



# Water Rights Arrangements in Australia and Overseas

## Annex F *Australian Capital Territory*

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**Inquiries about this document:**

Media and Publications  
Productivity Commission  
Locked Bag 2 Collins Street East  
Melbourne VIC 8003

Tel: (03) 9653 2244  
Fax: (03) 9653 2303  
Email: dhanek@pc.gov.au

**General Inquiries:**

Tel: (03) 9653 2100 or  
(02) 6240 3200

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# Contents

<b>Preface</b>	<b>v</b>
<b>Abbreviations</b>	<b>vi</b>
<b>1 The water sector</b>	<b>1</b>
<b>2 Legal framework</b>	<b>3</b>
2.1 Evolution of water law	3
2.2 Current legislative framework	3
<b>3 Organisations</b>	<b>8</b>
3.1 Environment Protection Authority	8
3.2 Independent Competition and Regulatory Commission	9
3.3 ACTEW	10
<b>4 Definition of water rights</b>	<b>11</b>
4.1 Coverage	11
4.2 Specification	12
4.3 Record of title	13
4.4 Duration	13
4.5 Exclusivity	14
4.6 Detached from land title and use restrictions	15
4.7 Divisibility and transferability	15
<b>5 Government involvement in allocating water</b>	<b>17</b>
5.1 Allocation mechanisms	17
5.2 Resource planning	17
<b>6 Administering water rights</b>	<b>21</b>
6.1 Applications	21
6.2 Consultation	21
6.3 Assessment	22
6.4 Decision notification	24

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6.5	Hearing appeals	24
6.6	Applications for other licences and permits	24
<b>7</b>	<b>Distribution management</b>	<b>25</b>
7.1	Water accounting	25
7.2	Water distribution	27
<b>8</b>	<b>Pricing</b>	<b>28</b>
8.1	Pricing water as a scarce resource	28
8.2	Pricing water rights management	28
8.3	Pricing water infrastructure services	30
8.4	Pricing environmental third-party effects	30
<b>9</b>	<b>Monitoring and enforcement</b>	<b>31</b>
9.1	Compliance strategies	31
9.2	Monitoring procedures	31
9.3	Enforcement procedures	32
	<b>References</b>	<b>33</b>

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# 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. These case studies are descriptive and do not compare the arrangements of the jurisdiction against best practice principles. 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.

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. The authors would like to thank especially the staff of Environment ACT. Further feedback from readers would also be welcome.

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# Abbreviations

ACT	Australian Capital Territory
ACTEW	ACT Electricity and Water
CoAG	Council of Australian Governments
EFG	Environmental Flow Guidelines
EPA	Environment Protection Authority
ICMF	Integrated Catchment Management Framework
ICRC	Independent Competition and Regulatory Commission
NCC	National Competition Council
WPEPP	Water Pollution Environment Protection Policy
WRMP	Water Resource Management Plan

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# 1 The water sector

The Australian Capital Territory (ACT) is a municipal jurisdiction responsible for the administration and governance of the city of Canberra and its surrounding area. The ACT is surrounded entirely by New South Wales and is approximately 300 kilometres south-west of Sydney. The ACT covers an area of 2357 square km, of which 40 per cent comprises the Namadgi National Park — mostly to the west. The city of Canberra has an average altitude of 600 metres, and the western parts of the ACT vary in altitude between 1500 and 1800 metres.

The ACT lies within the Upper Murrumbidgee River Catchment and accounts for nearly 20 per cent of the catchment's area. There are seven sub-catchments: the Murrumbidgee; the Gudgenby; the Cotter; Tuggeranong Creek; the Molonglo and its tributaries; the Queanbeyan river; and Ginninderra Creek. The seven sub-catchments comprise 32 smaller reaches (Environment ACT 1999a).

Average annual rainfall in the ACT is approximately 630 mm per year, although this is higher in the western ranges. Rainfall in the ACT is fairly evenly distributed throughout the year. However, the region can experience extended drought periods (Environment ACT 1999a).

Average annual rainfall run-off is 465 GL. Of this, approximately 272 GL (58 per cent) is designated as environmental flows, leaving 193 GL (42 per cent) available for consumptive use. However, only 65 GL is currently used and another 8.4 GL has been expressly allocated to meet growth in agricultural and urban use over the next ten years. The remaining water available for consumptive use (120 GL) is not allocated to any specific purpose (Environment ACT 1999a).

The ACT draws its water supply from two sub-catchments:

- The Cotter River, which is wholly within the ACT and the Namadgi National Park. Three dams have been built on the Cotter River — the Cotter Dam (4.7 GL, 1912), Bendora Dam (11 GL, 1961), and the Corin Dam (76 GL, 1968).
- The Googong system, which was developed on the Queanbeyan River in NSW. The Googong Dam (125 GL) was built in 1979.

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In addition, Lake Burley Griffin (33 GL), Lake Ginninderra (3.7 GL) and Lake Tuggeranong (2.6 GL) each provide landscape and recreational uses and, for the latter two, pollution control uses (Environment ACT 1999a).

Although the ACT lies within the Murray–Darling Basin, it is not subject to the Murray–Darling Basin Cap, and there are no stressed or over-allocated rivers or streams. However, the ACT has participated in the Murray–Darling Basin Initiative as an observer since March 1998 (PC 2003; NCC 2001).

Only around 5 per cent of the ACT’s water is supplied from groundwater (NHT 2001). In urban areas, groundwater is used for a variety of purposes, such as to water golf courses, for educational facilities, nurseries and cemeteries. Outside the urban areas, groundwater is mainly used to fulfil stock and domestic purposes on farms, in rural settlements and for irrigation (Environment ACT 1999a).

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## 2 Legal framework

### 2.1 Evolution of water law

The Commonwealth *Seat of Government Acceptance Act 1909* vested to the Australian Government, for the purposes of the ACT, the right to the waters of the Queanbeyan and Molonglo Rivers (Environment ACT 1999a). The Australian Government successively delegated its rights to the Queanbeyan and Molonglo rivers to the Canberra, first with the construction of Googong Dam (*Canberra Water Supply (Googong Dam) Act 1974 (Cwlth)*) and then through the ACT self-government legislation (*Australian Capital Territory (Planning and Land Management) Act 1988 (Cwlth)*). The 1988 Act effectively surrendered control of all water resources, except those under National Land to the ACT.

### 2.2 Current legislative framework

The current legislative and policy framework in the ACT comprises the:

- *Water Resources Act 1998* (WRA 1998) — which provides for the management of water resources and protection of aquatic ecosystems;
- *Environment Protection Act 1997* (EPA 1997) — which provides for the protection of the ACT’s environment, including water quality;
- *Land (Planning and Environment) Act 1991* (Land Act 1991) — which provides for the planning and regulation of land, such as through the use of land approvals, and thereby, for catchment management in the ACT; and
- Integrated Catchment Management Framework — a policy framework for the management of natural resources in the ACT.

#### ***Water Resources Act 1998***

The WRA 1998 vests ‘the right to the use, flow and control of all water of the ACT’ on non-National Land, including the waters of the Googong Dam area, to the Minister for the Environment in the name and on behalf of the ACT (WRA 1998,

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s. 13). Holders of ACT land leases issued before 11 December 1988 have common law rights to groundwater. While the ACT can licence the use of this water, it cannot charge for the water (NCC 2001).

The objective of the WRA1988 is to:

- ensure that the use and management of the water resources of the ACT sustain the physical, economic and social well being of the people of the ACT while protecting the ecosystems that depend on those resources;
- protect waterways<sup>1</sup> and aquifers from damage and, where practicable, to reverse damage that has already occurred; and
- ensure that the water resources are able to meet the reasonably foreseeable needs of future generations (WRA 1998, s. 3)

The role of the WRA 1998 is to regulate the taking of water from a waterway and to provide for the protection of waterways (aquatic ecosystems). It does so by providing for the:

- Preparation of Environmental Flow Guidelines (EFGs);
- Preparation of a 10-year Water Resources Management Plan (WRMP);
- Statutory rights to access water for stock and domestic purposes; and
- Administration of licences and water allocations to access water (WRA 1998).

The WRA 1998 identifies a number of rights to the consumptive use of water.

The WRA 1998 confers on a lessee or occupier of land a right to take water from an immediately adjacent waterway (or overland flow) for stock and domestic purposes. These purposes include domestic household purposes, drinking water for stock, or for irrigating a domestic garden not exceeding two hectares (WRA 1998, s. 33). For a person to use water for camping purposes or to water stock, they must have legal access to the waterway.

In other cases, it is an offence to take water from an aquifer or waterway without first obtaining a *licence to take water* from the EPA (WRA 1998, s. 33). A *water allocation* is a right to a volume of water. Persons must possess a water allocation before applying for a licence to take water (WRA 1998, s. 35).

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<sup>1</sup> Waterways are defined to include rivers, creeks, streams or other natural channels, as well as lakes, ponds, lagoons or marshes. They also includes the bed that the water in the waterway normally flows over or is covered by, and the banks that the water in the waterway normally flows between or is contained but does not include land normally not part of the waterway, such as that formed during a flood (WRA 1998, s. 4).

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Regulation of farm dams for stock and domestic purposes is not an issue for the ACT (NCC 2001).

A number of other licence instruments are created to regulate activities including the driller's licence (to regulate the quality of groundwater drilling), and recharge licence (a permit to construct and recharge groundwater).

### ***Environment Protection Act 1997***

The EPA 1997 is the main legislation governing the control of discharges into water. With respect to water, the main features of the EPA 1997 are:

- a specification of water quality standards for the ACT;
- the requirement for the EPA to produce a water pollution environment protection policy; and
- a general duty of care to the environment (EPA 1997).

The water quality standards are summarised in Schedule 4 to the EPA 1997. They set the indicators and maximum allowable concentrations of substances and materials in water.

The Water Pollution Environment Protection Policy (WPEPP) articulates the regulation of activities that might affect water.

- Class A activities are prohibited without authorisation from the EPA. These include (but are not limited to) landfill, sewage treatment and the commercial use of pesticides.
- Class B activities are prohibited without either an authorisation or environmental protection agreement with the EPA. These include (but are not limited to) major land development and construction, growing, harvesting and managing forests, and waste water recycling (EPA 1997).

A range of other nominated activities have the potential to affect water quality. Rural activities, for example, are subject to voluntary environmental protection agreements with the EPA. Generally, such agreements would allow for riparian buffer strips, permanently grassed drainage depression limits on stock access to limit damage to stream banks, contour ploughing and ripping, and rehabilitation of degraded land (Environment ACT 1999b).

The EPA 1997 (s. 22) also recognises a general environmental duty.

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A person shall take such steps as are practicable and reasonable to prevent or minimise environmental harm or environmental nuisance caused, or likely to be caused, by an activity conducted by that person.

Persons are determined to be in compliance with the duty if they are in substantial compliance with an accredited code of practice (EPA 1997, ss. 31 and 33).

## **Land (Planning and Environment) Act 1991**

The Land Act 1991 has an indirect role in the management of water resources in the ACT. The Land Act 1991 is the primary legislation in the ACT governing the planning for and administration of land under the ACT's leasing system.

The Land Act 1991 has several impacts on water resource management. First, in specifying the rights and obligations of lessees, the Act specifically stipulates:

A lease or further lease of Territory Land granted ... after the commencement of this section shall not be taken to confer a right to the use, flow and control of water (including water containing impurities) under the land the subject of the lease (Land Act 1991, s. 172B).

Second, the Land Act 1991 specifies the planning processes for the ACT's leasehold system. Its subordinate instrument, the ACT Territory Plan, specifies a number of environmental values for water that are required to be taken into account in water resource, environment protection and nature conservation planning.

Finally, as part of the regulation of land use within the ACT's leasing system, all development applications must be approved by the Commissioner for Land and Planning (Land Act 1991, Part VI). The Commissioner may prohibit certain activities on leasehold land that would affect a water course. These include activities that are likely to cause soil erosion, or involve destroying, damaging, removing or otherwise interfering with vegetation (living or dead) or soil between the banks, or within 20 metres of the bank, of a watercourse (Land Act 1991, Schedule 5, s. 10)

## **Integrated Catchment Management Framework**

The Integrated Catchment Management Framework (ICMF) is the guiding policy for the implementation of catchment management in the ACT. The framework was developed in consultation with the Murray–Darling Basin Commission's Natural Resource Management Strategy 1990 (Environment ACT 2000).

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The ICMF was also developed in consultation with the Murrumbidgee Catchment Action Plan 1998 and the Murrumbidgee Catchment Regional Strategy. The action plan sets the priorities and direction for the management of natural resources in the catchment and seeks to address problems of water quality and quantity, native vegetation management, dryland salinity, weed management, soil erosion and riparian zone management (Environment ACT 2000).

The ICMF incorporates the objectives of both the action plan and those of other planning and legislative requirements, such as the Territory Plan, the ACT Nature Conservation Strategy, and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

The purpose of the ICMF is to provide a guide for developing subcatchment management plans. A number of subcatchment plans have already been prepared. The role of each plan is to address local problems. Each plan's activities include: catchment coordination; vegetation management; water quality management; environment protection and enhancement; waste management; invasive plant and animal management; and urban and rural development (Environment ACT 2001a and 2001b).

The ICMF and each subcatchment plan is developed separately to the EFGs and the WRMP. As noted earlier, the preparation of both the EFGs and the WRMP is also influenced by the common environmental values identified in the Territory Plan.

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## 3 Organisations

The ACT's natural resource manager is Environment ACT, a division of the Department of Urban Services. The Environment Protection Authority (EPA), an office-holder within Environment ACT, is responsible for administering both the WRA 1998 and the EPA 1997.<sup>2</sup> The Independent Competition and Regulatory Commission (ICRC) sets, monitors and enforces service standards and prices of infrastructure service providers (NCC 2001). The Chief Health Officer has responsibility for ensuring public health requirements, including protecting drinking water quality.

### 3.1 Environment Protection Authority

The Chief Executive of the Department of Urban Services can appoint a member of the ACT public service to serve as the EPA (EPA 1997, s. 11). Under the WRA 1998, the EPA is required to:

- review the state and condition of the water resources;
- coordinate policies in relation to water resource management;
- regulate the allocation of water from waterways;
- compile and maintain up-to-date information relating to water resources in the ACT;
- promote the importance, and encourage the efficient use, of water resources; and
- foster public education about the management of water resources (WRA 1998, s. 18).

The EPA is responsible for the planning of allocation of water resources (by preparing the ACT's EFGs and WRMP), administering water rights, ensuring water is distributed in accordance with legislation, and monitoring and enforcing water rights.

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<sup>2</sup> The statutory name given to the person responsible for administering the WRA 1998 and the EPA 1997 is the Environment Management Authority. The EPA is the more commonly used name, although the former is sometimes used when referring to either of the two Acts.

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Under the EPA 1997, the EPA is responsible for managing pollution and water quality by:

- maintaining a register of contaminated sites;
- developing regulations in relation to activities, prescribing penalties and sampling of pollutants;
- preparing an environmental protection policy; and
- developing and operating measures to maintain environmental control, such as licences and tradeable permits (EPA 1997, ss. 21A, 26, 34 and 166).

As part of its environment protection and water quality activities, the EPA is responsible for the planning, administration, monitoring and enforcement functions.

### **3.2 Independent Competition and Regulatory Commission**

The ICRC is a statutory body responsible for setting prices, regulating access and other matters in relation to regulated infrastructure service providers.<sup>3</sup> The ICRC also investigates competitive neutrality complaints.

The ICRC's objectives are to:

- promote effective competition in the interests of consumers;
- facilitate an appropriate balance between efficiency and environmental and social considerations; and
- ensure non-discriminatory access to monopoly and near-monopoly infrastructure (ICRC undated).

With respect to water, the ICRC is responsible for setting service standards and prices for the ACT's only urban water supplier — ACTEW (ACT Electricity and Water). The ICRC is also responsible for ensuring that competitive neutrality provisions, under Clause 3 of the Council of Australian Governments' (CoAG) Competition Principles Agreement (1995), are met.

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<sup>3</sup> The ICRC was formerly known as the Independent Pricing and Regulatory Commission (IPARC).

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### 3.3 ACTEW

ACTEW Corporation, a government trading enterprise, is the sole provider of water and sewerage services to the metropolitan area of the ACT. ACTEW serves over 370 000 mostly urban customers.

ActewAGL is a joint venture between ACTEW and AGL Limited. Under these arrangements, for water and waste water services:

- ACTEW remains a government-owned holding company, holding (through two subsidiary companies) a 50 per cent share in two partnerships that are responsible for the provision of water and wastewater services;
- ACTEW retains ownership of the existing water and wastewater catchment and treatment infrastructure — including the Cotter Dam, Bendora Dam, Corin Dam and the Googong Dam; and
- ActewAGL provides water and sewerage operations and maintenance services as contractors to ACTEW (ACTEW undated).

The objectives of ACTEW include ‘managing the corporation sustainably to provide quality service to our customers while building value for our owners’. ACTEW has ‘embraced the principles of implementing ecologically sustainable development principles and delivering high-quality and efficient services’ (ACTEW undated).

ACTEW operates under a seven-member board appointed by the voting shareholders — the ACT’s Chief Minister and Deputy Chief Minister. The voting shareholders determine terms of appointment and remuneration paid to directors. Three directors of the ACTEW Board are also appointed to the ActewAGL Board.

ACTEW holds a licence to take water, issued by the EPA. It is required to participate in the Water Services Association of Australia performance monitoring and benchmarking arrangements (NCC 2001).

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## 4 Definition of water rights

The main water rights in the ACT include:

- stock and domestic rights — statutory rights to take and use water, for stock and domestic purposes, camping purposes, watering for travelling stock and for fire-fighting;
- licences to take water — these authorise the taking of water from a waterway and aquifer, by defining the purpose and location from which water is taken; and
- water allocations — these authorise the volume and rate of extraction of water that can be taken.

The definition of these rights is guided by the provisions of the ACT's EFGs and WRMP.

### 4.1 Coverage

Under the ACT's EFGs and WRMP, surface and ground water are managed jointly, as if they were the same resource (Environment ACT 1999a). This is because of the frequent interrelationship between groundwater and surface water.

The taking of groundwater from lease-hold land granted before 1998 is subject to a separate licensing arrangement. These licenses to extract groundwater will gradually be replaced by the provisions of the WRA 1998 as the original licenses expire.

Both a licence to take water and water allocation are needed to use water for any purpose including the collection of overland flows.

There is no explicit provision in the WRA 1998 capping extraction by stock and domestic water users. In volumetric terms, the use of water in the ACT for stock and domestic purposes is not comparatively large. However, of the licenses issued in the ACT, most are for extracting water for watering stock and for domestic purposes.

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## 4.2 Specification

Stock and domestic rights are not expressly specified in volumetric terms. Licences to take water specify the maximum volume and rate of extraction of water that may be taken from a water body (or aquifer) from a particular location. Water allocations also specify the amount of water to which the holder is entitled at different times of the year.

The WRA 1998 does not expressly state the priorities of access for different classes of water allocations. Priorities are determined within the WRMP. According to the WRMP, priorities (from highest to lowest) are to:

1. maintain minimum environmental flows; and
2. fulfil water allocations (Environment ACT 1999a).

The priorities of access between the various uses of a water allocation depend on the ecosystem classification of a sub-catchment (Environment ACT 1999a). For example, in 'modified' ecosystem sub-catchments, the priority among water allocation holders includes:

1. stock and domestic;
2. commercial and irrigation uses within licence conditions; and
3. recreational uses.

Water allocations are also not expressly specified in terms of reliability or likelihood that they will be fully met in any given year. Instead, allocations are based on average flows (NCC 2001). However, the WRMP does provide some indication of the likelihood that a water allocation will be met in full in any given year.<sup>4</sup>

Finally, water not formally allocated to maintain minimum environmental flows and for the needs of water allocation holders, is allowed to flow through the streams and into lakes. These flows become available only in higher than average flow periods and can provide for necessary flushing and flooding events that follow from storms or to assist the inundation of wetlands (Environment ACT 1999b).

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<sup>4</sup> In sub-catchments predominantly classified as modified, created or natural ecosystems, the probability, that in every 100 years, the environmental allocation will be met in full, and is inferred from the equation: Environmental allocation =  $B + 0.9(A - B)$ , where A = the mean annual flow, and B = the volume of water that can be met at least 80 per cent of the time.

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### 4.3 Record of title

Stock and domestic rights to water do not require separate licensing arrangements. Consequently, such rights do not require registration but it is sufficient that the user has legitimate access to the water body.

The WRA 1998 requires the EPA to establish a registry of licences, water allocations, permits granted and transfers made in the ACT (WRA 1998, s. 64). Hard copies of these documents may be examined by the public on request at the EPA's office (WRA 1998, s. 16).

The registry does not record the financial interests (for example, mortgages) in a licence or allocation, or the interests of downstream water users (for example, in terms of return flows). 'While there is no facility to note the existence of third-party interests at this stage, the ACT has advised that this will be a simple matter to address when the need arises' (NCC 2001).

### 4.4 Duration

Stock and domestic rights are ongoing provided that the water user continues to have land adjoining a natural water body. Water allocations are perpetual but can be varied according to the outcomes of the review of a WRMP. Water allocations can also be surrendered or cancelled.

Licences to take water are issued for up to 10 years, unless surrendered or cancelled by the EPA. The EPA can cancel a licence if the:

- exercise of the licence adversely affects environment, environmental flows, aquifer or the rights of other users;
- volume of available groundwater is not sufficient to meet demand or that there is a risk that the available water will not meet future demand; and
- the taking of groundwater will or is likely to affect the quality of the water (WRA 1998, ss. 35 and 38).

In addition, the EPA can cancel a licence if:

- it is not satisfied with the applicant's environmental record in the ACT and elsewhere (as it relates to water);
- the holder does not have lawful authority to obtain access to the place from which the water is to be taken; or

- 
- development for which the licence is based has not been approved under Part VI of the Land Act 1991 (WRA 1998, ss. 35 and 38).

While water allocations are ongoing instruments, their priorities and the volumes of water allocated to them are reviewed every 10 years.

## **4.5 Exclusivity**

A licence or water allocation is exclusive, if at the margin, it ensures that the benefits and costs of accessing and using water accrue to its holder.

### **Environmental flows**

The main method for addressing the over-extraction of water is to set aside water for environmental purposes. As many streams in the ACT are unregulated, the EPA has the authority to impose diversion limits (in terms rates of extraction and times of extraction) in order to preserve environmental flows.

As mentioned, there are several classes of environmental flows including high priority minimum environmental flows, and low priority flushing flows.

### **Conditions on licences and water allocations**

The EPA places conditions on the exercise of licences to take water and water allocations to address environmental third-party effects (WRA 1998, ss. 28 and 35). The WRA 1998 allows for a range of conditions to be placed and include limiting the rate of extraction at certain times of the year. Conditions placed on a licence to can water also apply to its attached water allocation (WRA 1998, s. 28).

### **In-stream infrastructure**

The WRA 1998 imposes a general ban on the construction of in-stream infrastructure (dams, weirs) that would interfere with the natural flow of a waterway (WRA 1998, s. 68). All persons are required to obtain a permit for the construction of a dam, water storage or other water control measure.

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## **General duty of care**

Under the WRA 1998, the lessee or occupier of land on which waterway is situated or that adjoins a waterway, has a duty to take reasonable steps to prevent damage to the bed and banks of the waterway (WRA 1998, s. 65). Similarly, under the EPA 1997, all persons have a general duty of care to prevent harm to the environment (EPA 1997, s. 22).

If a lessee or occupier has failed in their duty to carry out their function, the EPA may take actions to rectify and prevent damage and may impose an environmental protection order (WRA 1998, s. 65).

## **4.6 Detached from land title and use restrictions**

Stock and domestic rights to water, by definition, are not separable from land title. As noted, they can only be used towards defined statutory purposes.

Licences to take water are initially issued separately from land title, however once granted they cannot be transferred to a new location (WRA 1998, s. 37). Similarly, the WRA 1998 does not expressly require an applicant to specify the use of a licence, though licence application forms do request the primary and secondary use of the water. Once constituted, the purpose of a licence cannot be changed as a result of a transfer.

Water allocations are fully separable from land title and are not defined in terms of their use — they may be used for any purpose.

Land use is not managed under the WRA 1998. Instead, an application for a licence to take water must be approved under Part VI of the Land Act 1991 (WRA 1998, s. 35).

Similarly, the discharge of polluted water from the agricultural land is subject to the EPA 1997. Under the WPEPP, land holders may adopt voluntary best practice land management practices to minimise adverse impacts on water quality.

## **4.7 Divisibility and transferability**

Stock and domestic rights are not divisible or transferable, except to the extent that a lease-hold title is subdivided or sold. Environmental flows do not possess a separate legal title and cannot be traded.

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As noted, water allocations are fully divisible and can be traded. Water allocations may only be transferred to another party that is a holder of a licence to take water. Such transfers require an update of the licence in the EPA's register (WRA 1998, ss. 31, 32). Licences to take water can only be transferred to a new owner, but not a new location.

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## 5 Government involvement water allocation

### 5.1 Allocation mechanisms

There are explicit provisions in the WRA 1998 permitting the EPA to regularly review a water allocation and the conditions of a licence to take water (WRA 1989, ss. 30 and 49). This allows the EPA to allocate water to the environment. Compensation is not payable for the modification or removal of a water allocation or licence to take water.

The main method of allocating water between existing users is through water trading. However, the NCC reported that there was not any water trading either within or involving the ACT. ‘The lack of trade is largely a reflection of the available resource and the relatively small industry and agricultural sector in the ACT compared with those in other jurisdictions’ (NCC 2001).

The NCC reported that there was presently ‘insufficient demand in the Territory to justify the establishment of ... [a]... trading market’ (NCC 2001). Trade between the ACT and NSW is expected to occur in the future. Progress on implementing interstate trades would depend on the development of trading rules for the Murrumbidgee and Murray Rivers (in particular exchange rates), and the finalisation of the ACT Cap on Diversions.

### 5.2 Resource planning

As noted, the major planning instruments in the ACT are the:

- Territory Plan — determines the environmental flow regimes for each subcatchment and assesses the community’s values for priority of ecosystem management;
- Environmental Flow Guidelines — defines an ecosystem classification and recommended environmental flows for each subcatchment; and

- 
- WRMP — determines the allocation between environmental and extractive uses (EPA, pers. Comm. 23 May 2003).

Once approved, these plans are disallowable instruments for the subsequent administration, monitoring and enforcement of licences and water allocations (WRA 1998, ss. 11 and 26).<sup>5</sup>

## Resource assessment

In preparing the EFGs, the EPA makes an assessment of the available water resources and the water resources necessary to maintain aquatic ecosystems. Consequently, the guidelines represent both assessments in the volume, variability, seasonality, and quality of water (WRA 1998, s. 5).

Similarly, when preparing the WRMP, the EPA must:

- describe the water resources of the ACT in terms of quantity and seasonal distribution of flows on a sub-catchment by sub-catchment basis;
- describe the flows required to meet the environmental needs of individual waterways and aquifers;
- propose the allocation for extractive water use in the ACT for the next 10 years;
- describe the water allocations to be created for urban water supply, industry and other uses; and
- describe the actions to be taken by the EPA to manage the water resources of the ACT (WRA 1998, ss. 19 and 20).

## Objectives

The EFGs specify the broad management goals for each sub-catchment. The goals vary according to the ecosystem classification of the sub-catchment:

- natural ecosystems — maintain ecosystems in their pristine state;
- modified ecosystems — should meet a range of functions, including recreation and conservation;
- water supply ecosystems — provide water supply; and

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<sup>5</sup> A disallowable instrument is a determination made by the Minister or the Secretary containing guidelines that must be taken into account in making decisions.

- 
- created ecosystems — should meet a range of functions including recreation, conservation and irrigation (Environment ACT 1999b).

The WRMP's broad objectives are the same as those of the Territory Plan and the WRA 1998. More detailed objectives, such as those that can be used as performance indicators in a review of the WRMP, were not publicly available.

### **Impact assessment**

The EPA is required to take into account the environmental, economic and social impact of the EFGs (WRA 1998, s. 5). However, it is not clear to what extent, if at all, studies of the economic or social impacts of the EFGs were undertaken.

There is a legislative requirement for the EPA to consider the environmental, economic and social impacts of allocations when preparing a WRMP. This involved hydrological modelling of the environment's requirements, and financial assessments on the impacts on urban water supply (EPA, pers. comm. 23 May 2003). It is not apparent from the EFGs and the WRMP that cost-benefit assessments were undertaken in the allocation of water between competing uses.

### **Transparency and consultation**

Under the WRA 1998, the EPA is required to invite submissions from the public on the draft EFGs and the draft WRMP (WRA 1998, ss. 6 and 21).

After revising the draft EFGs and WRMP, the EPA is required to re-submit the drafts to the Minister for the Environment for approval together with written advice on the extent of consultation and issues raised in any of the comments (WRA 1998, ss. 8 and 23).

The Minister for the Environment has final responsibility for approving the EFGs and WRMP (WRA 1989, ss. 9 and 24).

### **Review**

The EPA is required to monitor the ACT's water resources (WRA 1998 ss. 17 and 19). The WRA 1998 provides authorisation for the WRMP to be reviewed and varied (WRA 1998, s. 20). However, the Act does not expressly state how often such as review is to take place. The EPA, the EFGs and the WRMP are to be reviewed no less than every 5 years and 10 years respectively (Environment ACT

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1999a and 1999c). The first WRMP is to be revised after 3 years of implementation (EPA, pers. comm. 23 May 2003).

Following review of the WRMP, the EPA can reduce a water allocation to the person either wholly or in part, if satisfied that it is necessary or desirable to do so:

- because a reduction in the flow of the waterway makes it necessary;
- to prevent reduction, or further reduction, in the quality of water in a waterway;  
or
- to prevent damage, or further damage, to an ecosystem that depends on that water from a waterway (WRA 1998, s. 30).

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## 6 Administering water rights

The EPA is responsible for administering water rights in the ACT. These responsibilities include:

- granting water allocations (by public auction, public tender, or if either method is unsuccessful, private contract) and licences to take water;
- changing a licence to take water; and
- approving transfers of water allocations and licences to take water.

All or part of an allocation or licence may be transferred, for an absolute or limited period, to another person. Holders of licences to take water may apply for a transfer of their licence, with the approval of the licence, to another person. The transfer may be absolute or for a limited time, to another person (WRA 1998, s. 37).

### 6.1 Applications

Under the WRA 1998, all applications must be made in writing to the EPA. Standard application forms for licences are available from the EPA. There are no standard forms for application for a water allocation — though the EPA provides advice as to what information to include in the letter (EPA, pers. comm., 23 May 2003).

Applicants seeking approval to transfer a water allocation must also provide the EPA with the name and address of the person to whom the allocation has been transferred (WRA 1998, ss. 31 and 37).

All applications must be accompanied by a fee.

### 6.2 Consultation

Under the WRA 1998, the EPA is not required to notify the public of any application for a water allocation or licence to take water, or for an application to transfer a water allocation or licence to take water. Similarly, legislation does not explicitly provide for existing holders of water allocations do not have a right or

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opportunity to lodge objections to applications for new or transfers of water allocations and licences.

## **6.3 Assessment**

### **Issuing water allocations and licences to take water**

A water allocation cannot be issued unless permitted in the WRMP (WRA 1998, s. 28). In approving the granting of a water allocation, the Minister for the Environment must consider:

- the availability of water;
- existing and likely future demand for water in the area in question;
- the EFGs for the waterway or aquifer in question;
- any agreement entered into by or on behalf of the ACT with the Commonwealth, state or another territory concerning the sharing of water; and
- any other matters the Minister for the Environment or the EPA, as the case may be, considers relevant (WRA 1998, ss. 28 and 29).

In granting a water allocation, the EPA may impose a range of conditions, such as the volume or rate of extraction, and the times that water can be taken.

The EPA must take into account when issuing a licence to take water:

- volume of water available can meet the demand or there is a risk that the available water will not be sufficient to meet future demand;
- taking of the water will or is likely to affect the quality of the water in the place to which the application relates
- whether the granting of the licence would have an adverse effect on the environment, or would adversely affect environmental flows of a particular waterway or aquifer or the rights of other water users;
- the applicant's environmental record both in the ACT and elsewhere so far as to relates to water; and
- whether the applicant has been convicted of an offence against the WRA 1998 or a corresponding law of a state or territory (WRA 1998, s. 35).

The EPA will not grant a licence to take water:

- if the water allocation on which the licence is based does not exist;

- 
- unless it is satisfied that the applicant has lawful authority to obtain access to the waterway or aquifer; and
  - if the proposed land development has been approved by Part VI of the Land Act 1991 (WRA 1998, s. 35).

The EPA may attach any range of conditions to the licence. The EPA may require the licence holder to:

- keep and maintain records;
- install, operate and maintain equipment, including a water meter;
- provide information in relation to compliance with the licence and its conditions;
- conduct monitoring and testing after taking of water;
- specify where water can be taken; or
- the maximum rate or volume of extraction or both (WRA 1998, s. 35).

### **Transferring water allocations and licences to take water**

The EPA will not approve an application for the transfer of a water allocation unless the EPA has been informed of the name and address of the person to whom the allocation is to be transferred (WRA 1998, s. 31).

In deciding whether to approve the licence, the EPA will take into account:

- the applicant's environmental record; and
- whether the person to whom the licence is to be transferred has been convicted of an offence under the WRA 1998 or corresponding law in another state or territory (WRA 1998, s. 37).

The EPA will not approve the transfer of the licence unless:

- the allocation or part of the allocation to which the licence relates is also transferred; or
- the EPA is satisfied that the water taken under the licence will be used by the transferee for the same purpose as the transferor and at the same place (WRA 1998, s. 37).

Finally, the EPA will approve the transfer of a water allocation provided no harm occurs to the environment (Environment ACT 1999b).

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## 6.4 Decision notification

Once a decision has been made to grant a water allocation, the EPA must publish a notice in the Gazette (WRA 1998, s. 28). Once a transfer of a water allocation has been approved, the attached licence to take water is modified on the registry to account for the changed level of water allocation (WRA 1998, s. 64).

The EPA must also publish any granting of a licence. It must also publish any changes to a licence if it is the result of a transfer of a water allocation (WRA 1998, s. 50).

## 6.5 Hearing appeals

Applicants may appeal a decision of the EPA to the Administrative Appeals Tribunal on the:

- refusals to grant a licence to take water or a water allocation;
- reductions of water allocations;
- granting of a licence to take water; and
- cancellation of a licence to take water (WRA 1998, s. 77).

Applicants and third parties can appeal the decision of the EPA to issue a water allocation or licence to take water. Applicants and third parties are notified by the EPA of their rights of appeal following the EPA's decision.

Nothing in the WRA 1998 affects any civil right or remedy available to a person in respect to the conduct of the Act (WRA 1989, s. 12).

## 6.6 Applications for other licences and permits

As mentioned earlier, the EPA is responsible for administering a range of other licences for the management of water resources. These include applications for:

- bore construction permits;
- recharge licences to increase the quantity of groundwater; and
- permits to construct water control structures to construct or alter a dam, water storage or other water control structure in a waterway must first obtain a water control permit (WRA 1998, ss. 43, 47 and 69).

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# 7 Distribution management

Distribution management involves determining how much water is available and who is to receive it (water accounting), and coordinating the collection, storage and transportation of water to its various uses and users (water distribution).

In the ACT, water accounting is largely the responsibility of the EPA. Water distribution to metropolitan customers is undertaken by ACTEW.

## 7.1 Water accounting

Water accounting involves maintaining a record of the volume of water available and distributed to uses and users at any point in time. The purposes of maintaining accounts are to:

- assist the distributor to keep track of water use;
- allow consumptive users to keep track of their use and the water remaining available for use, and enable distributors to bill users for their use; and
- facilitate monitoring and enforcing compliance with water use regulations.

### **Determining water availability and assigning water**

The EPA can determine the total volume of water to be allocated each year, in accordance with the provisions of the WRMP.

As noted, water is assigned each year to water allocation holders in accordance with the priorities. The priorities that apply to a sub-catchment vary according to the ecosystem classification (Environment ACT 1999a). The Minister for the Environment has the authority to limit the taking of water during the course of a year to ensure that such priorities are met (WRA 1998, s. 34).

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## Managing water accounts

ACTEW, responsible for urban water supply, may carry-over. Holders of water allocations are allowed to borrow up to twice their allocated volume in any 12 month period, but must not exceed three times their allocation over three years.

There are no provisions governing the treatment of conveyancy losses during the course of trades between water allocation holders (EPA, pers. comm., 23 May 2003).

## Arrangements for water shortages

The Minister for the Environment can restrict a licence to take water, if he is satisfied, that the rate at which water is being taken from a waterway or groundwater is:

- such that the quantity of water available can no longer meet the current or future demand;
- affecting or is likely to affect the quality of the water in the waterway or groundwater;
- having a serious effect on the level of groundwater that depends on surface water for replenishment;
- having a serious effect on the environmental flow of waterway or aquifer; or
- adversely affecting the environment (WRA 1998, s. 34).

In such an event, the Minister for the Environment can:

- prohibit or restrict the taking of water, generally or in a particular case; or
- direct specified dam, reservoir, embankment, wall or other structure be modified or removed to allow water to pass over, under or through them (WRA 1998, s. 34).

Under the WRMP, in the event of a drought, the Minister for the Environment can progressively restrict the following uses by water allocation holders:

1. pasture;
2. annual crops;
3. permanent crops not listed below;
4. commercial non-agricultural activity;
5. permanent horticulture, viticulture and orchards; and

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6. all other uses other than domestic consumption (Environment ACT 1999a).

## **7.2 Water distribution**

Water distribution is the collection, storage and release of water to users. It involves the management of flows to meet the needs of environmental, consumptive and consumptive uses.

### **Managing environmental flows**

Environmental flows in the ACT are determined as environmental allocations. The allocations represent the volume of water necessary for the ordinary operation of the streams or lakes according to their ecosystem function.

The current EFGs were released in May 1999 (Environment ACT 1999a). As mentioned earlier:

- separate environmental flow regimes are determined for each individual sub-catchment within and adjoining the ACT in accordance with the objectives of its ecosystem function ('natural ecosystem', 'modified ecosystem', 'water supply' and 'created ecosystem');
- in addition to minimum environmental ('low') flows, other environmental flows include: flushing flows, special purpose flows, and maintenance and impoundment flows; and
- environmental flows are principally concerned with volume and timing, although some water quality issues (such as temperature of water, oxygen content and nutrient load potentially affecting algal blooms) are addressed.

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# 8 Pricing

## 8.1 Pricing water as a scarce resource

There are several mechanisms with which the scarcity of water is realised:

- As mentioned, the EPA can auction, tender or contract the granting of water allocations.
- The trading of water allocations can provide an opportunity to realise the opportunity cost of water, but to date there has been no trading of water allocations within or from the ACT.
- Urban water users are required to pay a per kilolitre levy for all licensed takings of water. This abstraction charge is intended to reflect the scarcity of water — although it does not fluctuate seasonally according to the levels of water supply. The level of the abstraction charge was reviewed by the ICRC (IPARC 1999 and 2000).

## 8.2 Pricing water rights management

Water users are required to contribute to the costs of managing the ACT's water resources. Generally, these include:

- Fees for filing applications for the granting and transfers of water allocations, licences to take water and recharge licences.
- An ongoing annual administration fee for water allocations and licences to take water. This fee progressively increases with the size of the water allocation or licence to take water (see table 8.1).

It is not clear to what extent these fees recover the cost of planning, administration and monitoring and enforcement.

**Table 8.1 Pricing of water, 2000**

<i>Type of licence or permit</i>	<i>Payment requirements</i>
Grant of a water allocation:	On date set by the Environment Protection Authority. Varies according to whether: <ul style="list-style-type: none"> <li>• the allocation relates to taking of water through a practice which existed prior to 1 May 1998;</li> <li>• the allocation relates to taking of water through a practice which existed prior to 1 May 1998 is adjusted to more accurately represent the amount of water taken in line with the prior practice; and</li> <li>• in all other cases.</li> </ul>
Recharge licence application fee	On application for a licence.
Recharge licence yearly fee	For the first year the fee shall be paid on application. Thereafter, the fee shall be paid in full within 60 days after the commencement of subsequent licence years.
Application fee for a licence to take water	On application of licence
Annual fee to administer the licence to take water:	<ul style="list-style-type: none"> <li>• The per ML fee increases as the volume of licence increases.</li> <li>• The fee shall be paid in full within 60 days after the commencement of subsequent licence years.</li> </ul>
Up to 6 ML per year >6 ML to <2000 ML per year 2000 ML to <5000 ML per year 5000 ML to <10 000 ML per year 10 000 ML to <25 000 ML per year 25 000 ML or more per year	
Abstraction charge levied on the licence to take water:	In the case of water taken for the urban water supply network, the fee shall be paid on a three monthly basis, ending on the last day of February, May, August and November each year and within 28 days of the end of the three month period.
<ul style="list-style-type: none"> <li>– in the case of water supplied through the water supply network, water delivered to users; and</li> <li>– in all other cases, water taken from surface water or groundwater</li> </ul>	In all other cases the fee for a licence year shall be paid within 60 days of the end of the licence year. The fee shall be based on the sum of the monthly water use records for each month in the licence year.  In all cases, where fees relating to part of a month are due, each day's use will be taken to be equivalent to average daily use for that month and, where monthly meter readings are not available, the Environment Management Authority shall estimate water use after consultation with the licensee.

Source: ACT (2000) Water Resources Act 1998 Determination of Fees No. 116, Canberra.

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### **8.3 Pricing of water infrastructure services**

ACTEW collected sufficient revenues between 1995–96 and 2000–01 so that it was able to recover operating and maintenance costs and capital costs of its water supply operations (WSAA 2001). ACTEW Corporation was able to earn a rate of return on its combined water supply services of between 2.5 and 5.5 per cent per year. The Corporation was also able to make regular contributions to the ACT Government in the form of dividend payments as well as make tax payments.

The ICRC assessed ACTEW Corporation's asset valuation using the optimised deprival valuation method. This entailed making both a valuation of the corporation's fixed assets using the depreciation optimised replacement cost method, as well as a net present value based on expected future incoming streams. The final valuation was based on the net present value approach. This valuation settled the asset based for the future pricing of assets.

### **8.4 Pricing environmental third-party effects**

The most important environmental third-party effect arising from water storage and extraction is addressed through the provision of environmental flows.

As mentioned earlier, the ICRC has approved the collection of a water abstraction charge by ACTEW. The charge reflects both the opportunity cost of water (and is intended to discourage over-use of water by households), as well as a natural resource management charge (of 5 cents per kilolitre). Environment ACT charges ACTEW both components, and ACTEW is permitted by the ICRC to pass these costs to the ACT's water users (IPARC 1999).

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## 9 Monitoring and enforcement

The WRA 1998 sets out the requirements of monitoring and enforcing. The EPA is responsible for:

- maintaining continuous program for the assessment of water resources;
- using gauging, monitoring and recording stations and other methods to take the necessary measures;
- enforcing breaches committed under the Act; and
- to enter land to read meters (WRA 1998, s. 17).

### 9.1 Compliance strategies

The EPA does not have a publicly available compliance strategy that sets out its monitoring and enforcement strategies. It does however maintain internal policy documents expand on the provisions in the Act. All permit and licence holders receive notice of their requirements of their permits and licences.

The annual ACT Water Report is a publicly available document that reports on the available water resources of the ACT.

The EPA is not required to report on the enforcement outcomes of its activities under the WRA 1998.

### 9.2 Monitoring procedures

As mentioned earlier, the EPA is responsible for monitoring water resources in the ACT, including both diversions by water users and environmental flows. According to the NCC ‘no accurate water use information was available except for the urban supply network. While volumetric allocations have been issued, metering of licensed water use should provide more precise information to better determine allocations by the end of 2002’ (NCC 2001).

Water right holders are required to undertake monthly readings of their meters, but are only required to provide this information annually — though in some

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catchments information may be provided more frequently. The EPA writes to the holder reminding them of their obligations and visits the holder. The officer then cross-checks the meters.

Monthly compliance reporting is necessary for monitoring environmental flows. This information is corroborated with stream flow gauges to determine environmental flows. Environmental flow data is published in the annual ACT Water Report — which contains daily figures and reports actual released against required release for all reservoirs in the ACT water supply system.

### **9.3 Enforcement procedures**

Authorised officers generally have the powers to enter, seize and question individuals, including requirement to provide a name and address. For example, under the WRA 1998, officers authorised can enter private land to make routine inspections of premises (with the consent of the owner, occupier). They may also investigate offences under a search warrant issued by a magistrate (WRA 1998, ss. 55, 56, 59 and 60).

#### **Offences**

The WRA 1998 describes a range of offences. Generally, the authorised office has the authority to issue directions to the water user. For example, in relation to a bore, if in contravention of the conditions of a bore construction permit to shut, restrict or limit, meter, discontinue, close, plug or not use water from the bore (WRA 1998, s. 46).

The WRA 1998 also describes the penalties for offences committed. For minor offences, the statutory penalty is 5 penalty units (if the offender is a natural person) or 25 penalty units (if the offender is a body corporate). In major offences, the penalty may also be 50 penalty units if the offender is a natural person or 250 penalty units if the offender is a body corporate.

As noted, the EPA has the authority to revoke or cancel a licence to take water. Other reasons for cancelling a licence include:

- if the licence holder does not have lawful access to the water source;
- the licence development has not been approved under Part VI of the Land Act 1991; and
- whether the licence holder has been convicted of an offence under the WRA 1998 or corresponding law of another jurisdiction (WRA 1998, s. 35).

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