



Water Rights Arrangements in Australia and Overseas

Annex L *South Africa*

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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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Abbreviations

AC	Advisory committee
CMA	Catchment management authority
CMS	Catchment management strategy
DWAF	Department of Water Affairs and Forestry
ECA 1989	Environment Conservation Act 1989
EIA	Environmental impact assessment
EIS	Environmental impact statement
NEMA 1998	National Environmental Management Act 1998
NWA 1998	National Water Act 1998
NWRS	National Water Resources Strategy
SADC	Southern African Development Community
SEA	Strategic Environmental Assessment
WMA	Water management area
WUA	Water user association
WSA 1997	Water Services Act 1997
WSP	Water service provider

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.

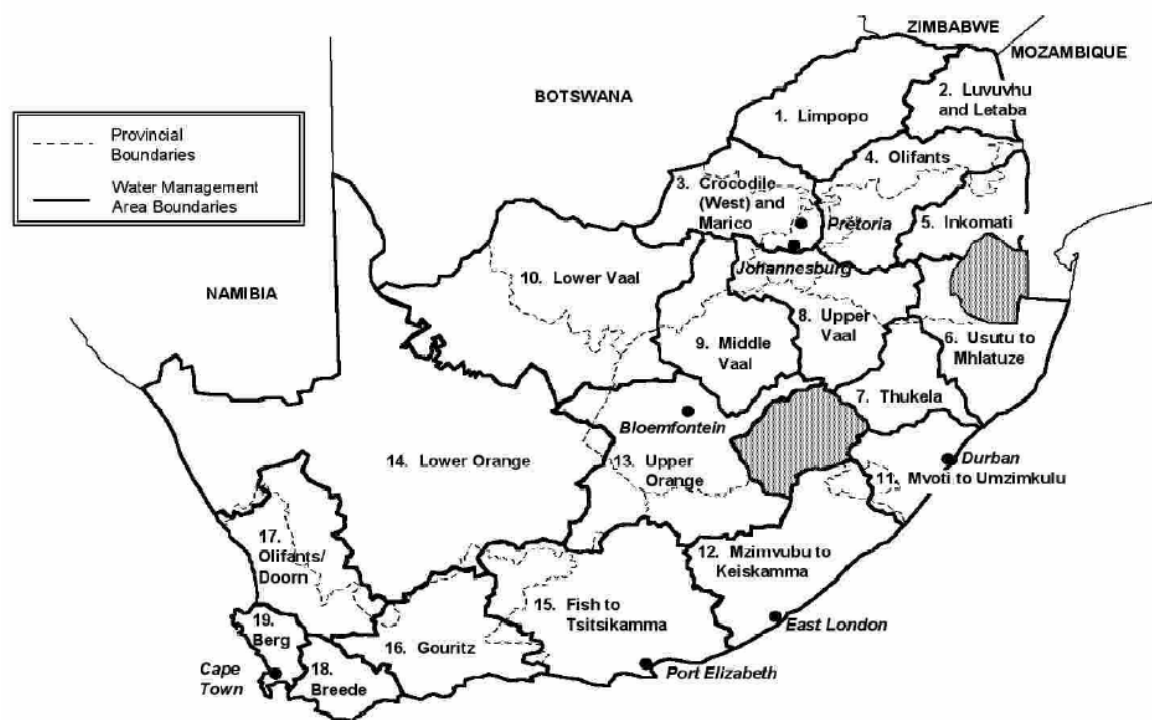
Research for the study and each of the annexes was undertaken by the Economic Infrastructure Branch, with Dr Neil Byron as mentoring Commissioner.

The authors would like to thank the staff of the South African Department of Water Affairs and Forestry for providing information on the activities of the organisation. Feedback from readers would also be welcome.

1 The water sector

South Africa's climate varies from arid and semi-arid in the west to sub-humid along the eastern coastal areas. The average rainfall for the country is about 450 mm per year. There are almost 2000 quaternary catchments, which under the *National Water Act 1998*, are organised into nineteen water management areas (see figure 1.1; DWAF 2002a)

Figure 1.1 South African water management areas



Source: DWAF (2002a).

There is a high variation of rainfall both between seasons and within seasons (DWAF 2002a). Long droughts also contribute to the long term rainfall variability (Basson 1997).

The availability of water across the country is unevenly distributed — more than 60 per cent of the river-flow arises from 20 per cent of the land area — most of which is to the south and east of the country (Basson 1997). Consequently,

65 per cent of the country receives less than 500 mm of rain annually and 21 per cent of the country receives less than 200 mm (Muller undated).

The rainfall contributes to an average annual surface run-off of 49 000 GL (DWAF 2002a). Water storages have a total storage capacity of 27 000 GL — more than half the mean annual run-off for the country (Basson 1997). Storages and distribution systems experience high levels of evaporation and lose approximately 33 per cent of total average annual surface run-off (Basson 1997). Further, extreme flood events are not uncommon and storages spill flood waters into the ocean.

South Africa has limited a limited supply of groundwater — the country contains no major groundwater aquifers. Groundwater supplies are distributed in a multitude of small aquifers systems with often low yields and of a poor quality (Muller undated). The average annual sustainable yield of groundwater is approximately 5400 GL.

In 2000, the major uses of water in South Africa were: irrigation (over 59 per cent); domestic and general urban use (29 per cent); mining and bulk industrial use (6 per cent); power generation (2 per cent); and afforestation (almost 4 per cent) (DWAF 2002a).

Most irrigation occurs within the drier parts of the country, such as the Orange Basin, The Crocodile (Limpopo) Basin, the Lower Vaal Basin, the Sundays/Fish Basin and the Western Cape area. Similarly, most of the main urban and industrial growth centres are situated far from the major river courses. As a result, the demand for water in several catchments exceeds the natural availability of water, such as in the Limpopo.

The distance between demand and supply has resulted in a significant investment in inter-basin infrastructure. Inter-basin transfers also help protect water users from drought (Basson 1997).

In 2002, the Government of South Africa released its National Water Resources Strategy (NWRS). Two of the policy concerns raised included the:

- increased demand for water by urban centres and industrial users because of population growth and a more equitable distribution of wealth; and
- deteriorating water quality, including salinity in the south and west of the country (DWAF 2002a; Basson 1997).

South Africa shares four major river systems with its neighbours: the Orange–Senqu system (shared with Lesotho and Namibia); the Limpopo River (shared with Botswana, Zimbabwe and Mozambique); the Inkomati system (shared with Swaziland and Mozambique); and the Usutu–Ongola–Maputo system (shared with

Swaziland and Mozambique) (DWAF 2002a). South Africa's international water sharing commitments have implications for domestic allocation policy. For example, the combined catchment area of these rivers accounts for 67 per cent of the surface area of South Africa. The mean annual flow of these rivers amounts to 46 per cent of the total average river flow in the country.

2 Legal framework

2.1 Evolution of water law

South African water law dates from 1652 when the Dutch East India Company settled the Cape.¹ The settlers introduced the Roman–Dutch legal distinction between private and public waters. Settlers that possessed land could, under certain circumstances, claim that water to be their private property including underground water. The owner had full and exclusive use to that water (Thompson et al. 2001). In contrast, public water was any stream which to which two or more persons had legal access via adjoining properties. The state exercised *dominus fluminis* over public water and could regulate access to that water. In practice, as the majority of land was owned by the Dutch East India Company and leased to settlers, the greater part of water use was subject to state control.

The English legal tradition was introduced in the early nineteenth century. The introduction of freehold title also permitted the introduction of the common law riparian doctrine (Thompson et al. 2001). The doctrine conferred on owners of properties adjoining a river a right to access and make reasonable use of that water. Where freehold land titles were granted adjoining public watercourses, the riparian rights doctrine curtailed the state's *dominus fluminis* with respect to their water use (Thompson et al. 2001).

The emerging legal doctrine thus distinguished between:

- Public water, which was subject to state control except that riparians possessed a superior right to use public water.
- Private water, which remained the exclusive property of the owner on whose land it was found. The owner was entitled to use, alienate and dispose of the water.

However, where there was a need to put public water to use on non-riparian land, special legislation was enacted for each case. During this period, the state did not play an active role in investing in water infrastructure and, as a result, the

¹ *Vereenigde Landsche Ge-Oktroyeerde Oostindische Compagnie.*

apportionment of water became the exclusive function of the judiciary (Thompson et al. 2001).

These different principles were synthesised in the first codification of the South African water legislation: the *Irrigation Act (Cape) 1906* and the *Irrigation Act (Transvaal) 1908*.

Irrigation and Conservation of Water Act 1912

When the Union of South Africa was formed in 1910, the *Irrigation and Conservation of Water Act 1912* (the 1912 Act) was promulgated to codify all the water laws of the union. The distinction between private and public waters was retained. Riparians could continue to access water from public streams — but only to the normal (perennial) flow of the river. Riparian owners could use as much surplus water as was available, without being subject to apportionment.

Water courts continued to resolve disputes between water users (Thompson et al. 2001).

Non-riparian land holders still required special legislation permitting the access and use of water requirements. Over 40 acts were promulgated for this purpose. The role of the state was largely confined to the construction of irrigation works and provision of water for irrigation from these works. The state, through irrigation boards, exercised limited supervision and control of the use of public water for irrigation by riparian owners (Thompson et al. 2001).

Water Act 1956

The *Water Act 1956* (the 1956 Act) reaffirmed many of the features of the earlier 1912 Act. For example, it retained the distinction between private and public water, and the rights of riparians to extract water from public streams. However, the 1956 Act also conferred on government the power to declare a public water body (river or groundwater) to be a water control area — if it was in the public interest or subject to the construction of government-owned waterworks.

The Minister was vested with the right to the use and control of public water in a water control area. This right extinguished the rights of riparians and private landholders (in the case of groundwater). The Minister could regulate access to use the water by conferring water rights and requiring them to be exercised beneficially. Access and use of public water was controlled by a system of works permits. These were issued with limits on the levels of abstractions and applications of water. Non-riparian land holders were permitted to acquire water rights.

Both riparian and non-riparian water users were entitled to purchase water rights from another property. If the water was used on non-riparian property or for industrial purposes, the permission of the water court was needed. The water court could prescribe conditions to control for water pollution (Thompson et al. 2001).

National states and self-governing territories

In addition to the original states comprising the Union of South Africa (Transvaal,² the Republic of the Orange Free State, Natal and the Cape Colony), land in South Africa was gradually ceded to form four independent and autonomous states and six self-governing territories. The formation of these states was part of a wider policy of apartheid, intended to create separate jurisdictions for the original inhabitants (Thompson et al. 2001). These national states and self-governing territories had some legislative power to repeal, amend or replace the 1956 Act. But only the Republic of Bophuthatswana did so with the *Water Act (Bophuthatswana) 1988*. The 1988 Act introduced the *dominus fluminis* principle into the law for that territory.

Despite the 1956 Act applying to all national states and self-governing territories (with the exception of Bophuthatswana), the rights to the use of water continued to be based on the principle of *dominus fluminis*. This was because the majority of land was state owned (Thompson et al. 2001). In these nations and territories, land title was communal and based on African customary law. Land belonged to a traditional ethnic community and individuals could only obtain life-time usufructuary rights to that land and any adjoining water source (Thompson et al. 2001).

2.2 Current legislative framework

The current legislative framework represents a marked shift from earlier legislation. The new framework seeks to address the social inequities and environmental concerns that arose under earlier legislative and institutional arrangements. The main elements of the framework include the:

- *Constitution of the Republic of South Africa of 1996* — which defines the equality, human dignity, environmental and water security values that underpin all legislation;

² Zuid-Afrikaansche Republiek.

-
- *National Water Act 1998* (NWA 1998) — which provides for the planning and allocation of water, definition of entitlements to water, and the institutional arrangements to support water rights;
 - *Water Services Act 1997* (WSA 1997) — which provides for the establishment and regulation of water services providers and for planning the development of water-related infrastructure;
 - *National Environmental Management Act 1998* (NEMA 1998) — which requires government agencies to integrate environmental, social and economic matters in their activities and decision-making; and
 - *Environment Conservation Act 1989* (ECA 1989) — which provides for the creation of reserves, parks, prohibits certain activities that can harm the environment, and requires the preparation of environmental impact assessments (EIAs).

The *Constitution of the Republic of South Africa of 1996* contains provisions to address the inequity of access to water. The Bill of Rights conferred on individuals, inter alia, rights to:

- Equality — everyone is equal before the law and has an equal right to the protection of the law (section 9).
- Human dignity — everyone has an inherent dignity and the right to have their dignity respected and protected (section 10).
- Environment — everyone has a right to an environment that is not harmful to their well being. Natural resources must be developed in a manner that is ecologically sustainable (section 24).
- Water security — all persons have a right to access water sufficient for their needs (section 27).

National Water Act 1998

The NWA 1998 repeals over 100 water acts, water-related acts and amendments to acts, and extinguishes all previous public and private rights to water (NWA 1998, s. 4 and Schedule 7). The Minister for Water Affairs and Forestry has the power to regulate the use, flow and control of all water in the Republic. The government, acting through the Minister, has the responsibility to sustainably manage the water resources for the benefit of all persons — in accordance with the constitutional mandate (NWA 1998, s. 3).

The NWA 1998 includes provisions for:

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- the establishment of a water resource planning regime comprising of the NWRS and catchment management strategies (CMSs) (chapter 2);
 - the protection of water resources through, inter alia, the classification of water resources and resource quality objectives, and the determination of a reserve (chapter 3);
 - the establishment of permissible uses of water and entitlements to use water, and the administration of those entitlements (chapter 4);
 - the pricing for water use and the provision of financial assistance (chapter 5);
 - the creation of catchment management agencies (CMAs), water user associations (WUAs) and advisory committees (ACs) (chapters 7 to 9);
 - the construction and control of water works and storages, including dam safety requirements (chapters 11 and 12); and
 - the establishment of a national monitoring, assessment and information system (chapter 14).

Resource planning

The NWRS is a subordinate, legally binding instrument that describes how the NWA 1998 is to be implemented. The NWRS describes South Africa's water resources and requirements, and sets out the principles on how that water is to be conserved, managed and monitored (NWA 1998, s. 6). The NWRS also provides an implementation schedule, cost estimates and a list of complementary strategies (DWA 2002a).

Under the NWA 1998, each CMA must prepare a CMS that describes how water will be managed in its water management area (WMA). The NWRS also provides for CMSs to include water allocation plans — which describe the allocation of water between consumptive and non-consumptive uses (NWA 1998, s. 6; DWA 2001a).

Water resource protection

The NWA 1998 establishes a system for classifying the nation's water resources and for determining resource quality objectives (NWA 1998, ss. 12 to 15). The classification is intended to assist future resource planning and determining which uses of water can be permitted and controlled. The Act also requires the establishment of resource quality objectives for each WMA. These objectives must be met in future resource planning, and can relate to:

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- the reserve;
 - the instream flow regime;
 - the water level;
 - the presence and concentration of particular substances in the water;
 - the characteristics and quality of the water resource and the instream and riparian habitat;
 - the characteristics and distribution of aquatic biota;
 - the regulation or prohibition of instream or land based activities which may affect the quality or water in or quality of the water resource; and
 - any other characteristics (NWA 1998, s. 13).

The NWA 1998 requires the Minister to determine a reserve — which comprises a basic human reserve and an ecological reserve. The reserve is the minimum water volume and quality necessary to meet basic human needs (drinking, food preparation and washing) and for protecting aquatic ecosystems respectively (NWA 1998, Part 3).

The resource quality objectives and the reserve are promulgated by the Minister (acting as Director-General) and are binding instruments.

Entitlements to water

The NWA 1998 defines eleven permissible uses of water. Entitlements to water can only be held in accordance with these uses (see box 2.1). In addition, an authorisation (entitlement) is required to make use of water. A person is entitled to use water without a licence if the use of the water is:

1. Listed under schedule 1 of the NWA 1998 — users are entitled to take water for domestic and stock watering, watering domestic gardens, recreational purposes (if there is there is lawful access to the watercourse), collecting water run-off from a roof, and for emergency and certain discharging of waste purposes (NWA 1998, ss. 32 and 39).
2. Permitted under a general authorisation — which is a declaration by DWAF (or the relevant CMA) permitting users to use water without a licence, provided that the use is within the limits and conditions set out under the authorisation. General authorisations only apply to new water uses after 1 October 1999 (NWA 1992, s. 39).
3. Existing lawful uses — users authorised to take water between 1 October 1996 and 30 September 1998, before the NWA 1998 took effect, are entitled to

continue to take water under the original conditions until such time that these uses are formally licensed by DWAF (or the relevant CMA) (DWAF 2002a). Existing lawful uses also include a number of stream-flow reduction activities and controlled activities (NWA 1992, s. 32).

Box 2.1 Water uses permitted under the *National Water Act 1998*

A permissible water use includes:

1. taking water from a water resource;
2. storing water;
3. impeding or diverting the flow of water in a watercourse;
4. engaging in a stream flow reduction activity;
5. engaging in a controlled activity — activities which impact detrimentally on a water resource (activities identified in s37(1) or declared as such under s 38(1) namely:
 - (a) irrigation of any land with waste or water containing waste which is generated through an industrial activity or a waterwork,
 - (b) an activity aimed at the modification of atmospheric precipitation,
 - (c) a power generation activity which alters the flow regime of a water resource, or
 - (d) intentional recharge of an aquifer with any waste or water containing waste;
6. discharging waste or wastewater in a water resource through a conduit;
7. disposing of waste in a manner which is detrimental to the water resource;
8. disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process;
9. altering the bed, banks, course or characteristics of a watercourse;
10. removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and
11. using water for recreational purposes.

Source: National Water Act 1998 (s. 21).

If water use is to exceed the volume or purpose permitted under schedule 1 or a general authorisation, a prospective water user must obtain a water licence, or in some cases, some other authorisation (NWA 1998, s. 22; DWAF 2002a).

Stream-flow reduction activities are activities that reduce the available water supply in a catchment. They are currently limited to commercial dryland afforestation. Controlled activities are defined to include:

- irrigating with wastewater;

-
- cloud seeding;
 - power generation which alters the flow regime of a water source; and
 - intentional recharge of an aquifer with wastewater (NWA 1992, s. 37).

Water uses that take effect after 8 October 1999 and do not fall within the area or limits covered by a general authorisation, require a water use licence.

Water Services Act 1997

The WSA 1997 sets out the provisions for regulating the activities of water service providers. The WSA 1997 declares that every person has a right of access to basic water supply and basic sanitation and places a duty on water service providers to take reasonable measures to realise these rights (WSA 1997, s. 3)

The WSA 1997 seeks to meet these basic rights and other statutory objectives by providing for:

- the setting of compulsory national standards of water service provision (including water quality), and of norms and standards for water delivery prices (chapter 2);
- the preparation of water services development plans — which outline the water service providers activities for a five-year period (chapter 3);
- the regulation of water service providers (water boards, water service committees, water services intermediaries and water service authorities) in terms of water service standards and prices (chapters 4 and 5);
- the establishment of water boards, water service committees and water services intermediaries and their powers and duties (chapters 6 and 7);
- the monitoring of water services providers and the intervention by the Minister or by the relevant province (chapter 8);
- financial assistance to water services providers (chapter 9); and
- the establishment of a national information system of water services (chapter 10).

National Environmental Management Act 1998

The NEMA 1998 establishes the basis for government decision-making on matters affecting the environment. Any activity undertaken by a government agency or which requires an agency's authorisation and which may significantly affect the environment, must be subject to:

-
- the National Environmental Management Principles; and
 - an integrated environmental management decision-making framework (NEMA 1998, s. 24).

The principles outline key economic, environmental and social values to be considered by the government agency (see box 2.2).

The NEMA 1998 promotes government agencies to use integrated environmental management as a means of putting into practice the identified principles (NEMA 1998, chapter 5). Under an integrated environmental management process the agency must, at the minimum:

- investigate the environment likely to be affected by the proposed activity;
- investigate the potential impact and any possible alternatives on the environment, socio-economic conditions and cultural heritage;
- investigate measures to mitigate these effects;
- ensure public information and participation, independent review and conflict resolution;
- report on gaps in knowledge, uncertainties in compiling information;
- report on the institutional arrangements for the monitoring and assessment of impacts;
- coordinate with other government agencies where there are overlapping responsibilities;
- take into account the principles outlined above (NEMA 1998, s. 24).

In accordance with the requirement to adopt integrated environmental management, DWAF has adopted an environmental management framework (DWAF 2002b). DWAF is also required to prepare environmental management plans and environmental implementation plans. Environmental management plans assist departments to coordinate their environmental policies, plans, programs and decisions of national government bodies so as to protect and prevent unreasonable actions in the provinces (NEMA 1998, s. 12).

Box 2.2 Summary of selected National Environmental Management principles

Selected National Environmental Management Principles include that:

- the environment is held in public trust for the people, and beneficial use of the environment must serve the public interest;
- development must be socially, environmentally, and economically sustainable;
- social, economic and environmental impact of decisions must be evaluated;
- environmental management must take into account the effects of decisions on all aspects of the environment and people in the environment;
- there must be equitable access to environmental resources;
- adverse environmental impacts must not unfairly discriminate any person;
- decisions must take into account the interests, needs and values of all persons; and
- the costs of controlling, preventing and remedying pollution, environmental degradation and ill health must be paid for by those responsible for harming the environment.

Source: National Environmental Management Act 1998 (s. 2).

Environment Conservation Act 1989

Water resource management is also subject to the requirements of parts of the ECA 1989 that were not repealed by the NEMA 1998. The aim of the ECA 1989 is to conserve the environment and to protect environment from potentially hazardous activities.

The ECA 1989 provides for:

- the Minister of Environmental Affairs and Tourism to make policies to protect and conserve the environment (section 2);
- the declaration of an area to be a protected natural environment (section 16);
- the declaration of an area to be a special nature reserve (section 18); and
- the prohibition of activities (including disposal of waste) that that can have a detrimental impact on the environment without authorisation (sections 19 to 23).

The use of water and its disposal constitutes a controlled activity. The Minister for Environmental Affairs and Tourism will only authorise that activity after preparation of an environmental impact statement (EIS). The ECA 1989 outlines the

scope and content of EISs (ECA 1989, s. 26). An EIS must include but is not limited to:

- a description of the activity in question and of alternative activities;
- an identification of the physical environment;
- an estimation of the nature and extent of the effect on the activity in question and of the alternative activities on the land air water biota and other elements or features of the natural and man-made environments;
- the identification of the economic and social interests which may be affected by the activity in question and by the alternative activities;
- an estimation of the nature and extent of the effect of the activity in question and the alternative activities on the social and environmental interests;
- a description of the design or management principles proposed for the reduction of adverse environmental effects; and
- a concise summary of the findings of an environmental impact report (ECA 1989, s. 26).

The ECA 1989 also sets out the powers of the Minister, competent authority, local authority or government institution where the environment is damaged, endangered or detrimentally affected. Persons found guilty of an offence may have their water rights forfeited (ECA 1989, s. 30).

Protocol on Shared Watercourse Systems

In August 1995, South Africa signed the Protocol on Shared Watercourse Systems in the Southern African Development Community (SADC) Region. The protocol is a legally binding document whose objects are to equitably share and conserve the waters of the region. The protocol is the enabling instrument for international water sharing in southern Africa.

The general principles of the protocol are:

- a recognition of general or customary international law;
- an adoption to the principle of sustainable development;
- a commitment to the sharing of hydrological, hydrogeological, water quality and ecosystem data;
- a recognition of third-party effects in regard to water use; and

-
- a statement that shared water course systems are only to be used for peaceful purposes (Article 2).

The protocol provides for the establishment of inter-jurisdictional river basin management institutions. These institutions have a variety of roles, including:

- harmonising national water resources policies and legislation;
- promoting measures to regulate rivers flows and drainage, to control desertification, soil erosion and sedimentation;
- promoting measures to protect the environment and to prevent environmental degradation from use of the resources of shared watercourse systems, including assisting in the establishment of a list of substances which must be prevented from entering watercourses
- promoting the use EIAs for development projects within shared watercourse systems;
- monitoring compliance to the protocol, the establishment and generation of hydro-electric power, and the navigational activities on water quality and the environment;
- gathering information, handling data, undertaking research, and
- raising public awareness for issues such as flood and drought mitigation (Article 5).

The signatories include the Republic of Angola, the Republic of Botswana, the Kingdom of Malawi, the Republic of Mozambique, the Republic of Namibia, the Republic of South Africa, the Kingdom of Swaziland, the United Republic of Tanzania, the Republic of Zambia and the Republic of Zimbabwe.

As of 5 July 2001, Botswana, Lesotho, Malawi, Mauritius, Namibia, South Africa, Swaziland Tanzania, Zambia and Zimbabwe had ratified the protocol. In 2000, a revised protocol was signed by the thirteen SADC member states in Namibia, but by July 2001 only Botswana and Namibia had ratified the revised protocol.

3 Organisations

3.1 Minister of Water Affairs and Forestry

As noted, the Minister is the public trustee of nation's water resources. The Minister has overall responsibility for all aspects of water resources management in South Africa. All water management institutions report to the Minister.

Under the NWA 1998, most of the Minister's authority is delegated to officials of DWAF and water management institutions (CMAs, water service providers and water user associations) and advisory committees. Four responsibilities, however, cannot be delegated. These are the power to:

- regulate;
- authorise a water management institution to expropriate property;
- appoint a person to the governing board of a catchment management agency; and
- appoint a person to a water tribunal.

3.2 Department of Water Affairs and Forestry

The DWAF is the agency responsible for administering the NWA 1998 and the WSA 1997. DWAF's mission, with respect to water, is to undertake activities for:

- Conserving, managing and developing our water resources and forests in a scientific and environmentally sustainable manner in order to meet the social and economic needs of South Africa both now and in the future;
- Ensuring the water services are provided to all South Africans in an efficient, cost-effective and sustainable way (DWAF 2002c, p. 11).

DWAF is responsible for developing and implementing water resources policy in South Africa. This involves:

- developing the NWRS in accordance with the NWA 1998, including the development of national strategies;
- establishing CMAs and providing guidelines for the preparation of CMSs

-
- preparing guidelines for the determination of the reserve and the administration, monitoring and enforcing entitlements, and in the interim, administering entitlements;
 - regulating certain activities that create waste that might affect water resources in accordance with the ECA 1989;
 - creating a policy framework for the provision of water services;
 - operating water service infrastructure; and
 - implementing South Africa's commitments under the Protocol on Shared Watercourse Systems (Thompson et al. 2001).

In terms of creating a policy framework for water services provision, DWAF is responsible for:

- developing policies, strategies, guidelines, standards for water service delivery;
- providing guidelines for water services development plans;
- setting a tariff structure for water services;
- establishing water user associations and supporting the development of local governments and their potable water systems;
- supporting and promoting the implementation of infrastructure projects to provide basic water services; and
- monitoring and evaluating access to water services (Thompson et al. 2001).

In terms of operating water service infrastructure, DWAF is responsible for:

- planning the provision of water;
- designing and constructing new water infrastructure projects; and
- operating and maintaining bulk water services to water services providers and retail water services (Thompson et al. 2001).

DWAF has also been responsible for providing a support to government and other agencies that provide infrastructure services to rural areas. By 2000, the capital infrastructure program had provided 4.8 million people with water through 236 projects.

3.3 Catchment management agencies

CMAs are statutory authorities, established under the section 77 of the NWA 1998, for each the nineteen water management areas in South Africa.

CMAs are bodies corporate governed by a board of stakeholders and experts (DWAF undated(a)). The board is appointed by and is accountable to the Minister through DWAF (DWAF undated(b)). The Minister can invite organisations (government and private) to nominate persons to be appointed to the board — following the recommendations of an advisory committee (NWA 1998, s. 81).

The Minister may also appoint additional members to the board to represent the views of the advisory committee, achieve a gender balance, achieve sufficient demographic representation, achieve representation within DWAF, achieve representation of disadvantage communities (affected by racial or gender imbalance in relation to water), obtain the necessary expertise for the board's efficient operation (NWA 1998, s. 81).

Members are appointed for a specified term of office. The chief executive is appointed by the board, and cannot be a member of the board (NWA 1998, ss. 81–82).

A CMA's role and responsibility is, at a minimum, to:

- investigate and advise on water resource management;
- develop a CMS;
- coordinate the activities of water users and water management institutions;
- promote the coordination of CMSs and water service development plans; and
- promote community participation in its functions (NWA 1998, s. 80; DWAF undated(b)).

In undertaking their functions, CMAs must be mindful of the constitutional imperative to redress the past results of racial and gender discrimination, to provide equitable access for all to the water resources under their control, and to strive toward consensus and cooperation in managing water resources under their control (NWA 1998, s. 79).

The Minister can delegate or assign to a CMA additional roles and powers in relation to:

- planning — prepare CMSs and their strategies, including water allocation plans;
- administration — issue general authorisations, registering existing lawful uses, and issue and reviewing water use licences;
- distribution — develop rules regarding the construction and operation of water infrastructure, and to temporarily control, limit or prohibit use of water during periods of water shortage; and

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- monitoring and enforcement — monitor water resources, enforce licence conditions, and prosecute steps to prevent water pollution or rehabilitate the environment damaged by pollution, and to make available information on water resource management (NWA 1998, Schedule 3; DWAF undated(a)).

A CMA can raise its own funds through the collection of water use charges. It can also be funded from money appropriated by Parliament (NWA 1998, s. 84).

A CMA can delegate any a number of functions to other agencies, such as WUAs and WSPs, except the authority to delegate or to set water charges (NWA 1998, s. 86). A CMA may also appoint catchment management committees to advise it or to undertake any number of general or specialist roles for the CMA (DWAF undated(a)).

A CMA is responsible, as well as accountable, for exercising its assigned powers, functions and duties. Once delegated, the Minister may not interfere with the way these powers functions and duties are exercised by a CMA, except in cases where the CMA is failing to meet its duties (NWA 1998, s. 87).

CMAs are comparatively new, and as at October 2003, only the CMA for the Inkomati WMA has been established. The nine regional offices of DWAF are responsible for the interim water resource planning, administration, distribution and monitoring and enforcement activities (DWAF 2001d).

3.4 Water Tribunal

The Water Tribunal was established in 1998. It is an independent body with a mandate to hear and adjudicate appeals of the administrative decisions of authorities and water management institutions. The Water Tribunal comprises a chairperson, deputy chairperson, and any number of other members. The tribunal's members are appointed by the Minister on advice from the Judicial Services Commission (NWA 1998, s. 148).

The Water Tribunal also adjudicates claims for compensation where a user considers that the economic viability of a water using activity (previously authorised as an existing lawful use) has been severely prejudiced by a refusal to grant a licence or a reduction in water on granting or reviewing a licence (NWA 1998, ss. 46 and 148).

The Water Tribunal has jurisdiction over the whole country. It can subpoena any person to provide information on any matter. Records of decisions are available upon request (NWA 1998, Schedule 6). Claimants that are not satisfied with the

Water Tribunal's decision can seek further appeal in the High Court (NWA 1998, s. 149).

3.5 Water services providers

Under the WSA 1997 (Act. 108), water service providers are bodies whose primary role is to supply water to users or other providers. They include water service authorities (municipalities, districts and rural councils), water boards and water service committees. Water service providers can supply both fresh water as well as sanitation (sewage) services.

Water boards

Water boards are government entities constituted under the WSA 1997 to provide potable water to other water service institutions (such as water service authorities or water user associations) (WSA 1997, s. 28).

Water boards are bodies corporate (WSA 1997, s. 31). The Minister can establish a water board in any area and appoint the board's members and its chairperson (WSA 1997, ss. 28, 35). The Minister may give the board a directive to either undertake or desist from a specific activity (WSA 1997, s. 41).

Water boards can appoint a chief executive and can borrow to finance its activities (WSA 1997, ss. 36 and 46).

In addition to their bulk water supply role, water boards can:

- supply non-potable water to end-users;
- supply potable water to consumers, supply water to industrial users or accept industrial effluent, with the approval of a water services authority;
- supply catchment management services;
- supply management, training and support services;
- provide water conservation functions; and
- supply water services in joint venture with water service authorities (WSA 1997, s. 30)

Water boards are financially independent of government and must recover capital, operational and maintenance costs. They must recover their capital costs from their own revenues plus any subsidies granted to them. Water boards must make

reasonable provision for future capital requirements and expansion (WSA 1997, s. 34).

Water boards face a number of external reporting requirements that include preparing and adopting a policy statements, adopting business plans for the next five years, and submitting an annual report (with financial statements) to the Minister and making that report available to the public (WSA 1997, s. 39).

Water service committees

Water service committees are government entities constituted under the WSA 1997 to provide water to users within their area (WSA 1997, s. 52).

Water service committees are bodies corporate (WSA 1997, s. 53). The Minister can establish a water services committee in any area not being currently effectively served by a water services authority (WSA 1997, s. 51). The Minister can appoint the committee's members in consultation with the water services authority and the Minister for Provincial Affairs and Constitutional Development, and the Province (WSA 1997, ss. 51).

Unlike water boards, water services committees do not have the power to appoint a chief executive or employ staff. Further, water services committees are not required to prepare policy statements or business plans.

Water service authorities

Under the WSA 1997, water service authorities are municipalities responsible for providing drinking water and sanitation services to mainly domestic users within their local government area (WSA 1997, s. 1).

Water service authorities have a duty to supply water services to 'all consumers or potential consumers in its area ... to progressively ensure efficient, affordable, economical and sustainable access to water services' (WSA 1997, s. 11).

Water service authorities can directly supply water, or enter into contract with privately owned water service providers to supply water to customers. Water service authorities have the power to make bylaws that contain conditions on the provision of water services (WSA 1997, s. 21).

3.7 Water user associations

A water user association (WUA) is a cooperative association of water users for the purpose of undertaking a range of water related activities for the mutual benefit of their members, such as the operation of local water infrastructure (NWA 1998, ch. 8; DWAF 2000a).

A WUA is a body corporate (NWA 1998, Chapter 8). Its powers, functions and duties are set out in its constitution (NWA 1998, s. 93). Proposals to establish WUAs must be approved by the Minister (NWA 1998, s. 93). WUAs can be established for any legitimate purpose, including providing water to users for non-consumptive (recreation) purposes.

As noted, CMAs can issue directives to WUAs in their area. They can also delegate powers and duties to WUAs — provided the powers and roles are within the scope of the WUA's constitution.

Under certain circumstances, the Minister can issue directives to WUAs, withhold financial assistance or terminate the office of a management committee member, if for example the WUA:

- is being financially mismanaged, has acted unfairly or in a discriminatory manner towards any member of the WUA;
- has obstructed the Minister or any other water management institution from exercising a power;
- is unable to exercise its powers or perform its duties effectively due to dissension among management committee or its members;
- has failed to comply with its constitution; or
- has become redundant or ineffective (NWA 1998, s. 95).

Irrigation boards, groundwater boards and stock watering boards established under earlier legislation are being re-established as WUAs (NWA 1998, s. 98; DWAF 2000c).

WUAs are responsible for registering their water use and obtaining the necessary authorisations and licences to take water.

3.8 International water management bodies

The Minister, in consultation with Cabinet, can establish an international water management body in fulfilment of South Africa's international agreements relating to:

- investigating, managing, monitoring and protecting water resources;
- regional cooperation on water resources;
- acquiring, constructing, altering, operating or maintaining water infrastructure networks; or
- the allocation, use and supply of water (NWA 1998, s. 102).

The NWA 1998 gives broad direction as to procedures that must be followed when constituting an international water management body (NWA 1998, s. 103).

The Trans-Caledon Tunnel Authority (of the Republic of South Africa and Lesotho), the Komati Basin Water Authority (of the Republic of South Africa and Swaziland) and the Vioolsdrift Noordoewer Joint Irrigation Authority (of the Republic of South Africa and Namibia) are recognised under the NWA 1998 as international water management bodies.

4 Definition of water rights

Under the NWA 1998, a water user is entitled to use water if their use is:

- listed under schedule 1 of the NWA 1998;
- an existing lawful use;
- subject to a general authorisation; and
- licensed (NWA 1998, s. 22).

As noted, the reserve is water whose intended use is to meet both basic human needs and protect aquatic ecosystems.

4.1 Coverage

A universal system of water rights exists when the entire resource is encompassed by the rights to its use. Water right arrangements should take in all identifiable water sources to ensure rights of access are protected and to allow for the sustainable management of the resource.

The coverage of water under the NWA 1998 is broad. The Act regulates both the quantitative and qualitative aspects of water and the use of water — including certain land-based activities which may affect the quantity or quality of water in the resource (stream-flow reduction activities, controlled activities, and disposal of waste onto land). The Act applies to both surface and groundwater.

Currently, the only listed stream-flow reduction activity is commercial afforestation (of commercial pine, eucalyptus, wattle and poplar forests and woodlots) (DWAF 2000a).

4.2 Specification

The specification of an entitlement in terms of priority, volume (or share), purposes, and conditions is important for assisting the predictability of quantity available to the water user. Predictability of quantity (and quality) is achieved when users have a

reasonable expectation of the quantity of water that they can extract from a source at any point in time.

According to the NWRS, each class of entitlement has a priority of access. The priorities in descending order, are:

1. Reserve — including both basic human and ecological reserves.
2. Water for meeting international obligations — water allocated to meeting international commitments negotiated through the relevant bi-lateral and multi-lateral forums.
3. Meeting water for strategic purposes — water reserved for the generation of electricity and for the transfer between basins.
4. Meeting the needs of general social and economic needs — all other entitlements (DWAF 2002a).

It is not clear what priorities, if any, are attached to particular various economic uses (such as domestic, industrial and irrigation) or for various classes of entitlements (such as schedule 1, general authorisation, or water use licence).

The volume, share or rate at which water can be extracted varies according to the class of entitlement. In the case of the reserve, the volume or share of water available is determined by human and ecological needs that are specified as part of resource planning process of DWAF.³

Schedule 1 entitlements are usually not defined in volumetric or share terms. However, water use must be ‘reasonable’ — they must not be excessive in relation to the capacity of the resource and the needs of other users (DWAF 2002a). CMAs have the authority to place volumetric limits on schedule 1 uses in certain circumstances (NWA 1992, Schedule 3).

General authorisations usually define the volume or rate of extraction that can be used by each person or on each property. Persons wishing to extract beyond the limit or condition, must register their use with DWAF (or the relevant CMA). For example, users taking water under a general authorisation must seek registration if more than:

- more than 50 cubic metres of surface water is taken on any given day;
- more than 10 cubic metres of groundwater is taken on any given day;
- more than 10 000 cubic metres of water is stored;

³ Under the NWRS, DWAF indicated that an preliminary ecological reserve (as an average across all water management areas) would amount to almost 20 per cent of natural mean annual run-off (DWAF 2002a, table 2.1).

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- more than 10 cubic metres on any given day of wastewater is used towards irrigation;
 - any volume of wastewater is discharged into a water resource; and
 - storage and disposal of volumes of wastewater that can detrimentally affect the environment (DWAF 2000a).

Water use licences can be defined in terms of a volume, a rate of extraction or a share of the resource (NWA 1998, s. 29). Water use licences are specific to a use, property or resource. They are specific to the use for which they are issued. Licences will usually contain a number of conditions, principally intended to maintain the integrity of others' entitlements or the water resource (DWAF 2002a).

4.3 Record of title

DWAF maintains the Water Use Authorisation Management System (WARMS). Water use must be registered with the WARMS if water use is:

- authorised under a general authorisation and is in excess of the authorisation's limits and conditions;
- an existing lawful use; or
- licensed (DWAF 2000b).

WARMS therefore does not maintain detailed records of:

- schedule 1 uses;
- unregistered uses of water permitted under a general authorisation; or
- for water taken from a water service provider (DWAF 2000a).

Registration of general authorisations or existing lawful uses on WARMS does not constitute an application for a water use licence (DWAF 2000a).

4.4 Duration

The duration of a right — the length of time a right holder possesses the title to a right — affects the certainty that right holders have over their ability to take water in the future.

Water users entitled to take water under schedule 1 of the NWA 1998 may continue to take water indefinitely provided the owner maintains lawful access to the water resource and comply with the requirements for reasonable use.

General authorisations have a finite duration and are subsequently reviewed by the authorising agency. For example, the general authorisation governing recreational access to water is limited to three years. The authorisation is to be reviewed annually and can be renewed at the end of the period (DWAF 2001c). The general authorisation for the taking and storing of water is limited to five years, with a review every two years (DWAF 1999a).

Water use licences are also issued for a finite period. The duration of a licence will depend on a variety of factors including: the purpose for which it was issued; the duration requested by the applicant; and conditions on duration placed by DWAF or the CMA to address potential environmental and hydrological concerns. Licences cannot be issued for longer than 40 years and must be reviewed every 5 years (DWAF 2002a). DWAF (or the relevant CMA) may suspend or withdraw an entitlement if the holder fails to comply with any condition of the entitlement, comply with the NWA 1998, or pay the appropriate charges.

4.5 Exclusivity

Water rights are exclusive if, at the margin, the benefits and costs of using water accrue to the right holder. Some environmental third-party effects include:

- storage effects — the storage and regulation of the flow of water;
- extraction effects — the extraction of water from an ecosystem; and
- return effects — the discharge of wastewater (whether from point or non-point source).

Third-party effects can include the harmful effects on human health as a result of the discharge of wastewater into drinking water sources.

Storage effects

Dams increase the benefits that accrue from holding a water right. They are used to change the natural flow patterns of rivers to more closely match demand patterns for water and thus increase the productive value of water. However, the alteration of natural river flow patterns by storing and releasing water can degrade the ecological health of river systems. Most of these costs are borne by the community as whole rather than the water right holder alone.

Impeding or diverting the flow of a water course is treated as a permissible use of water and subject to general authorisation and licensing processes (NWA 1998, s. 21). Similarly, the alteration of the bed, banks, course or characteristics of a watercourse is also treated as a permissible water use.

DWAF (or the relevant CMA) can attach a range of conditions relating (but not limited) to:

- the water resource in question;
- the stream flow regime;
- other existing and potential water users;
- water management, including the preparation of a water management plan, requiring water to be supplied to users; and
- the volume of water that can be stored (NWA 1998, s. 29).

Extraction effects

The removal of water from a watercourse has detrimental consequences on the aquatic ecosystem and on other native fauna and flora. The NWA 1998 provides three approaches for the management of over-extraction.

The reserve is intended to provide a minimum volume and flow of water to provide for basic human needs and to maintain aquatic ecosystems. The NWA 1998 requires that the reserve be determined as part of the resource planning process. DWAF has determined interim reserves until CMAs have been fully constituted. These reserves facilitate subsequent determination of general authorisations and water use licences.

Second, CMSs and water allocation plans can provide for the rules and conditions that can be imposed as conditions on general authorisations and water use licences, including:

- setting the rate of extraction, maximum volume or percentage of water that can be taken;
- specifying the place and times at which water can be taken; and
- the preparation of a water management plan (NWA 1998, s. 29).

In the case of stream-flow reduction activities, the conditions can stipulate the best management practices that must be adopted to limit the stream-flow reduction (or other detrimental impacts) on the water source (NWA 1998, s. 29).

Third, the NWA 1998 also provides for environmental and other third-party effects to be addressed through water use charges. While the trade of water use licences can realise the scarcity value of water, in many circumstances trades are restricted and waters allocated under general authorisations are not transferable. Environmental pricing strategies are described in chapter 8.

Return effects

Return effects are the point- and non-point return of water to a water source, whether contaminated or unused by the user. In the case of return flows from point-sources, a separate general authorisation or licence is required for the:

- discharging of waste or wastewater into a water resource through the use of a conduit;
- disposing of any waste that can affect a water resource; and
- disposing of any water that contains waste or heat from an industrial or power generation process (NWA 1998, s. 21).

Some return flows can be addressed through the use of conditions placed on the general authorisation or water use licence, including:

- water management practices (including water conservation measures) to be undertaken;
- preparation of a water management plan;
- water resource to which water is to be returned;
- permissible properties (chemical and physical) of the water to be discharged;
- treatment to which the return flow must be subject; and
- volume that must be returned (NWA 1998, s. 29).

Each of these conditions will be determined as part of the catchment management strategy process, and will have reference to the resource quality objectives of the resource. A resource quality strategy can include measures to address point and non-point pollution, including the use of economic incentives (DWA 2001a).

4.6 Detached from land title and use restrictions

The unencumbered ability to transfer or dispose of the right, along with all the privileges and obligations that the right imposes, contributes to the efficient allocation of water. Consequently, water rights should be separate or free of any requirements to hold land or any restrictions on how the right can be exercised.

Generally, schedule 1 uses and general authorisations are either not titled or not individually titled. Restrictions on use are often included as part of the condition of a general authorisation.

Existing lawful uses and water use licences possess their own title. Use restrictions are often attached to the entitlement and not to the site to which they are used. Under the NWA 1998, any proposed transfer of a water use licence requires the seller to surrender their licence and the prospective buyer to apply for a new licence. New use conditions are attached to the newly constituted licence (DWAF 2000b).

4.7 Divisibility and transferability

An efficient allocation of water rights can be achieved through market trading. Water rights need to be divisible and transferable. Water rights are divisible if right holders can sub-divide their entitlement into parts and sell either all or part of their right.

Only existing lawful uses and water use licences for the purpose of irrigation are divisible and transferable (NWA 1998, s. 25). Application must be made to DWAF (or the relevant CMA). Transfers include:

- Temporary transfers — which can be authorised for irrigation purposes only, either on the property for a different use, or to another property for the same or a similar use. In general, temporary transfers are only for one year.
- Permanent transfers — take effect when the seller surrenders part or all of the licence to the CMA to facilitate an application by any other user. The new application is subject to all the relevant requirements of the NWA 1998, regarding new applications (DWAF 2002a).

Transfers are only permitted where both the original and transferred water use are from the same water resource.

5 Government involvement in water allocation

5.1 Allocation mechanisms

The NWA 1998 provides for some water to be allocated between users through trading. However, there is a significant role for DWAF (or the relevant CMA) to re-allocate water administratively by:

- Determining the reserve for each WMA.
- Preparing water allocation plans for each WMA.
- Regularly reviewing the conditions of each general authorisation and water use licence. The conditions include the volume, share and rate of extraction that can be taken under the entitlement.

The power to re-allocate water administratively is limited in some instances. Entitlement holders can appeal the decision of DWAF (or the relevant CMA) and seek compensation in cases where:

- the person who possesses an existing lawful use and is required to compulsorily licence their water use but is denied the licence or is granted a licence to a lesser degree than the existing lawful use, and this has resulted in a severe prejudice of the economic undertaking, can seek compensation (NWA 1998, s. 22); or
- an amendment of a licence condition (such as the volume, share or rate at which water can be extracted) ‘severely prejudices the economic viability of any undertakings in respect of which the licence was issued’ (NWA 1998, s. 49).

The processes describing the compulsory licensing of existing lawful uses and general authorisations are described in more detail in chapter 7.

5.2 Resource planning

The NWRS is the strategic plan that provides the framework for the current and future management of water resources for the country (DWAF 2002a). The NWRS identifies a number of planning processes that include:

- Water resource management strategies — these include the national system for classifying surface and groundwater resources, national system for determining the resource quality objectives for each surface and groundwater resource, and systems for determining the reserves for each surface and groundwater resource.
- National Water Conservation and Water Demand Management Strategy — intended to encourage the efficient and effective use of water and the minimisation of loss or waste of water (DWAF 2002a).
- Pricing Strategy for Raw Water Use Charges — though not authorised under the NWRS, this is the framework guiding the setting of prices to recover the costs of water resources management, developing and using government-owned water infrastructure (DWAF 2002a).

To implement these national strategies, DWAF (or the relevant CMA) prepares a CMS for each WMA. A CMS comprises a number of subsidiary strategies covering:

- situation assessment — establishes the characteristics of the WMA, and includes demographic, water resources, physical, hydrological and hydrogeological, vegetation and land use characteristics;
- resource development — strategies to develop new water supply schemes and to transfer water between catchments;
- resource management — strategies governing the allocation of water between competing uses, having regard to the ecological sustainability and the reliability of supply;
- water use — strategies governing the administration of general authorisations, water licensing and trading of water licences, as well as strategies to price water;
- resource protection — strategies to maintain a water resource's desired resource quality objectives;
- resource conservation — strategies to improve water use efficiency; and
- resource control — strategies to monitor the volume and quality of water, environmental outcomes, dam safety, and strategies to prevent and manage natural disasters (floods, droughts, pollution).

As noted, a CMS must include a water allocation plan. The NWRS specifies that water can only be allocated to water users for economic purposes only after first

meeting the reserve, international obligations, inter-basin transfers, national strategic uses and possible future contingency needs (DWAF 2001a).

The water allocation plan specifies how the 'allocatable volume' is allocated to existing and future schedule 1 uses, existing lawful uses, general authorisations and licensed new water uses (including stream-flow reduction activities) (NWA 1998, s. 9; DWAF 2001a).

The preparation of a CMS is guided by provisions in the NWA 1998 (ss. 8 to 10) and NEMA 1998 (ch. 5). As noted earlier, DWAF has adopted an environmental management framework to assist its decision-making in this regard. The preferred assessment tool is the Strategic Environmental Assessment:

The Strategic Environmental Assessment (SEA) implemented by DWAF is a useful decision support tool for water resource management as part of the Integrated Environmental Management process. SEA looks at the whole environment (physical, social and economic), and reviews how that environment can support development in a sustainable way (DWAF 2001b, s. 2.4).

Resource assessment

The NWRS provides a summary of the major water resources, current uses and reserves. It provides estimates of current water requirements for each of the nineteen water management areas and sectors of water users, as well as estimates of future demand and environmental needs (DWAF 2002a).

As noted, each CMS must include a situation assessment which describes the demographic profile of a catchment, a profile of the water resources, the physical characteristics of the catchment, hydro and hydrogeological characteristics of the WMA, water use profile, and economic overview (DWAF 2001a). A situation assessment is undertaken for each catchment and WMA.

Objectives

The main objectives of the NWRS are to:

- establish the national framework for managing water resources;
- establish the framework for the preparation of CMSs;
- provide information and consultation with the community; and
- identify development opportunities and constraints (DWAF 2002a).

As noted, a CMS comprises a number of subsidiary strategies (DWAF 2001a). Each subsidiary strategy must include, at a minimum, a description of its purpose ('objective'), content ('roles and responsibilities'), desired outcomes and monitoring and review provisions (DWAF 2001a).

Impact assessment

DWAF's determination of the ecological reserve involves an assessment of the economic, social and environmental benefits and costs. To this end, DWAF has assessed the impacts of setting reserves. The current determinations of the reserve are only preliminary, and are subject to revision following more rigorous assessments. Comprehensive assessments of the reserve involve determining the economic, social and ecological costs and benefits, as well as undertaking extensive stakeholder participation (McKay 1999).

There does not appear to have been any assessment for determining the basic human reserve, which was set at 25 litres per person per day.

DWAF (or the relevant CMA) are required to employ a SEA to assess the prospective net benefits effects of the proposed CMS or water allocation plan. The SEA is an assessment of the cumulative impacts and identifies implications and issues for sustainable development (DWAF 2001d). SEAs have a wide catchment-level perspective but tend to be less detailed than conventional EIAs (DWAF 2002b).

When preparing a water allocation plan, DWAF (or the relevant CMA) must consider for the key criteria listed in box 5.1 (NWA 1998, s. 27).

Transparency and consultation

Several opportunities are provided for transparency and public consultation. The preparation of the White Paper on Water Policy and the NWRS was preceded with extensive public consultation and invitation of public submissions (Government of South Africa 1997).

Transparency and consultation procedures in determining the reserve and preparing a CMS are defined under the NWA 1998. DWAF is required to notify the public through the Gazette of the proposed reserve and a request for written submissions. DWAF must also consider what additional steps may be necessary to bring the reserve to the attention of potentially interested persons (NWA 1998, s. 16).

Box 5.1 Section 27 criteria for allocating water

In issuing or allocating water to a particular use, declaring a general authorisation or granting a water use licence, DWAF (or the relevant CMA) must take the following factors including:

- existing lawful uses;
- the need to redress the results of past racial and gender discrimination;
- efficient and beneficial use of water in the public interest;
- the socio-economic impact
 - of the authorised water use; or
 - the failure to authorise water use;
- any catchment management strategy applicant to the relevant water source;
- the likely effect of the water use to be authorised on the resource or other users;
- the class and the resource quality objectives of the water resource;
- investments already made and to be made by the water user in respect o the water use;
- the strategic importance of the water use;
- the quality of the water which may be required for the reserve and for meeting international obligations; and
- the probable duration of any undertaking for which the water will be used.

Source: National Water Act 1998 (s. 27)

DWAF (or the relevant CMA) must consult with the Minister, and any government body, person or their organisation that may have interest when preparing a CMS (NWA 1998, s. 10). A CMA must publish a notice in the Gazette summarising the CMS or any component (such as a water allocation plan), and invite written submissions. The CMA must also consider what steps it needs to take to bring the CMS to the attention of potentially interested persons, and to consider all comments received (NWA 1998, s. 8).

Review

The NWRS and each CMS is can be regularly reviewed and amended. The NWRS must be reviewed at intervals of 5 years. There is no statutory requirement for periodic review within the 5-year cycle. The NWRS can only be amended after mandatory consultations with stakeholders (NWA 1998, s. 5).

A CMS (and its subsidiary water allocation plan) must also be reviewed at intervals of not more than 5 years. CMSs (and water allocation plans) can be amended as a result of the review, but only after mandatory consultations with stakeholders (NWA 1998, s. 8).

The reserve is binding and the NWA 1998 does not permit for its review. As noted, only preliminary estimates of the ecological reserve have been determined to date and DWAF has indicated an intention to continually review and update the reserve. Once the reserve is finally determined for a water resource it is binding on all authorities or institutions when exercising any power or performing any duties under the NWA 1998.

Water use licences must be reviewed every five years. As noted, general authorisations are also reviewable on a regular basis. The limits and conditions attached to a licence or general authorisation can be amended if it is necessary to maintain the integrity of the water resource, to achieve a balance between available water and water requirements, or to accommodate changes in water priorities. Licence conditions for all similar uses from the same water resource ‘must be reviewed together and amended in an equitable manner’ (DWAF 2002a, p. 15).

6 Administering water rights

The NWA 1998 recognises several administrative procedures, including the:

- registration of certain water uses;
- declaration of general authorisations;
- granting of water use licences; and
- compulsory licensing of existing lawful uses and general authorisations.

6.1 Registering water use

Registration is the process in which a water user officially notifies DWAF (or the relevant CMA) of a water use. Registration does not in itself constitute an entitlement to use water (DWAF 2000a).

Registration is a first step to enable DWAF (or the relevant CMA) to implement efficient water pricing, to manage, control and protect water resources and water users (DWAF 2000a).

Water users must register their water use if they:

- have an existing lawful use; or
- are permitted to take water under a general authorisation, and wish to use water in excess the limits and conditions specified in the general authorisation (DWAF 2000a).

Schedule 1 uses do not need to be registered. New water users in an area subject to a general authorisation require a licence to take water (DWAF 2000a). As at August 2002, over 80 per cent of water uses under schedule 1 and general authorisations have been registered. Unregistered users are liable for a penalty charge for late registration and risk losing their entitlements (DWAF 2002a).

Applications to register water use are made to the DWAF using standard application forms (DWAF 2000a).

The information sought in a registration application include but are not limited to:

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- the personal details of the applicant and the property;
 - information regarding the water source;
 - information regarding the proposed water use;
 - whether the application falls under an existing authorisation;
 - the crops, the area of land under irrigation, the irrigation method and the growing season if water is to be used towards irrigation;
 - the location, size and other characteristics of a water storage (DWAF 2000a).

In some instances, the applicant may also be required to provide additional information and to appoint a competent person to assess the likely effect of the proposed licence on resource quality.

The NWA 1998 provides users to appeal the decision to the Water Tribunal of the DWAF (or relevant CMA) of the registration of an existing lawful use (NWA 1998, s. 148).

6.2 Declaring general authorisations

The aim of general authorisations is to ‘set a cut-off point below which strict regulatory control is not necessary’ (DWAF 2000b, p. 4). Water use within a general authorisation’s limits and conditions is subject to minimal supervision.

Application and consultation

The NWA 1998 describes the steps for declaring a general authorisation (NWA 1998, s. 39). DWAF (or the relevant CMA) has the power to publish a notice in the Gazette proposing the general authorisation. The notice must detail the water uses, persons, water resource, area to which the proposed authorisation is applicable (NWA 1998, s. 39). The notice must request written submissions from interested and affected parties.

Assessment

In preparing both draft and final general authorisations, DWAF (or the relevant CMA) must employ an integrated environmental management (as required by NEMA 1998) and give consideration to the factors listed in box 5.1 (NWA 1998, s. 27). In addition, DWAF (or CMA) must prepare an EIA if the general authorisation provides for the construction or upgrading of:

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- canals and channels that divert the normal flow of a river;
 - dams, levees and weirs that affect the normal flow of a river;
 - reservoirs for public water supply;
 - extraction of groundwater for bulk supply purposes;
 - sewerage treatment;
 - change in the use of land zoned for agriculture, undetermined, nature conservation or open space, to any other land use;
 - disposal of waste under ECA 1989 (s. 20) (ECA 1989; DWAF 2000b)

In assessing a final general authorisation, DWAF (or the relevant CMA) must also take into consideration the invited submissions.

Decision notification

A general authorisation is given effect when it is published in the Gazette.

6.3 Issuing water use licences

Individuals must apply for water use licence for any new use of water not covered by schedule 1 use or for any new use in an area subject to a general authorisation. As noted, the transfer of a licence requires its former owner to surrender that part of the licence, and the prospective buyer to apply for a new water use licence.

Application

The applicant initiates the process by formally submitting the appropriate licence application form with the attached licensing fee (NWA 1998, s. 40; DWAF 2000b).

Consultation

The NWA 1998 requires there to be public consultation with interested parties and affected persons — including other government agencies (NWA 1998, s. 41). The extent of public consultation will depend on DWAF's (or the relevant CMA's) assessment of the level of public interest (DWAF 2000b).

Generally, DWAF (or the relevant CMA) may require the applicant to place a public notice describing the application and inviting written submissions, to inform

the owners of neighbouring properties and to prepare a written report summarising the public consultations (NWA 1998, s. 41; DWAF 1999b and 2000b). The applicant may also be required to consult with other government agencies, such as the provincial environmental management agency (NWA 1998, s. 41; DWAF 1999b).

DWAF (or the relevant CMA) is required to consult with other government agencies (NWA 1998, s. 41; DWAF 2000b).

Assessment

As part of its assessment of the suitability of an application, DWAF (or the relevant the CMA), may instruct the applicant to demonstrate:

- an actual physical need for the water (and that alternatives are not available, through for example, water conservation measures and alternative remediation and treatment technologies) (NEMA 1998, s. 2); and
- the proposed use complies with the best practice environmental outcome — in terms of water demand, use and conservation (DWAF 2000b).

DWAF (or the relevant CMA) may require the applicant to prepare a:

- scoping report on the potential environmental effects of the proposal and issues and concerns raised by interested and affected parties during the applicant public consultation;
- detailed EIA addressing the potential impacts posed by the proposed or existing water use — as required by the ECA 1989 (s. 26); and
- socio-economic report on how the water use would contribute to the socio-economic benefits, such as job creation and poverty eradication (NWA 1998, s. 41; DWAF 2000b).

DWAF (or the relevant CMA) prepares a technical report commenting on the potential hydrological and environmental impacts by the licence proposal (NWA 1998, s. 41; DWAF 2000b).

DWAF's (or the CMA's) assessment of the suitability of a licence application is based on a number of considerations listed in box 5.1 (NWA 1998, s. 27). DWAF is currently preparing detailed procedures to facilitate the evaluation of licence applications (DWAF 2002a).

Generally, a water use licence will be granted if:

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- there is sufficient water to be allocated and the applicant can demonstrated an actual physical need or a willingness to apply the use to best practice standards;
 - with regards to environmental and socio-economic concerns, there is a net benefit from the proposed use; and
 - the proposed use is in the public interest (DWAF 2000b and 1999b).

For example, in the case of applications for licences for stream-flow reduction activities, a licence will be granted in accordance the net benefits arising per unit of stream flow reduction, and whether the activity is the public interest (DWAF 1999b). The proposed criteria for assessing applications for SFRA's are described in box 6.1.

If DWAF (or the relevant CMA) accepts the application, it prepares and forwards a final report and recommendation to an advisory committee for final approval. In recommending to grant a licence, DWAF (or the relevant CMA) can set the duration and any other conditions (subject to NWA 1998, s. 26) to ensure that the 'the total use from a particular water resource does not unreasonably prejudice the integrity of the resource, that individual uses do not unreasonably prejudice other users, and that water resources are effectively managed' (DWAF 2002a, p. 15).

Decision notification

DWAF (or the relevant CMA) prepares a record of decision regarding the application, detailing the decision and the reasons (NWA 1998, s. 42). All parties are informed of the final decision.

Hearing appeals

DWAF (or the relevant CMA) manages any objections and appeals by the applicant and objectors (DWAF 2000b). Applicants and anyone having made a written objection to an application can appeal decisions to the Water Tribunal. Decisions of the Water Tribunal can be appealed to the High Court on questions of law.

Any affected person can appeal the decision of DWAF (or the relevant CMA) to:

- permit or not permit the temporary transfer of a water authorisation; and
- amend a condition of a water use licence where DWAF (or the relevant CMA) was concerned with addressing water quality, sufficiency of water resources, and the provide for the public interest (NWA 1998, s. 148).

Box 6.1 Proposed criteria for assessing licence applications for stream-flow reduction activities

The proposed criteria that are used in the allocation decision include:

1. The extent to which the effect of the application could be accommodated in the water allocation plan for the relevant water management area (or water allocation schedule if a stressed catchment).
2. The degree to which the application would fit the objectives of the water allocation plan for the relevant water management area.
3. The likely effect on the class of the water resource (relevant only if criterion 1 is not satisfied).
4. The degree to which the application is likely to affect the water quality in the stream.
5. The degree to which the application requires a long-term assurance of water use.
6. The degree to which the application would redress past racial discrimination by satisfying the development aspirations of previously disadvantaged groups within the WMA.
7. The degree to which the application would redress past gender discrimination by satisfying the equity aspirations of women.
8. The net economic benefits likely to come from the application.
9. The extent of likely net employment and income distribution benefits that would arise from the application.
10. The extent of likely effects of the proposed application on human capital.
11. Nature and extent of likely impact on social and community life.
12. The likely contribution of the proposed application to infrastructure development in the locality or region.
13. Likely impact on cultural values and heritage of members of local communities.
14. The degree to which the proposed use would assure an economic return on past and proposed new investment by the applicant.
15. The strategic importance of the proposed application in the national, regional or local economy.
16. The degree to which the likely impacts of the application on biological diversity, natural habitats and scenic values are acceptable.

Source: DWAF (1999b).

6.4 Compulsory licensing

Compulsory licensing is the process by which water users, who are permitted to use water under an existing lawful use or general authorisation, must obtain a water use licence. DWAF (or the relevant CMA) can require compulsory licensing to:

- re-allocate water because the water resource is under stress;
- re-allocate water for equity reasons;
- promote beneficial use of water in the public interest;
- facilitate efficient management of the water resource; or
- protect water resource quality (NWA 1998, s. 43).

Application

DWAF (or the relevant CMA) must give notice in the Gazette of its intention to licence water use. The notice can also be published in local newspapers or the media. The notice must:

- identify the water resource and water use to be licensed;
- state where licences applications forms can be obtained and lodged;
- state the due date for licence applications and the applicable fee (NWA 1998, s. 43).

Assessment

Following the receipt of licence applications, DWAF (or the relevant CMA) must determine an allocation schedule — how the available water is to be allocated between the various categories of water use. DWAF (or the relevant CMA) can collect the necessary information and assess the net benefits of the proposed allocation. This assessment is undertaken in reference to the criteria listed in box 5.1 (NWA 1998, s. 27).

The allocation schedule must provide water to:

- the reserve;
- meet international commitments, if any;
- meet requirements for inter-basin transfers and national strategic uses, if any;

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- water users to whom licences ‘ought to be issued in order to redress the results of past racial and gender discrimination in accordance with the constitutional mandate for water reform’;
 - existing lawful users; and
 - present and likely future general authorisations and water use licences (NWA 1998, s. 45).

Consultation

After the proposed allocation schedule is determined, DWAF (or the relevant CMA) is required to publish a notice in the Gazette, with a copy of the proposed schedule, inviting written objections to be submitted (NWA 1998, s. 45).

After all objections are heard, and any amendments are made to the proposed schedule, a preliminary schedule is gazetted for final comment (NWA 1998, s. 46).

Hearing appeals

Any interested party may appeal a preliminary allocation schedule gazetted by a CMA or DWAF. Appeals must be filed with the Water Tribunal (NWA 1998, ss. 46 and 148). As noted, a person entitled to use water under an existing lawful use but is denied the licence or is granted a licence to a lesser degree than the existing lawful use, and this has resulted in a severe prejudice of the economic undertaking, can seek compensation (NWA 1998, s. 22).

Decision notification

The final allocation schedule is gazetted if no appeals are lodged within the specified time limit, if the schedule has been amended to address the concerns of the appellants or if appeals have been dismissed (NWA 1998, s. 47). All former existing lawful uses and general authorisations are extinguished, and the new licences to take water become effective (NWA 1998, s. 48).

7 Pricing

Trades in water rights have the potential to allocate water to society's highest valued uses. Inefficient pricing of water and water infrastructure services can influence the efficiency of water markets.

The NWA 1998 and the WSA 1997 each provide a framework for setting and monitoring water prices. Most water infrastructure assets in South Africa are owned by the national government or by municipalities. DWAF is currently in a process of devolving its assets in which:

- national water infrastructure will be retained under DWAF control;
- bulk water supply schemes will be transferred to regional water management institutions, such as water boards; and
- local distribution networks will be transferred to local government (water service authorities) (DWAF 1999c).

Under the NWA 1998, the Minister (in consultation with the Minister for Finance) is responsible for establishing a strategy for setting prices for water resources (that is, the price of raw or untreated water) and for the delivery services of national and bulk water supply schemes.

Under the WSA 1997, the Minister (in consultation with the Minister for Finance) is responsible for setting and monitoring the prices of certain water service providers (such as water boards and water service authorities).

7.1 National Water Act 1998

The Pricing Strategy for Raw Water Use Charges (the 'National Pricing Strategy') was gazetted in November 1999. The strategy develops and implements the broad principles of the NWA 1998 (DWAF 1999c).

It is expected that the responsibility for setting and collecting water resource management charges will initially be undertaken by DWAF, but this function will be gradually delegated to CMAs as they become established (DWAF 1999c).

Scarcity value of water

An objective of the NWA 1998 to ensure that water is allocated efficiently (NWA 1998, s. 2). It does this, in part, by providing for the trading of water, particularly among irrigators (DWAF 2002a; DWAF 1999c). However, in certain instances, trading may not occur. The NWA 1998 and the National Pricing Strategy each provide for the setting of prices to reflect the opportunity cost of water. The strategy permits water prices to be set:

- administratively — by basing prices on the opportunity cost of water, as reflected in the prices paid in water markets; and
- public tender or auction — in areas where compulsory licensing has taken place (DWAF 2002a; DWAF 1999c).

Water resource management charges

Under the NWA 1998, water resource management charges are defined to include the costs of:

- developing and implementing CMSs;
- monitoring and assessment of water resources;
- managing water distribution, water abstraction, storage and stream-flow reduction;
- administering water use licences and registration applications;
- protecting water resources, managing water quality and controlling water pollution; and
- conserving and managing the demand for water (DWAF 1999c).

Water resource management charges are to be applied to existing lawful users of water, licensed water users and users under general authorisations. Water provided under schedule 1 entitlements, for basic human needs or as part of the ecological reserve are not priced (DWAF 1999c; DWAF undated(b)).

Charges can be paid directly by water users, or passed onto water user associations, water users or water service authorities.

Infrastructure service provision

The National Pricing Strategy also identifies the need to recover the costs associated with planning, designing, developing, operating, maintaining and improving government water schemes and schemes funded by CMAs and water user associations (DWAF 1999c).

Under the National Pricing Strategy, government water supply schemes would recover both the operating and maintenance costs and capital costs. Capital costs include both the consumption of capital (depreciation) and the opportunity cost of capital (rate of return). The strategy recommends that reservoirs be assigned an estimated total useful life of 45 years. A rate of return for water-related infrastructure has been set at four per cent (DWAF 1999c).

The National Pricing Strategy reports that cost recovery levels will differ between sectors:

- Domestic urban, industrial, mining and energy sector water users will recover the water resource management costs, operating and maintenance, capital consumption. They will also contribute towards the 4 per cent rate of return.
- Subsidies of existing government-owned rural water supply schemes will be progressively phase-out by 2000–2001. Instead, rural prices will be increased progressively, until operating, maintenance, depreciation and water resource management costs are recovered. Rural water users will not contribute to the rate of return on existing assets (DWAF 1999c).

Price structure

Water resource management costs are recovered directly by the CMA or by water service providers. The National Pricing Strategy requires that consumption-based charges be employed where possible (DWAF 1999c).

In government-owned irrigation schemes, such as those in the Gauteng basin, prices are set to both a fixed amount (to recover the consumption of capital) and a volumetric-based charge (to recover operating and maintenance costs) (DWAF 2003a and 2003b). However, the volumetric-based charge tends to be calculated on registered water use not actual consumption (DWAF undated(a)).

In the case of licences that are issued for the storage of water (such as those employed for recreational purposes), charges will be for the initial filling of the dam and for subsequent refilling following evaporation and seepage. Similarly, water use

by stream-flow reduction activities will be calculated on the estimated average annual uptake of water (DWAF 1999c).

Community service obligations

Though it is intended that CMAs be self-supporting, a subsidy can be paid by DWAF in cases where there is low affordability, low registration or excessive default by users in a water management area (DWAF undated(b)).

Limited assistance (subsidies) is provided to ‘emerging farmers’, who are members of WUAs, for the capital cost of infrastructure. Limited subsidies will also be made available for the costs of operating and maintaining the government water schemes (DWAF 2002a).

7.2 Water Services Act 1997

Though water services providers (water boards, water service authorities and water service committees) are responsible for determining the prices of their services, the Minister has the authority to set standards or norms for prices. No water services provider may employ a tariff that is substantially different from any prescribed norms or standards set by the Minister (WSA 1997, s. 10).

Under the WSA 1997, prices can:

- differentiate between types of water services and geographic areas;
- limit surpluses and profits;
- limit revenues obtained from recovery charges; and
- provide tariffs to be used to promote or achieve water savings (WSA 1997, s. 10).

In determining a standard or norm for a water charge, the Minister must have regard for:

- any national standards prescribed by the Minister;
- social equity;
- the financial sustainability of the water services in the area;
- the recovery of costs reasonably associated with water services provision;
- the redemption period of any loans for the provision of water services;
- the need for a return on capital invested for the provision of water services; and

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- the need to provide for drought and excess water availability (WSA 1997, s. 10).

Financial assistance to water service providers

The WSA 1997, the Minister has the power to provide financial assistance to water service providers (WSA 1997, ch. 9). Assistance can take the form of a grant, loan or subsidy. Water service providers apply to Minister for assistance, who must consider the:

- requirements of equity and transparency;
- purpose of the assistance;
- main objectives of the WSA 1997; and
- financial position of the applicant (WSA 1997, s. 64).

The Minister may also set regulations relating to the financial assistance concerning the:

- financial feasibility of the construction, operation and maintenance of water services;
- manner in which financial assistance must be applied for: and
- terms and conditions whereunder any grant or loan made or a subsidy given (WSA 1997, s. 66).

8 Monitoring and enforcement

The monitoring and enforcement arrangements that are employed in each of the jurisdictions to maintain the integrity of entitlements, and the resource quality objectives and the reserve, are described in this chapter.

8.1 Compliance strategies

The transparency of monitoring and enforcement policies and procedures can assist to create confidence in decision-making. Transparency can be achieved by publishing compliance strategies (strategies governing how enforcement is to be undertaken) and publishing enforcement records (in terms of the offences and sanctions imposed).

The Minister and DWAF are not required, under the NWA 1998, to prepare a compliance strategy or to publicly report breaches of general authorisations and licences.

DWAF is required to publish a summary of its operations in its annual report. The Minister has the discretion as to the content of the report. In 2001–2002, the department reported 1079 cases of unlawful use of water. However, the report did not detail the outcomes of those unlawful uses (DWAF 2002c).

DWAF is planning to develop a comprehensive compliance management strategy. However, implementation will not occur until a significant number of licences have been issued under the NWA 1998 (DWAF 2002a).

Similarly, WUAs are not required under the NWA 1998 to prepare compliance strategies or to report compliance outcomes. As noted, CMAs are required to prepare CMSs, which can include compliance strategies. Both CMAs and WUAs are required to report externally on their performance. As noted, WUAs are required to prepare business plans. Both CMAs and WUAs are required to prepare annual reports (NWA 1998, Schedule 4, s. 32). A CMA must table its annual report to Parliament and a WUA must provide its report to the Secretary to Parliament (NWA 1998, Schedule 4, s. 32)

8.2 Monitoring procedures

Under the NWA 1998, the Minister is required to monitor water users' compliance with the authorisations and the provisions of the NWA 1998, and to monitor the state of the water resource and its environmental condition (NWA 1998, s. 140).

The Minister must monitor the following aspects of a water resource, the:

- quantity of water;
- quality of water;
- use of water;
- rehabilitation of water resources;
- compliance with resource quality objectives;
- health of aquatic ecosystems; and
- atmospheric conditions that may influence water resources (NWA 1998, s. 137).

Information collected as part of a national monitoring system may stored in:

- a hydrological and groundwater information system;
- water resource quality information system; and
- a register of water use authorisations (WARMS) (NWA 1998, s. 139).

Compliance monitoring

DWAF (or the relevant CMA) is primarily responsible for monitoring users' compliance with general authorisations and water use licences conditions. Similarly, these organisations are responsible for monitoring water resources in their water management area and the reserve and resource quality objectives.

As noted, CMAs can delegate to water service institutions (WUAs and water service providers) a range of functions, including the power to monitor water resources and water use of their members or customers, and to monitor water resources and environmental outcomes on behalf of the CMA.

8.3 Enforcement procedures

The NWA 1998 specifies two broad mechanisms for enforcing its provisions. Administrative decisions are adjudicated and enforced by the Water Tribunal.

Criminal matters and appeals from the tribunal are adjudicated and enforced by the courts.

DWAF's enforcement procedures are focussed on cooperation rather than deterrent based strategies. DWAF prefers water users to comply with conditions of use which have been cooperatively determined and mutually agreed by users and DWAF. Under these circumstances, it is considered that it will only be necessary to resort to enforcement by legal deterrent based strategies in exceptional cases.

Contravening authorisation

The NWA 1998 provides for DWAF (or the relevant CMA) to direct a person contravening their authorisation to take action in accordance with the direction. If the directed party does not carry out the required action, DWAF (or the CMA) may undertake the necessary work and recover reasonable costs or apply to an appropriate court (NWA 1998, s. 53).

DWAF (or the relevant CMA) can suspend or withdraw an authorisation if the directed person has not undertaken the required action within the required time, and the water user has failed to:

- comply with the conditions of their authorisation;
- comply with the provisions of the NWA 1998; or
- pay a charge for the use of the water (NWA 1998, s. 54).

An authorisation holder can appeal to the Water Tribunal for the reasonable costs claimed DWAF (or the CMA), against the decision to suspend, withdraw or reinstate the authorisation (NWA 1998, s. 148).

Offences

The NWA 1998 lists the offences that can be prosecuted and the range of penalties that can be applied under the Act (see box 8.1):

- for a first conviction, the penalty is a fine, or imprisonment for a period not exceeding 5 years, or both; and
- for a second or subsequent conviction, the penalty is a fine, or imprisonment for a period not exceeding 10 years, or both (NWA 1998, s. 151).

Box 8.1 Offences under the *National Water Act 1998*

Under the *National Water Act 1998*, it is an offence to:

- use water other than permitted under the Act;
- fail to provide access to any documentation or assets when required under the Act;
- fail to comply with a condition permitted to use water under the Act;
- fail to comply with a directive given by DWAF (or the relevant CMA);
- unlawfully and intentionally or negligently tamper or interfere with any waterwork or any seal or measuring device attached to a waterwork;
- fail or refuse to give data or information or give false or misleading information;
- fail to register an existing lawful use when required to do so by DWAF (or the relevant CMA);
- intentionally refuse to perform a duty or obstruct any person in the exercise of their power or duty under the Act;
- unlawfully and intentionally or negligently commit any act or omission which pollutes or is likely to pollute a water resource;
- unlawfully and intentionally or negligently commit any act or omission which detrimentally affects or is likely to detrimentally affect a water resource;
- fail to register a dam with a safety risk;
- fail to comply with a temporary restriction on the use of water; and
- commit contempt of the Water Tribunal.

Source: National Water Act 1998 (s. 151).

The NWA 1998 does not list the levels of financial penalties for each of the different classes of offences.

Enforcing through the courts

If a person that has been injured or a water resource has been harmed by the offence committed by another party, the injured party or the Minister can seek to be awarded damages by the court. In awarding damages, the court can order damages be paid for the loss or harm suffered by the person. In the case of the environment, damages are equal to the cost of any remedial measures. The court may also require the accused to undertake the remedial measures (NWA 1998, s. 152).

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