	794.1	650.4	800.9
Estimate of evaporation and seepage	900	900	900	900
Total diversions including evaporation	1624.5	1694.1	1550.4	1700.9
Entitlement flow to South Australia	1850	1850	1850	1850
Estimate of discharge to the sea and maintenance of the environment	225.5	155.9	299.6	149.1

Source: RMCWMB (2002).

Similarly, the Victoria–South Australia Groundwater (Border Agreement) determines the total volume of water available for allocation from the Mallee Prescribed Wells Area.

In 1983, the Mallee Area, adjacent to the Victorian border, was prescribed because early irrigation developments caused localised drawdowns, which affected stock and domestic wells in the vicinity (DWR 2000b).

The extractions in the Mallee area are regulated through the *Groundwater (Border Agreement) Act 1985 (SA)*, which sets permissible annual volumes (PAVs) and establishes regulations regarding the establishment of wells in this area (DWR 2000b).

Although the volume in storage in the Mallee Prescribed Wells Area is estimated to be around 100 million ML, the PAV has been set at 52 800 ML. Unlicensed taking of water for stock and domestic purposes is not included in the PAV.

In 2000–01, licensed allocations accounted for 52 392 ML or around 99 per cent of the PAV. Of this, only 26 017 ML or 50 per cent of the allocation was used (RMCWMB 2003). Irrigators used around 94 per cent of the water extracted in this area.

6 Administering water rights

The DWLBC is responsible for administering water rights. Its responsibilities include issuing new licences, varying a water licence, and approving the transfer of a licence (and the water allocation) or permanent and temporary transfers of an allocation. The DWLBC may also add or remove a notational interest on a licence.

The DWLBC's powers and the procedures it must follow in carrying out these activities are set out in the WRA 1997 and the WAPs. The DWLBC generally prepares a set of guidelines for each WAP, to ensure assessments are consistent.

An application for a new licence, to vary a licence and transfer a licence must be in a form approved by the Minister or delegate and must be accompanied by a fee prescribed by regulation. A standard application form is available from the DWLBC web site. Instructions for applicants are attached to the application forms.

6.1 Issuing new licences

In assessing an application for a new licence, the DWLBC must ensure that the provisions of a WAP allow the issuance of a licence.²¹ The DWLBC must ensure that the water allocation to be endorsed on the licence and conditions to be attached to the licence are consistent with the WAP (WRA 1997, s. 35). The decision to grant a licence must also be made in the public interest and must be consistent with any other requirements that may have been set by regulation.

There is no requirement in the WRA 1997 for the DWLBC to give public notice of an application for a new water licence.

Following an assessment of the application, the applicant is formally notified of the decision. A covering letter and the water licence are signed by a ministerial delegate and the licence takes effect from the date of signing. The process of granting a new licence takes around one week in the River Murray catchment (DWLBC, pers. comm., 4 August 2003).

²¹ In some prescribed areas no new licences and allocations are being issued because the water resource is fully or close to fully allocated to consumptive and non-consumptive uses.

6.2 Modifying licences

The modification of a licence may be initiated by an existing right-holder or by the DWLBC. For example, licence conditions may be changed at any time if there is an amendment to the relevant WAP, or if the Minister decides to reduce the water allocation. The Act also allows licence conditions to be updated at regular intervals where the licence itself has specified intervals for such updates (s. 30(1)(b)).

Modification of existing licences may involve an increase in water allocation, changing the names attached to the licence, changing the conditions of the licence or adding additional property to the licence.

In assessing an application to vary a licence, a similar procedure to that undertaken for a new licence is required by the WRA 1997.

6.3 Transferring licences

Water trading is possible in any prescribed area where licences have been issued. However, various restrictions are placed on the ability to trade (see boxes 6.1 and 6.3).

A licensee may transfer the licence (including its water allocation) to another person, or transfer the whole or part of the water allocation to another licensee or the Minister for an absolute or limited period. The application for transfer requires the approval of the DWLBC.

The DWLBC must assess transfer applications against the WRA 1997 and the rules contained in the relevant WAP. The decision to approve or refuse a transfer must be made in the public interest and the decision must be consistent with any other requirements that may have been set by regulation (s. 41).

Where a water allocation is involved, the transfer is achieved by varying the transferring licence as well as the receiving licence (s. 38(3)). Before granting an application the DWLBC may direct that an assessment of the effect of granting the application be undertaken (at the expense of the applicant) by an expert appointed or approved by the Minister (s. 39(2)).

Where a person is noted on the register of water licences as having an interest in the licence, the DWLBC must not grant approval for the transfer of the licence or the whole or part of the water allocation of the licence without the written consent of that person (s. 41).

The DWLBC may when granting an application for the transfer of a licence or for the variation of licences on the transfer of the whole or part of a water allocation:

- reduce the water allocation of the transferred licence;
- vary any condition of the licence transferred or the receiving licence to ensure consistency with the relevant WAP; and
- in the case of an application for the transfer of the whole or part of the water allocation of a licence to another licensee, require that the water allocation received by the receiving licensee be for a volume of water fixed by the Minister that is less than the water allocation transferred from the transferring licence. These measures can help move water out of significant areas of drawdown of an aquifer, or away from highly saline areas such as some areas close to the banks of the River Murray (s. 39(3)).

The transfer of the whole or part of a water allocation of a licence might involve taking water from a different source. The DWLBC is specifically authorised to ensure that the demand for water, from that part of the water resource from which the water will be taken in the future, does not prejudice other licensees by exceeding the availability of water in that part of the water resource.

The DWLBC is also empowered to reflect the loss to the water resource of part of the water represented by the transferred licence or allocation, by reason of evaporation or any other cause, as the water flows to that part of the resource from which it will be taken in the future.

There is no requirement in the Act for the DWLBC to give public notice of an application to transfer a licence or the water allocation of the licence, unless the relevant WAP specifies that notification is necessary (s. 40).

In the event that notification is required, the DWLBC must give notice to those specified in the WAP, any persons prescribed by regulations, and the public generally. The WRA 1997 allows any person to make representations in writing in relation to the granting or the refusal of the application. It allows the applicant to respond to those representations and allows those who have made a representation and the applicant to have a right to a hearing. There is also the opportunity for an appeal to the ERD Court (s. 40).

The process of approving a transfer can take between 4 and 12 weeks in the River Murray catchment (DWLBC, pers. comm.; 4 August 2003).

As noted by the NCC, the time taken to make a permanent transfer, in particular, is often seen as an impediment to the efficient trade in water rights. Similarly the

CSIRO noted that the time taken to process inter-state transfers has, in some cases, posed a significant social cost (NCC 2001).

To streamline the transfer process, South Australia has created holding allocations. This allows water to be traded without the usual delays for environmental and other clearances associated with a taking allocation.

Box 6.1 Trading rules for prescribed resources

The trading rules that are specified in each WAP may vary. However, they are governed in the first instance by the following guidelines set out in the SWP. For watercourses and other surface water:

- water rights should be traded downstream in a catchment but not upstream; and
- transfers between catchments are generally not supported due to potential environmental impacts. However, transfer of water is supported if it is within the ecological limits of taking and receiving environments.

For groundwater

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

These guidelines have given rise to the following trading rules in the River Murray Prescribed Watercourse:

- water allocated under the Cap for metropolitan water supplies is not tradeable but water can be transferred in;
- water allocated under the Cap for the environment is not tradeable;
- water allocated as a (holding) allocation may be transferred for any purpose;
- water allocated for country town supplies, irrigation, stock and domestic, industrial and recreational purposes is tradeable for one or more purposes; and
- an irrigation and drainage management plan (IDMP) is a requirement of the application to transfer a licence or the water allocation of a licence (see box 6.2).

Source: DWR (2000a); RMCWMB (2002).

Box 6.2 Irrigation and drainage management plans

Irrigation drainage management plans (IDMPs) are an important part of the strategy to reduce salinity levels and are required to ensure that each transfer is at least salinity neutral to the river, that is, water transfers must not result in any increase in river salinity levels (zero salinity impact).^a

These plans are only required for the River Murray catchment in South Australia.

An IDMP must be prepared before any new irrigation development can commence. If the development is an extension of existing irrigation activity, the IDMP has to cover the entire operation.

The IDMP includes a description of the planned on-farm irrigation system, demonstrates that the land is suitable for irrigation, that the water to be transferred is actually required for irrigation, and that the irrigation techniques will not result in unacceptable external impacts on the environment or neighbouring land use.

For large scale developments, buyers are required to be responsible for future deep drainage groundwater accessions that result from the development. This is part of the 'zero salinity impact' obligation and requires the developers to set aside funds for future site works. More specific principles relate to irrigation management zones. In these zones it is common to find transfers linked to the achievement of certain water-use efficiency rates.

^a Under the MDBC Salinity and Drainage Strategy (1989), South Australia is accountable for any new diversions that increase river salinity.

Source: DWR (2000a).

Box 6.3 Trading rules in irrigation districts

The irrigation trusts administer the permanent and temporary transfer of rights between individual irrigators in their respective districts. The transfer of water rights may occur through private trade, brokers or through a water exchange.

Irrigation trusts set their own rules relating to water transfers. For example, the Central Irrigation Trust (CIT) imposes limits on the volume of water that can be sold from a district. These limits are intended to ensure security of growers' allocations and to protect one of the trust's main assets.

In 2002, only 2 per cent of total water allocations could be transferred out of any one district but property owners could sell up to 25 per cent of their original allocation.

The restrictions imposed on permanent transfers do not apply to the lease of surplus water. In 1999, the CIT established a water exchange to enable growers to lease their surplus water for periods of 1, 3, 5 or 10 years. The water exchange is operated by the trust to allow only trust growers the opportunity to lease their surplus water.

The trust operates the exchange and carries out the administration for all water transfers. Trust growers indicate what volume of surplus water they wish to lease and the price they are seeking.

A water exchange is conducted each month. Buyers lodge offers to lease specific volumes of water at certain prices. On the day the exchange is conducted, if there is a suitable match for the volumes of water sought to be traded by sellers and buyers and the corresponding prices offered are compatible, a trade takes place.

As part of the River Murray Prescribed Watercourse, only those CIT customers seeking additional water allocations, new irrigation developments and amalgamations are required to provide the trust with an IDMP.

The *Irrigation Act 1994* enables an irrigation trust to trade all or part of its surplus allocation (that is, that allocation held by the trust in excess of the aggregate of allocations held by individual irrigators) to another person outside the irrigation trust's district, absolutely or for a limited period (s. 46A). These trades are subject to:

- a resolution by the trust of which 21 days notice must be given;
- excess water must be traded before unused water; and
- the proceeds from the sale (after deducting the costs) must be divided between the owners of the irrigated properties in the trust's district.

Source: CIT (1999); Central Irrigation Trust, pers. comm., 11 July 2002.

6.4 Hearing appeals

The licensee(s) have a right of appeal to the ERD Court when:

- an application for a licence has been refused (s. 142(1)(a));

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- a licence has been granted, but conditions imposed, appeal may be made against the conditions (s. 142(1)(a));
 - an application for a transfer has been refused, or granted subject to variation of the licence (s. 142(1)(b));
 - a licence has been varied to achieve consistency with a plan or with the Act (ss. 30(2) and 142(1)(c)).

Persons who are ‘existing users’ of water at the time a resource becomes a prescribed resource (that is, persons who were using or had a commitment to use at the relevant time), may appeal against the volume of water determined by the Minister as the existing user’s future requirement (s. 36(6)).

The appeal must be instituted within six weeks of the date of licence issue. The appeal must also be served upon the DWLBC within that time.

7 Distribution management

Water accounting and water distribution are integral components of distribution management.

Water accounting is the process of keeping an inventory of the volume of water available for supply and of the volume that has been assigned and distributed to uses and users. It also involves the re-assignment of water in times of severe water shortages. Water distribution involves the collection, storage and transportation of water to uses and users.

7.1 Water accounting

There are no water accounting procedures specified in the WRA 1997, the CWMPs or WAPs. However, water accounting procedures for the River Murray are specified in the Murray–Darling Basin Agreement 1992.

Determining availability and assigning water

Available water determinations are made annually by the Minister for Environment and Conservation. Water determinations specify the volume of water that is available for extraction from a prescribed water resource.

The provisions governing how much water from the River Murray system is to be made available to South Australia is governed by the Murray–Darling Basin Agreement 1992. This agreement outlines the share of the available resource to be made available to South Australia and the method by which it is to be provided by the MDBC.

SA Water has the authority to determine the volume of water for extraction for metropolitan and non-metropolitan areas.

Arrangements for water shortages

The WRA 1997 empowers the Minister to prohibit and restrict water use or reduce water allocations if there is insufficient water to meet demand or expected future demand. The conditions for declaring a water shortage are not specified in the WRA 1997.

The Minister (by notice published in the *Gazette* and in a newspaper circulating in that part of the state in which the watercourse, lake or well or the surface water is situated), may prohibit or restrict the taking of water from the watercourse, lake or well or the taking of surface water for up to two years (WRA 1997, s. 16).

Under s. 37, the Minister may reduce both the water taking and water holding allocations of the licences if:

- there is insufficient water to meet the existing demand or future demand for water from the resource; and
- there has been, or is to be, a reduction in the volume of water available pursuant to the *Groundwater (Border Agreement) Act 1985* or the *Murray–Darling Basin Act 1993*.

The Minister must reduce the allocation of all the licences that have been granted to take water from the water resource proportionately. The exception to this is if they are reduced pursuant to a scheme set out in regulation made by the Governor on the recommendation of the Minister.

Water banking

In some prescribed areas in South Australia, a portion of an unused water allocation in one financial year may be carried over to successive financial years (see box 7.1).

In a number of prescribed groundwater areas, a person may drain or discharge water directly or indirectly into a well. The recharge to the groundwater basin is a controlled activity under the WRA 1997 and requires a permit (s. 9(3)(c)).

Box 7.1 Carry over of unused allocations

In the Angas Bremer Prescribed Wells Area, any unused portion of up to 30 per cent of a water allocation for any water-use year (excluding recharged water) may be taken and used after the end of that water-use year (at any time over the subsequent three water use years) with the allocation for the next water-use year.

A water use year means the period between 1 July in any calendar year and 30 June in the following calendar year.

In recognition that annual water use will vary with climatic conditions, the Murray–Darling Basin Cap provides scope for greater water use in some years and lower use in other years. For example, metropolitan Adelaide has a five year non tradeable rolling allocation of 650 GL. The nominal average annual usage allowed is 130 GL, but actual use in a dry year can be higher, and can be offset by lower than average use in wetter years.

Source: RMCWMB (2001b); DWR (2000a).

The WAPs include criteria to ensure that recharged water is stored and used in a manner that minimises the impacts on other groundwater users and groundwater dependent ecosystems. A licence allocation is granted for a proportion of the measured water recharged (see box 7.2).

Box 7.2 Aquifer storage and recovery

In the Angas Bremer Prescribed Wells Area, the basis for allocating recharged water is an entitlement to take, during a water use year, a percentage (not exceeding 100 per cent) of the volume recharged in the previous water use year.

In the Mallee Prescribed Wells Area, the basis for allocating recharged water is an entitlement to take, during a water use year, a percentage (not exceeding 80 per cent) of the volume recharged in the previous water use year.

In the Northern Adelaide Plains Prescribed Wells Area, the basis for allocating recharged water is an entitlement to take, during a water use year, a percentage (not exceeding 80 per cent) of the volume recharged in the previous water use year. The basis for this allocation allows some flexibility in the use of recharged water in that, if the licence allows, unused entitlements can be carried over for up to 5 years.

In the McLaren Vale Prescribed Wells Area, the basis for allocating recharged water is an entitlement to take, during a water use year, a proportion (not exceeding 75 per cent) of the volume recharged in the previous water use year.

Source: RMCWMB (2001b); DWR (2000b); NABCWMB (2000); OCWMB (2000).

7.2 Water distribution

River Murray Water operates and manages the River Murray system.²² In doing so, River Murray Water is responsible for the delivery of water from this system to South Australia.

Lake Victoria is located in the south-west of NSW, and is one of the four major water storages on the River Murray system. It was constructed to provide a reliable water supply for the development of the lower Murray region in South Australia and to mitigate and augment flood peaks. The storage is operated by SA Water (MDBC 2002a).

Lake Victoria is located immediately upstream from South Australia. This enables the MDBC to deliver a uniform water supply to South Australia, in accordance to water entitlements defined in the Murray–Darling Basin Agreement. South Australia is entitled to receive between 3000 MLs and 7000 MLs of water a day, depending on the time of year.

The River Murray provides up to 40 per cent of all urban water requirements. This water is delivered by SA Water to metropolitan and non-metropolitan areas. SA Water also delivers a limited volume of water through its major pipelines from the River Murray to irrigators in the Barossa and Clare Valley areas.

Irrigation trusts are responsible for the supply and delivery of licensed water allocations to irrigators in privately managed irrigation districts. Lower Murray Operations provide irrigation and drainage services to the nine remaining government owned irrigation district in the Lower Murray Reclaimed Irrigation Zone.

An irrigation trust must not, without the Minister’s approval, supply water for domestic or for any other purpose (except for irrigation) if a supply of water under the *Waterworks Act 1932* is available for those purposes (IA 1994, s. 35).

Managing distribution for consumptive use

Each day, River Murray Water decide on releases from storages along the River Murray and lower Darling. Water is released to meet the needs of irrigators and flows for South Australia within constraints such as minimum flow requirements, dilution of salinity, maximum rates of change of water level, and capacity of the

²² River Murray Water was established by the Murray–Darling Basin Ministerial Council as an internal business division of the Murray–Darling Basin Commission in January 1998.

river channels. Instructions on releases are then given to staff of the state authorities located at the various river structures (MDBC 2002b).

In South Australia, all licensed users have high security water rights. Unlike NSW, Victoria and Queensland there is no requirement to prioritise the distribution of water between high and low security rights.

8 Pricing

South Australia does not have a transparent price setting mechanism, or an independent process for reviewing prices (NCC 2003).

The Minister for Government Enterprises is empowered under the *Waterworks Act 1932* and the *Sewerage Act 1929* to set the prices to be charged for the provision of water and wastewater services for metropolitan and non-metropolitan customers, after consultation with SA Water.

Irrigation authorities have the power to set water charges for their respective irrigation districts under the IA 1994. These charges are generally based on the operating costs of delivering irrigation water.

Under the WRA 1997, a CWMB or the Minister may raise funds through a catchment levy to help internalise the environmental costs of the use of that water (s. 122). The levy must be set at a level that will fund the direct costs of managing the particular water resource, as identified in the management plan of a catchment water management board (Part 8 Division 1).

When a CWMB seeks to fund all or part of the implementation of its CWMP through a levy (or levies), the Minister for Conservation and Environment must submit the CWMB's plan to the Economic and Finance Committee for its consideration and scrutiny of the levy proposal(s) (WRA 1997, s. 95(8)).

8.1 Recent price reforms

In response to the Council of Australian Governments' (CoAG) Water Resources Framework (CoAG 1994), SA Water has adopted consumption-based pricing and has increased charges over time to achieve full cost recovery of infrastructure where appropriate.²³

²³ Consumption-based charges comprise a fixed access charge for water and sewerage, plus a volumetric charge based on water use. The access charge is intended to reflect the fixed costs of supplying the customer, for example the cost of maintaining the system and environmental costs. The volumetric charge is based on water use and is intended to reflect the long-run cost to the business of supplying additional units of water.

The National Competition Council in its review of the progress of South Australia against the goals of the CoAG Framework concluded that all privatised irrigation districts recover costs consistent with at least the lower bounds of the CoAG pricing principles (NCC 2001).²⁴

There are no requirements in the IA 1994 for irrigation trusts to pay tax or tax equivalents or dividends to the South Australian Government.

8.2 Pricing water infrastructure services

Under s. 56 of the IA 1994 an irrigation authority may declare a water supply charge or water supply charges based on one, or a combination of two or more, of the following:

- the fact that land is connected, or the owner or occupier of land is entitled to have it connected, to the irrigation system;
- the volume of water supplied to land during the charging period to which the declaration applies;
- the area of the land to be irrigated; or
- such other factor(s) as the authority thinks fit.

Provision is also made for a differential charging structure. Different charges may be declared for:

- different parts of its district, to recover water supply or drainage costs associated with that part of the district;
- water supplied for irrigation, domestic or other purposes; and
- the quality of water supplied.

The basis on which water delivery costs are recovered varies between irrigation authorities. Charges may comprise a fixed annual access charge (for example, in the CIT irrigation district this charge is intended to cover the cost of meter maintenance, meter reading and invoicing) and a volumetric charge based on water

²⁴ The lower bounds of the CoAG 1997 pricing principles refer to recovering at least, the operational, maintenance and administrative costs, externalities, taxes or TERs (tax equivalent regime), provision for the cost of asset consumption and cost of capital. The latter being calculated using a weighted average cost of capital.

use, or in the absence of a water meter the charge is based on the area of land irrigated.²⁵

In the CIT irrigation district, the annual water allocation is shown on each irrigator's invoice. Invoices are issued quarterly in July, October, January and April. If an irrigator's consumption for the year ended 30 June exceeds the annual allocation, the irrigator is charged double the rate for the first 20 per cent above allocation and quadruple after that.

In 2002, the CIT charged \$36.60 per megalitre extra for the first 20 per cent above allocation and \$109.80 per megalitre extra after 20 per cent above allocation is exceeded (CIT 2002).

These penalty amounts are significantly less than those that can be incurred by River Murray diverters. For example, in 2002, the Minister for Environment and Conservation charged all River Murray diverters, who use more than their water allocation, \$150 per megalitre for the first 10 per cent above allocation and \$300 per megalitre if consumption exceeds 10 per cent above allocation (CIT 2002).

Irrigators in the CIT district may also be required to pay a catchment levy, which will be used to clean up the Murray, and a rehabilitation contribution toward the cost of rehabilitating the district. The latter levy is based on annual allocation.

In South Australia, 70 per cent of water extracted from the River Murray is used by irrigators. However, irrigators do not pay for the costs associated with running the River Murray system (that is, dam storage and maintenance of weirs). These costs are met by SA Water and recovered from residential and business customers.

In some catchments, such as Eyre Peninsula, the cost of delivering water is higher than the sale price and is subsequently subsidised by the State Government (DWR 2001a).

Drainage charges

An irrigation authority may also declare a drainage charge based on the area of land irrigated or drained or on the basis of the volume of water supplied for irrigating the land (IA 1994, s. 58(1)).

²⁵ For example, in the Lower Murray Reclaimed Irrigation Zone, the South East catchment and the Mallee Prescribed Wells Area, charges are levied on the basis of area of land irrigated instead of consumption.

The authority may exempt the owner and occupier of land from payment of drainage charges if water does not drain from the land into the drainage system provided by the authority or if the volume of water that drains into the system is negligible (IA 1994, s. 58(2)).

8.3 Pricing environmental third-party effects

CWMBs may set a levy on either licensed water allocations and consumption, or on land ownership (Dyson 1997). The levy may be based on water taken, water allocated or a combination of both methods.

In the Northern Adelaide Plains Prescribed Wells Area and the Barossa Prescribed Water Resources Area, a combined approach is used to provide water users with an incentive to transfer unused water allocations and to use water more efficiently (NABCWMB 2001).

The taking of water for stock and domestic purposes is specifically exempted from the levying provisions (s. 122(5)).

While a person will not pay both types of levy (water-based and land-based), both types may operate within the one catchment area, as may be appropriate to fund the particular programs nominated in the boards management plan.

If no board is in place and there is a need for significant management of the catchment, environmental management costs can be collected through a levy set by the Minister on the basis of a report setting out the management costs for that resource (ss. 121 and 122; Dyson 1997).

Under s. 140 of the WRA 1997, boards can rebate water-based and land-based levies for activities undertaken by the water or landowner to conserve water, or maintain or improve the quality of water.

The DWLBC have a centralised system for invoicing, collecting, reconciling, and reporting all water-based levy transactions. The DWLBC invoices licensed water users and collects the revenues on behalf of the boards. Irrigation districts such as those administered by the CIT are invoiced by the DWLBC. The levy is then recovered in a manner determined by the trust from water users.

SA Water also contributes a minimum of 0.5 cents a kilolitre to each of the relevant CWMBs in the form of *ex gratia* payments for water extraction in the board's area (NCC 2001). These payments are provided to offset the environmental costs associated with the reticulated water supplies.

The land-based levy applies to all rateable properties in the catchment and is collected by constituent councils on behalf of the board through their rating system.

Once the quantum of the levy to be raised from councils has been determined, it is the responsibility of the Minister for Environment and Conservation to determine the share to be provided by each constituent council to the board. After consultation with the councils, the Minister must determine the basis for the levy from the following (WRA 1997 s. 138(3)):

- the capital value of rateable land; or
- a fixed levy of the same amount on all rateable land; or
- a fixed levy of an amount that depends on the purpose for which rateable land is used; or
- the area of rateable land; or
- the purpose for which rateable land is used and the area of land.

9 Monitoring and enforcement

The WRA 1997 establishes an enforcement framework that provides the Minister with a range of powers to ensure compliance with the Act and licence conditions. Many of the Minister's functions and powers have been delegated to the DWLBC as the primary enforcement agency.²⁶

In December 2000, an Investigations Unit was formed within the Resource Management Division of the DWLBC to ensure compliance with, and investigate possible breaches of the WRA 1997. Its responsibilities include, among other things:

- investigating breaches including meter tampering, water theft and excessive overuse of allocation;
- undertaking investigations and preparing reports for the attention of prosecutors in the Crown Solicitors Office; and
- collecting evidence of *Environmental Protection Act 1993* and *Native Vegetation Act 1992* breaches while undertaking water resource investigations, which are then referred to the relevant agency.

Accountability and reporting

The DWLBC is accountable to the Minister for Conservation and Environment and is required to prepare an annual report on its financial and operational performance. Although there are no specific statutory requirements for the DWLBC to report compliance outcomes, they do disclose the number of incident reports logged for investigation, cautioned suspects and prosecuted breaches in their annual report.

Transparency and consultation

As far as could be ascertained, the DWLBC does not publish a statement of their compliance strategy.²⁷

²⁶ Some activities can also be devolved to local councils and CWMBs.

²⁷ A compliance strategy is a document which describes how an enforcement agency undertakes its monitoring and enforcement activities.

The water licence generally includes a statement of the right-holder's compliance obligations. However, the Investigations Unit also consults with the community to ensure that changes in relevant legislation that impact on water resource compliance issues are understood by licensed water users.

The unit also presents information sessions to CWMBs, WRPCs and other community groups, and participates and assists with courses, training and information sessions on issues related to water resources.

9.1 Monitoring procedures

A regular monitoring strategy for each prescribed resource is outlined in the WAPs. Generally the requirements place the onus on the licensee to self-monitor and report compliance with licence conditions to the DWLBC. This approach is supported by periodic random audits undertaken by the Investigations Unit.

Most WAPs require licensees using a prescribed water resource for irrigation, to prepare an irrigation report which, among other things, must include the volume of water used in a water use year (see box 9.1).

Box 9.1 Irrigation annual report–River Murray Prescribed Watercourse

The irrigation report for the River Murray Prescribed Watercourse, must include (but is not necessarily limited to) the following data:

- the volume of water allocated on the licence;
- the volume of water actually used by the licensee during the water-use year as calculated by the definition in the WAP;
- the location, area and age of each crop type irrigated;
- the volume of water used by each crop type as calculated by the definition in the WAP;
- the water-use efficiency for each licence, calculated using the formula in the WAP;
- the nature of any soil moisture monitoring devices used by the licensee; and
- the level and salinity of underground water as measured in December and June of every water-use year.

Source: RMCWMB (2002).

The report must be submitted to the DWLBC or the Minister for Conservation and Environment at the end of each water-use year. Information required for the annual report as outlined in the relevant WAP, will vary depending on licence conditions,

and whether the taking of water is from a surface water or groundwater resource. This report is not a public document.

Similarly, the WAPs require licence or permit holders undertaking aquifer storage and recovery to implement an ongoing monitoring program. In the McLaren Vale Prescribed Wells Area and the Clare Valley Prescribed Water Resources Area, licence or permit holders must undertake the following minimum analysis of the water to be drained or discharged:

- minimum of four samples per season during which the drainage or discharge occurs; and
- at least one sample per 10 ML of water drained or discharged.

In the Angas Bremer Prescribed Wells Area, an irrigation annual report must be prepared each year and include, among other things, the volume of water recharged for each meter.²⁸

To verify the information provided in water licences, the DWLBC undertakes random audits to ensure that water allocations, land parcel information, licence holder entity, water transfers, and conditions endorsed on each licence are appropriate and legally valid (DWR 2001b).

Accurate licence information is a prerequisite for collecting the appropriate water and land-based levies for the respective CWMBs. It also ensures that correct water allocation information is used to determine penalty charges for use in excess of licensed water allocations (DWR 2001b).

In 2000–01, the DWLBC completed an audit of water licences issued under the WRA 1997 for the River Murray Prescribed Watercourse and the five prescribed wells areas in the South East catchment.

In the absence of water meters, allocations are based on the area and type of crop irrigated. To ensure compliance, the DWLBC may conduct aerial surveys to determine if the area under crop complies with licence conditions.

Monitoring environmental allocations

In South Australia, allocation of water for the environment is commonly based on environmental flow requirements. However, a fixed volume of water has been allocated for the Lower Murray Swamps under the Murray–Darling Basin Cap

²⁸ The draining or discharging of water directly or indirectly into a well is referred to as artificial recharge.

agreement.²⁹ In the Southern Basins and Musgrave Prescribed Wells Areas, water for environmental purposes is expressed as a share of available water.

The WRA 1997 requires WAPs to provide for the regular monitoring of the resource's capacity to meet the demands for water. This includes the monitoring of environmental flows to determine if allocations for the environment are being met.

Although there are requirements to monitor stream flows, it is difficult to know if environmental requirements are being met because there is limited reporting of monitoring outcomes. Indeed, there is evidence to suggest that there has been limited monitoring of the volume of water received by the Lower Murray Swamps (RMCWMB 2001).

9.2 Enforcement procedures

The WRA 1997 sets out the activities that constitute an offence, the powers of an authority to take action on discovering a breach, the sanctions that apply and avenues for appeal.

Under the Act a number of specific activities constitute an offence by an individual right-holder, including:

- the unauthorised taking of water from a prescribed resource without a licence or authorisation (s. 9(1));
- carrying out an activity that affects water without a permit (the controlled activities include well drilling and watercourse obstruction) (s. 9(3));
- failure to comply with a notice to rectify an unauthorised activity (s. 13);
- failure to comply with a notice to maintain a watercourse (s. 14(2));
- failure to comply with restrictions imposed in situations of inadequate supply or overuse of water (s. 16(7));
- failure to comply with a general duty of care to take reasonable steps to prevent damage to watercourses, lakes and ecosystems (s. 17(3));
- contravening the conditions of a permit for an activity affecting water (including well drilling and watercourse obstructions) (s. 9(5));
- contravening the conditions of a well driller's licence (s. 22(4)).
- failure to ensure that a well is properly maintained (s. 27);

²⁹ In South Australia, environmental licences can be allocated for fixed volumes of water to be used solely for environmental purposes.

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- failure to comply with a notice requiring remedial work on a well (s. 28(4));
 - fail to comply with a condition of a water licence (s. 43(1) and s. 9(5));
 - without reasonable excuse, obstructing an authorised person who is entering land in the course of exercising their powers to do so (s. 67(7));
 - using offensive language or obstructing or threatening another when exercising powers to enter land (s. 67(10) and s. 88(6));
 - hindering persons engaged in the administration of the WRA 1997;
 - providing false or misleading information to the Minister or other authority, or to an authorised officer (s. 145); and
 - interfering with works or other property in the care and control of the Crown or a board (s. 149).

In South Australia, the DWLBC does not have the flexibility to tailor the sanction to the seriousness of the offence. The Minister has wide ranging discretionary powers to cancel and/or vary a licence when non-compliance is proven. Statutory penalties are also available for offences committed by persons who do not hold a licence as well as those who do. The statutory penalty for most offences is \$5000 for an individual and \$10 000 for a body corporate.

All offences under the Act must be heard and determined in a court. There are no sections within the Act which enable expiation fees or fines to be issued to persons committing offences of a minor nature. There are a number of minor offences such as failing to clear around a water meter, where the ability to issue an on-the-spot fine is considered to be more appropriate.

There are no provisions within the WRA 1997 for serious offences to constitute a criminal wrong and to potentially result in a substantial fine or carry the possible imposition of a prison sentence. In any event, the ERD court is precluded from hearing such matters. Criminal offences must be heard in the Magistrates Court.

There is concern that the penalties for offences are too low relative to other jurisdictions and relative to the market price for water (NCC 2001). More importantly, it is considered that the penalties do not provide an adequate deterrent to non-compliance with the state's system of water resource management.

For example, the offence for taking water from a prescribed resource without a licence may avoid the significant expense of purchasing a licensed allocation. In areas where prescribed resources are fully allocated, the cost of a licence can be substantial. In McLaren Vale, a medium sized allocation of 20 ML, at current market value, is worth \$320 000 and in the Barossa Valley \$160 000 (DWLBC 2002a).

Licensees may appeal to the ERD Court against a decision to cancel, vary or suspend a licence because a breach of a condition was considered harsh or unreasonable. A licensee cannot appeal against a decision by the Minister to reduce water allocations to prevent further reduction in water quality or damage to an ecosystem.

The Act does not prescribe how frequently the DWLBC should monitor and enforce compliance. This is left to the discretion of the DWLBC. The absence of published compliance strategies or a detailed record of enforcement action makes it difficult to determine if a consistent enforcement approach is applied to all right-holders.

Finally, data on the specific cost of enforcement are not reported because enforcement activity is subsumed within the DWLBC which has multiple responsibilities. The resources allocated to this activity are relatively small, with four people ensuring compliance with water right conditions in South Australia.

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