Water Resource Management in South Africa

By

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DECLARATION

This dissertation is the original work of the author unless otherwise referenced, and has not been submitted for a degree at this or any other tertiary institution.

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Abstract

South Africa is a semi-arid country virtually surrounded by water, yet fresh water is a scarce commodity and much of the population is currently without potable water. Water is the essence of life and a renewable resource that changes through the hydrological cycle. The 1996 Constitution produced a new framework for water legislation in South Africa, culminating in National Water Act, 1998 and the Water Services Act, 1997. This study assesses the change in the approach to water resource management brought about by these Acts. In addition, the Water Research Act, 1971 was reviewed.

This legislation introduces an holistic approach of integrated water resource management that recognises mutual dependence of water and land management at local catchment level to ensure sustainability. Water is also no longer divided between private and public sectors, but is deemed to be a national resource under the trusteeship of the State for the benefit of present and future users to ensure the Constitutional right of access to sufficient water. Additional important features include: recognition of the hydrological cycle; the concept of a Reserve; change of institutional responsibility from national to catchment management with associated cooperative governance and public participation; receiving water quality objectives of the individual resource; and demand management approach to water supply.

Implementation of this approach is through a two-tier strategy, namely a national water research strategy and catchment management strategies for each defined water management area, that will link to the water services development plans. The national strategy filters fundamental principles to each catchment strategy, focusing on the water resource as well as potential pollution sources. In turn, each catchment strategy will provide information for input into the national strategy and water resource information system. The water services development plan will provide data for the water services and water resources national information systems, as well as the catchment strategy. However, the National Government policy of providing basic water services free may hinder the financial sustainability in effectively providing this function. These strategies and plans are part of a planning process that requires review and progressive improvement and change according to the changing needs of both the resource and society. The institutions responsible for driving this process are the catchment management agency for the catchment strategy and the water services authority for the water services development. Overall the approach to water resource management in South Africa is based on classification of river systems; determination of the reserve; international obligations; and equitable and sustainable allocation of the remaining resource through licensing and registration.

Although integration and sustainability are complex issues, the Acts provide a competent framework for the link between water resources protection and water services provision. Success and sustainability of water resources management in South Africa is dependent on cooperative governance, integration of environmental factors, public participation and education, administrative compliance and financial capacity.

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Abbreviations

CMA	Catchment Management Agency
CMF	Catchment Management Forum
CMIP	Consolidated Municipal Infrastructure Programme
CMS	Catchment Management Strategy
DWAF	Department of Water Affairs and Forestry
FBW	Free Basic Water
IDM	Integrated Development Management
IDP	Integrated Development Plan
INRM	Integrated Natural Resource Management
ISWIP	Implementation of Sustainable Water Services Institutions Programme
IWRM	Integrated Water Resource Management
MIG	Municipal Infrastructure Grant
Mℓ	Megalitres (one million litres)
NEMA	National Environmental Management Act, 1998
NGD	National Groundwater Database
NWRS	National Water Research Strategy
RDM	Resource Directed Management
RQM	Resource Quality Management
RQO	Resource Quality Objectives
RWQM	Receiving Water Quality Management
RWQO	Receiving Water Quality Objectives
SDC	Source Directed Controls
VIP	Ventilated Improved Pit Latrine
WCDM	Water Conservation and Demand Management
WMA	Water Management Area
WSA	Water Services Authorities
WSDP	Water Services Development Plan
WSP	Water Sector Plan

Chapter 1: Introduction

Water is the essence of life. The purpose of this research is to analyse the approach to water resource management through legislation in South Africa to determine potential effectiveness with respect to available water resources, population numbers and government policies. The aim is to determine whether the legislation provides a sufficient basis for sustainable water use, not only in regulations, but also in enforcement. The extent of current compliance with this new strategy will also be examined to determine effectiveness of the legislation. Emphasis will therefore be placed on the legislation itself, with input from relevant articles and documents. Where appropriate, a comparison with the approach to water resource management in Western Australia will also be conducted, as this region has a similar climatic and water resource distribution to South Africa.

1.1 Water resource management

Water occurs in three forms, namely solid (ice), liquid (surface and groundwater) and gas (water vapour). These forms are inter-related in terms of the hydrological cycle (Figure 1.1). This cycle indicates that water is a renewable resource that merely changes form, primarily between the gaseous and liquid states. Simplistically, water changes to vapour through evaporation[1] (mostly from the oceans) and transpiration (through plants), it condenses in the atmosphere to form clouds of water particles that coalesce and become heavy enough to fall to the ground as rain, snow, hail or sleet[2]. Mostly, this liquid form either flows as surface water to the ocean, or infiltrates and percolates the ground as groundwater. However, in colder climates the water may be trapped for a period in the solid state until a warmer

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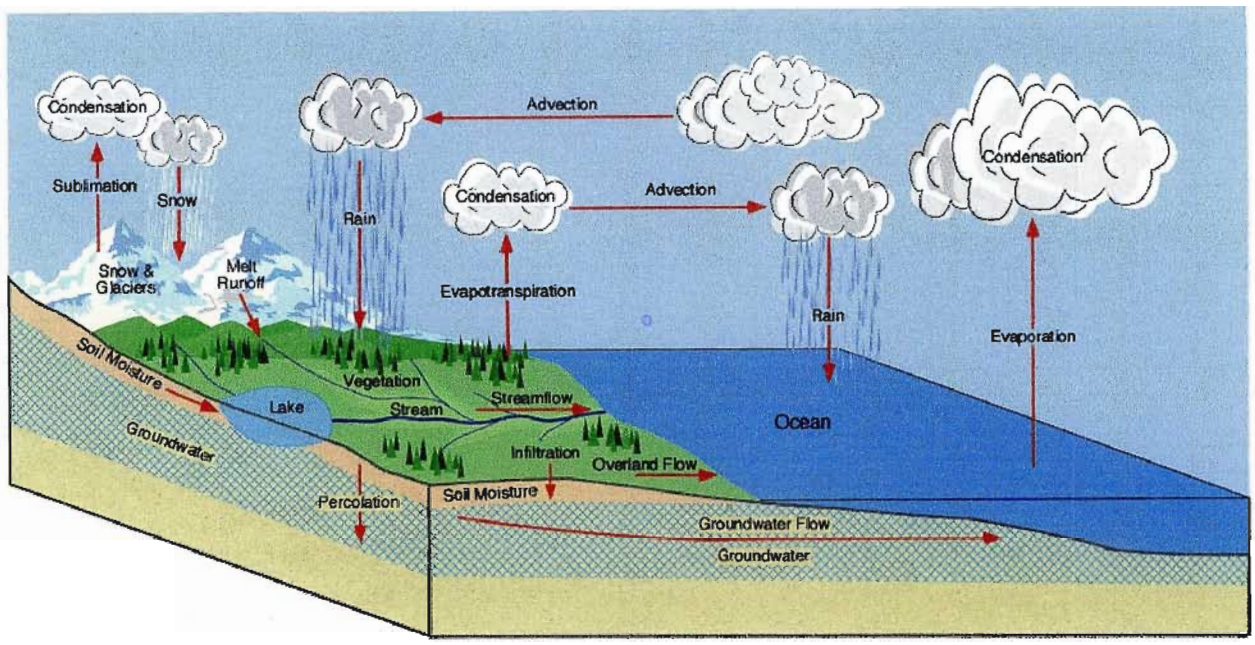
[1] According to S Postel *Water: Rethinking Management in an age of scarcity* (1984) at 6, approximately 500,000 km^3 of water is evaporated from the Earth's surface annually with 86% from the oceans and 14% from land.

[2] Postel *op cit* n 1 at 7 (cited van der Leerden, F. (1975). *Water Resources of the World.* Water Information Centre: New York) states that 110,000 km^3 falls over land when only 71,500 km^3 is evaporated, resulting in an annual net transfer of 38,800 km^3 (or 38,300 Million Mℓ) of water from the oceans to land.

climate releases the water to continue the cycle.[3] Therefore, although it is a renewable resource, the limited fresh water and cycle length (or period) may restrict its use to modern-day man[4].

Figure 1.1: The hydrological cycle.



(Source: www.geog.ouc.be.ca/physgeog/home.html)

The natural drainage area of precipitation is a catchment, which forms the boundary between surface flow directions. Smaller (or quaternary) catchments interlink to eventually form a primary catchment that ultimately drains into the ocean at a single point. Once water infiltrates and percolates the ground, it no longer follows this surface catchment and "flow" is controlled by soil and rock type. One of the major problems with catchments is that they invariably are not the same as the political boundaries, and this may hinder management and supply.

Water resource management involves the planning of water use such that it is sustainable in terms of the hydrological cycle and water availability in the region. This is linked not only to the quantity of available water, but also the quality. Sustainable water use occurs where the rate of resource withdrawal,

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[3] The approximate residence time in years for the various water sources is as follows: rivers 0.04; soil moisture 0.2; seasonal snow cover 0.4; glaciers 40; lakes 100; groundwater: shallow 200; and groundwater: deep 10,000. www.geog.ouc.be.ca/physgeog/home.html

[4] The annual volume of freshwater renewed by the water cycle could meet five to ten times the material needs of the existing (1984) world population. Postel *op cit* n 1 at 5. However, as this water is unequally distributed across the Earth, this would tend to suggest that resource management is key.

consumption, or depletion is always equal to or exceeded by the rate of resource replenishment, while maintaining certain selected and agreed characteristics of the resource[5]. There are many factors that affect the water cycle, and therefore the approach to water resource management. These include:

- Climate (e.g. hot and dry with high evaporation rates; cold with lots of water as snow and ice; and the seasonal variations and climatic trends).
- Precipitation type, amount, distribution and annual patterns.
- Soil and rock type (these affect the amount of water that can percolate into the groundwater systems and also affects quality, quantity and recharge rate, of the systems).
- Land forms and topography (e.g. mountainous, steep gorge-like catchments, or open level flood plains).
- Land use (urban landscapes and infrastructure that impede infiltration and change water quality, technology that allows access to previously unattainable resources, and the storage of vast quantities of water for transfer to other regions).
- Ecosystems (flora, fauna and their natural habitat).
- Population number, density, and distribution.

It is evident that water resource management is complex and requires the integration of many factors to succeed. There are a number of approaches to water resource management, based on the level of management integration as follows[6]:

- **Harmonious Management**. This approach recognises the fact that surface water and groundwater quantity and quality cannot be managed in isolation and therefore manages them harmoniously.
- **Integrated Water Resource Management (IWRM)**. This approach recognises mutual dependence of water and land management at local catchment level to ensure sustainability, as well as upward integration of strategic water management at scales beyond that of catchments. IWRM is simultaneously a philosophy, process[7] and product that must ensure that water is protected, used, developed, conserved, managed and controlled in an equitable, efficient and sustainable manner for

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[5] The characteristics can include resource quality, biodiversity, and resilience to external disturbance or change that ensures effective management by allowing for temporal rainfall and runoff or recharge variability. P Viljoen *South Africa's approach to IWRM* (2002) – (herein after cited as Viljoen (2002a))

[6] J Van Wyk *Management approaches* (2002) - (herein after cited as Van Wyk (2002a)).

[7] The cyclical nature of IWRM follows the processes of plan, implement, check and act (on the findings i.e. plan/implement etc.).

the benefit of all persons at the local, catchment, regional, national and international levels through appropriate stakeholder participation.

- **Integrated Natural Resource Management (INRM)**. This approach, also known as integrated environmental resource management, recognises and understands that a web of interrelationships binds all environmental resources that ultimately impact on water resources. INRM encompasses the management of land, air, water and ecological resources, including integrated pollution control and waste management.
- **Integrated Development Management (IDM)**. This approach recognises and understands that the development of industrialised human society can be sustained only if water and all other resources are managed in a sensitive and wise manner. IDM encompasses the management of water, land and other environmental resources in harmony with economic and social development generally.

Although these general approaches, in theory, progressively integrate more aspects affecting water and other resources, in practice they are often difficult to follow because of their integrated nature. Cooperation between government departments and organisations is key to the success of these integrated approaches to water resource management which means that all relevant parties need to be aware of the integration and interdependence of the resources and the overall environment, as well as all legislation pertaining to those factors. Harmonious management starts off by regulating both surface and groundwater, however this study believes that legislatively South Africa was, until recently, one step back from this approach in that water resource management focussed on surface water (this is discussed further in the following section).

Factors included in the various integrated approaches are difficult to categorise because of their integrated nature. However some of the concepts include[8]:

- Catchment management and integrated catchment management. This concept divides the resource into catchments, or natural drainage areas. These catchments are managed according to the overall water resource management approach, but effectively try to ensure sustainability and minimise the direct impact on downstream catchments and users.

[8] Van Wyk (2002a) *op cit* n 6

- Water Quality Management that includes Resource Quality Management (RQM) based on Resource Quality Objectives (RQO), and Receiving Water Quality Management (RWQM) based on Receiving Water Quality Objectives (RWQO). These concepts are discussed further in Chapter 2.
- Water Quantity Management that includes Water Conservation and Demand Management (WCDM). This is discussed further in Chapter 2.
- Water resource planning and resource development management.
- Source-based Management and Controls (this is linked to water quality, quantity, and overall catchment management). It focuses on controlling the source of potential pollution and water use, rather than the resource itself. This is discussed further in Chapter 2.

South Africa is a country virtually surrounded by water, yet fresh water is a scarce commodity and much of the population is currently without potable water. The country is defined as semi-arid with rainfall statistics ranging from over 1,000 mm in the east to 200 mm in the interior and along the west coast (Figure 1.2). In addition to this uneven distribution, there is also a seasonal variation between the east and west. However, overall the average rainfall for the country (450 mm per annum) is below the world average of about 860 mm per annum.[9] Evaporation in South Africa is also fairly high and this exacerbates the situation. There are a number of strong flowing rivers, primarily in the east, however there are also large tracts of land without any natural surface water (Figure 1.3). The cumulative flow, or mean annual runoff, of all South African rivers, is 49,228 Million kilolitres per annum, which is less than half the flow of the Zambezi River[10]. This results in the demand exceeding water potential and availability in certain areas of the country. Irrigation dominates water use at 54% of the total, with domestic and urban use at approximately 11% of total use[11]. However, both farmers and rural communities supplement surface water supplies with groundwater for their daily requirements, especially in the drier areas. Groundwater potential is variable and often limited with poor quality, depending on geology and recharge of the aquifers.

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[9] DWAF *Proposed first edition National Water Research Strategy* (2002) at 12

[10] DWAF *op cit* n 9 at 12

[11] J Van Wyk *Global and South African Water Resource Situation* (2002) - (herein after cited as Van Wyk (2002b)).

Figure 1.2: Rainfall distribution in South Africa.

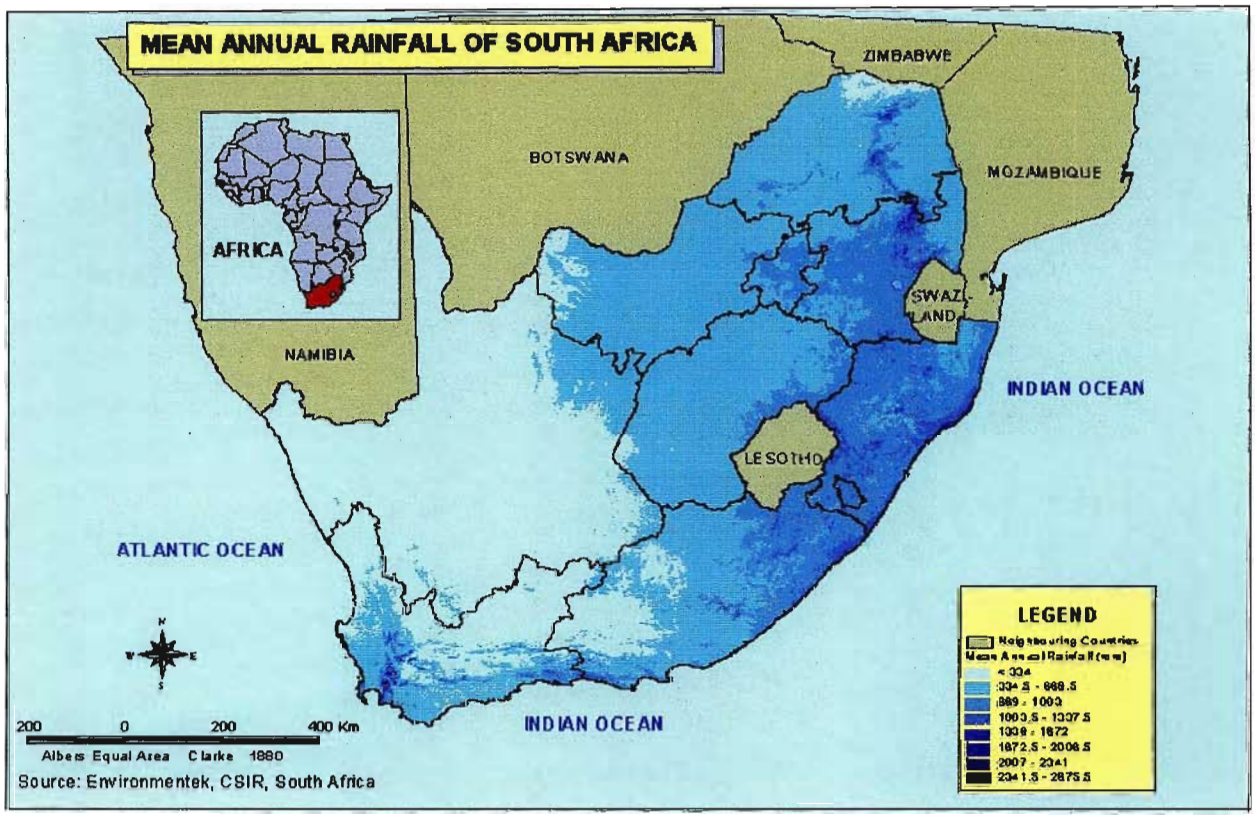

Figure 1.3: Major river distribution within South Africa.

1.2 Water law reform

Previously, South African water law has focused on urban, industrial and agricultural interests with changes to meet the needs of these sectors. This anthropocentric focus did not cater for the water requirements of the environment. Water law was founded on legislation and common law from countries with differing water conditions from South Africa, with indigenous communities' approach to communal water rights being ignored[12].

The Water Act, 1956[13] regulated the control, conservation and use of water for agricultural, industrial and urban users. The principal allocation of water was based on the Roman-Dutch law distinction between public and private water[14]. This distinction was a misinterpretation of Roman law and was not meant to determine ownership of water, but right of use of water to help the department in water allocations and regulations[15]. It was originally felt that limited water resources, such as small tributaries or groundwater, did not require state regulation and could be left to the control of the landowner on whose property it appeared[16]. However, this administrative convenience took on a new significance in the Law of Things[17] through law development and statutory enactments. Thus whilst a riparian owner[18] had the right of reasonable use, without waste, of public water and non-riparian owners had limited right of use for

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[12] For a comprehensive review of South African water law history see JRL Milton *The history of Water Law 1652-1912.* In: *LAPC Water Law Legal Grouping Submissions to DWAF* (1995); and S Singh *A critical analysis of the development of water law in South Africa* (1999) Unpublished LLM dissertation at 2-6 for a summary of the history.

[13] Act 54 of 1956

[14] DWAF 'Water Management and the Law' (1995) 15 *Water sewerage and effluent* at 17. Private water was '*all water that naturally rises or falls on any land or naturally drains or flows on one or more original grants, but is not capable of common use for irrigation'.* There were five classes, namely spring water, rainwater, drainage water, water of private streams, and underground water. Public water was '*any water flowing or found in or derived from the bed of a public stream, whether visible or not*'. A public stream is further defined as '*a natural stream of water which flows in a known and defined channel if the water therein is capable of common use for irrigation on two or more pieces of land riparian thereto, which are the subject of separate original grants*'. The stream must be natural and not artificial. There were two divisions, namely normal flow and surplus flow. WJ Vos *Principles of South African Water Law* (1978) at 8-14

[15] DWAF *You and Your Water Rights* (1995) at 9.

[16] Water Law Review Panel *Fundamental principles and objectives for the new water law in South Africa. Report to the Minister of Water Affairs and Forestry* (1996) at 14

[17] The right to water could be owned, however it has never been a property right. (*White Paper on a National Water Policy for South Africa, 1997* at section 5.5.1). This is also highlighted by the Water Law Review Panel (*op cit* n 16 at 15), that the difficulties experienced by DWAF in terms of water resource management in the public interest was '*exacerbated by the erroneous public perception that individual landowners 'own' the private water on or under their land'.*

[18] This concept is essentially from English Law, however in South Africa it was originally developed largely by the courts through a combination of Roman-Dutch, English and United States law and only later expressed in the 1956 Water Act (*White Paper on a National Water Policy for South Africa, 1997* at section 5.5.1).

domestic purposes; private water was the exclusive property to use, alienate or waste of the land owner[19]. One of the major effects of this division was the separation of surface water from groundwater, rainwater, and certain wetlands, springs and dams; yet hydrologically these resources are interconnected.

The 1956 Act focused on surface water with groundwater largely being ignored because of its status as "private" water. Although, under the Act, the State could classify a groundwater control area and the groundwater would then fall under State control. This would tend to suggest that groundwater use was not based on ownership, as this right of use could be limited.

The need to review the 1956 Act, especially from a technical perspective to accommodate the increasing competing demands, was expressed by water law specialists, the Department of Water Affairs and Forestry (DWAF) and the South African water sector generally for many years, prior to the development of the 1996 Constitution[20]. In addition, although no overtly discriminatory clauses exist in the 1956 Act there were also calls to review the law from an equity, or fairness, perspective. This was founded on the basis that the Act has a bias towards riparian rights that are connected to land ownership, a luxury that the majority of South Africans were excluded from under apartheid legislation. In response to the need for democratic review of the water legislation, DWAF published a booklet for public comment entitled *You and Your Water Rights*[21]. Although the responses to this booklet held divergent views, there was overall consensus that the water resource required protection, and there was approval for the concept of integrated catchment management and assigning an economic value to water[22]. One of the issues raised was whether water law itself was the source of inequitable access, or whether institutional reorganisation could address this issue. Ultimately both these issues have been incorporated in drafting the new legislation.

A number of foreign governments and organisations played a part in the review process. In particular the French Government sent senior personnel to South Africa, and reciprocally hosted DWAF officials, to

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[19] Vos *op cit* n 13 at 10 and 27. However DWAF and the legislature have a different view, see footnote 17.

[20] Water Law Review Panel *op cit* n 16 at 2

[21] DWAF *op cit* n 15

[22] Water Law Review Panel *op cit* n 16 at 4

discuss and share French experience[23]. Although this experience would be invaluable to overall approaches to water resource management, the specifics would still need to be uniquely South African. Successful water laws in France cannot merely be extrapolated to South Africa as the socio-economic, infrastructure and resource capacity differ. Nevertheless DWAF used this opportunity to evolve ideas around potential approaches to a future national water resource strategy (NWRS)[24]. The Canadian IDRC also funded an independent consultant to search the internet for international approaches to "best practice" in water law[25].

The 1996 Constitution produced a new framework for South African legislation. Water resources have been identified as a national government function as they are not listed in Schedule 4[26] or Schedule 5[27]. The Constitution also entrenches a number of rights, not the least of which is that every person has the right of access to sufficient food and water (s 27(1)(b))[28]. In addition, South Africans also enjoy the rights to life[29], human dignity[30], and the environment[31] that all impact on water services and ultimately resource protection or management. Although the Constitution does not quantify the term "sufficient", regulations made by the Minister of Water Affairs and Forestry set minimum national standards for the provision of basic water and sanitation services[32]. Based on the approximate total South African population of 45 million[33] and the national minimum water supply standard per person, the minimum daily water

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[23] Water Law Review Panel *op cit* n 16 at 3

[24] P. Viljoen. DWAF. *Framework legislation for water law in South Africa*, Course at the Centre for Environmental Management, Potchefstroom University. July 2003.

[25] Water Law Review Panel *op cit* n 16 at 3

[26] Concurrent National and Provincial legislative competence

[27] Exclusive Provincial legislative competence

[28] PH Gleick *The World's water 2000-2001: the biennial report on freshwater resources* (2000) at 9, indicates that few States have made such a formal commitment in recognising the right to water

[29] Section 11 where it states that '*everyone has the right to life*'. This is important as diseases from inadequate access to potable water and hygienic sanitation facilities often lead to death, especially of infants and children. The right of access to water therefore relates not only to supply but also to quality.

[30] Section 10 where it states that '*everyone has inherent dignity and the right to have their dignity respected and protected*'. This is important as poverty and no basic services strips people of this right. The duty placed on government is that of a healthy environment with basic services that promote dignity in the face of poverty.

[31] Section 24(a) where it states that '*everyone has the right to an environment that is not harmful to their health or well-being*'.

[32] Government Notice dated 8 June 2001 Regulation 501. In terms of section 9(1) of the Water Services Act, 1997 (Act 108 of 1997). These standards include 25 litres of potable water per person per day within a walking distance of not more than 200 m from the house at a minimum flow rate of 10 litres per second (Regulation 3). Essentially basic sanitation provision is a ventilated improved pit latrine (Regulation 2), which does not require water or the vast expense of a waterborne sewerage network. However, if not properly constructed these pits can have the effect of polluting the groundwater resources.

[33] Statistics South Africa: 2001 Census data. The total population is given as 44,819,778, with 41% being divided between the Provinces of KwaZulu-Natal (9,426,017) and Gauteng (8,837,178).

requirement is 1,125 Megalitres (Mℓ). There appears to be sufficient water to sustain this minimum requirement[34]. However, this figure does not take account of the higher consumption in urban areas, or industrial and agricultural requirements.

National government has also established a policy of providing basic water services free. This means that capital funding to alleviate the water services backlog[35] needs to come from national, provincial or local government, or from external donors, and operation and maintenance funding from tariff modelling and the equitable share[36]. Although this policy is commendable, as a high percentage of the population cannot afford basic services, the question is whether our natural systems can support this consumption level and whether the resource management criteria to ensure sustainable supply are sufficient. This is compounded by the fact that municipalities, as the Water Services Authorities, are under substantial pressure to provide these basic services with very little finance. The financial implications of providing free services could negatively impact on environmental sustainability of water resource management.

Recently national legislation with regard to water changed drastically in its approach. The 1956 Water Act was repealed in its entirety, to be replaced by the National Water Act, 1998[37] and the Water Services Act, 1997[38]. The focus of the new water strategy is more holistic than it was previously, emphasising management of entire catchments. Water is also no longer divided between private and public sectors, but is deemed to be a national resource under the trusteeship of the State[39]. The aim is to make optimal use of freshwater without negatively impacting the aquatic ecosystem. Freshwater that flows into the "unusable" ocean is a waste, however freshwater is required to maintain estuarine ecosystems. Therefore, a balance between these factors is required. With a population of approximately 45 million to sustain through at least basic water services, the protection and management of this scarce resource is of utmost importance.

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[34] For 45 Million people at the minimum national standards 410,625 Mℓ of water per annum is required when compared with the mean annual runoff of 49 Million Mℓ per annum.

[35] The water services backlog is those persons currently without the minimum national standards in terms of water supply and sanitation provision (otherwise referred to as basic water services).

[36] Funding supplied by national government to Local and District Municipalities to help fund services to indigent persons. This funding is a lump sum and is not apportioned between the various services such as water and sanitation, housing, roads and telecommunications. However, requirements to use a certain percentage of the funding for basic water services are in the pipeline.

[37] Act 36 of 1998.

[38] Act 108 of 1997.

[39] Section 3 of the National Water Act, 1998 (Act 36 of 1998).

1.3 Principles of water law

1.3.1 International environmental law principles

Internationally there are three main principles that are used in the approach to environmental legislation - namely prevention, precaution and polluter-pays. These principles seek to guide the legislature in an approach that will hopefully protect the environment from negative impacts. The principle of prevention focuses on the prevention of activities or impacts that are known to be detrimental to the environment. Inclusion of the principle of prevention in legislation often requires the creation of a duty on both the persons and the state that ultimately leads to an offence and penalty. The aim is to prevent the impending environmental degradation.

The principle of precaution focuses on minimising the impact of environmental degradation. This principle requires persons or the state to be cautious in their dealing with the environment such that the impact of their activities on the environment is minimised. Inclusion of the precautionary principle places a duty on persons or the state to be aware of their surroundings and the environment when planning activities or performing tasks. Negligent or intentional actions that do not follow caution in relation to the environment may ultimately lead to an offence and penalty.

The penalty imposed in the above instances would be based on the "polluter pays" principle where it is held that the person who pollutes the environment is responsible for remediation of that pollution. Although this is a last stop approach, it is necessary to ensure just and fair administrative action with regard to offenders of the principles of prevention and precaution. These principles are used extensively throughout environmental law, and are ideal founding principles upon which water resource management can be based.

1.3.2 Fundamental principles for a new water law in South Africa

In order to achieve the required water law reform, the Minister of Water Affairs and Forestry set up a review panel to assess and determine principles for new law. The water law review panel developed a

set of principles on which the new water law would be based. These are expressed in basic terms. Although there was some debate about the use of the term "principle", it was decided to retain the word on the understanding that it is a generic term that includes both factual statements and objectives. The Principles are therefore a single set of inter-related and inter-dependent statements[40]. Fifty-two Principles, divided into nine categories, were devised[41] and subsequently summarised into a list of 18 fundamental Principles for water law that exclude the implementation approaches[42] (Appendix I). These were then reassessed into 28 Principles and Objectives that were approved by Cabinet and used to draft the White Paper on a National Water Policy for South Africa, 1997[43]. The final Principles are attached as Appendix II.

It is evident that these principles look at water resource management holistically, from protection of the cycle to ensuring the Constitutional right of access to sufficient water. They also encourage co-operative governance in line with Constitutional expectations, in that although South Africa has a single water administrative body that may resist cooperation with broader environmental management, Principle 18 attempts to incorporate cooperation with other departments through land use planning. It was acknowledged that these Principles would have enormous implications in terms of cost, complexity, institutional capacity, time, and potential confusion, however the consequences of not addressing the shortcomings of the 1956 Act would ultimately be more costly[44]. Adequate provision must be made to ensure the change is fair and ordered with minimum expenditure of public funds.

The reform of water law in South Africa has changed the overall approach to water resource management, such that the following features are important:

- Water resource includes the entire hydrological cycle - leading to an extensive definition of water use and an integrated management approach.
- State "ownership" of the water resource for the benefit of all and a change from inherent rights to an administrative system of equitable entitlements to water use based on beneficial use.

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[40] Water Law Review Panel *op cit* n 16 at 9

[41] The principles are part of a process and the panel acknowledged that they may not be perfect, especially in light of the shortness of time. Water Law Review Panel *op cit* n 16 at 5

[42] Water Law Review Panel *Annotated Principles for Discussion: Addendum to Water Law Review Panel* (1996) *op cit* n 16

[43] Eleven technical task teams were appointed to translate the Principles into practical proposals which informed the *White Paper* policy positions (*White Paper on a National Water Policy for South Africa* at section 5.5.2)

[44] Water Law Review Panel *op cit* n 16 at 6. According to P. Viljoen (*op cit* n 24), DWAF has an annual staff turnover of between 30% and 40%. This affects the continuity of management and could hinder the implementation of the new legislation.

- The concept of a Reserve that includes the requirements of the aquatic ecosystem and basic human needs – to ensure long-term sustainability of the resource and human survival.
- Change of institutional responsibility from national to regional or catchment management – cooperative governance and public participation.
- Receiving water quality objectives (RWQO) of the individual resource that look at use and ability of the resource to assimilate discharge and effluent, rather than merely defining national water quality standards.
- The demand management approach to water supply rather than a supply approach that requires public education and a change in use patterns that may reduce the need for further costly capital infrastructure.

These Principles were used as the basis for the National Water Act, 1998 and the Water Services Act, 1997. An analysis of these Acts in their compliance with the approach to water resource management is discussed in Chapters 2 and 3 respectively. For the sake of completeness, the Water Research Act, 1971[45] and its impact on the new approach to water resource management is set out in Chapter 4. There are other Acts that impact on water resources such as the Mountain Catchment Areas Act, 1970[46], the Conservation of Agricultural Resources Act, 1983[47] and the National Environmental Management Act, 1998[48] to name a few. However, a detailed discussion of these Acts falls outside the scope of this study.

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[45] Act 34 of 1971

[46] Act 63 of 1970. This Act aims to '*provide for the conservation, use, management and control of land situated in mountain catchment areas, and to provide for matters connected thereto*'. These areas are required to be defined and declared by the Minister of Water Affairs and Forestry in the *Government Gazette* in terms of Section 2. Most of the declared areas are within the Western and Eastern Cape and Mpumalanga (J Glazewski *Environmental Law in South Africa* (2000) at 404).

[47] Act 43 of 1983. The objective of this Act is '*to provide for the conservation of the natural agricultural resources of the Republic by... the combating and prevention of erosion and weakening or destruction of water sources...*' (Section 3).

[48] Act 107 of 1998. This Act provides a framework of principles to facilitate overall protection of the environmental right as set out in the 1996 Constitution.

Chapter 2: National Water Act, 1998

2.1 Introduction

The *White Paper on a National Water Policy for South Africa, 1997* was used to draft the new water legislation and has as its overall objective equity with optimal resource use and protection. Based on the founding principles, the water resource management priorities involve: sustainability, access to sufficient water, reserve determination based on aquatic ecosystems and basic human needs, and international water resource obligations. The water resource management approaches involve National Government custodianship and obligations in relation to the water resource; integrated management; economic incentives to reduce pollution; land use management; efficient and effective administration; and safety. The *White Paper* highlights the international trend towards sustainable management and development based on environmental, social and economic viability that includes importance in public participation and demand management. Of importance, is to promote the well being of all South Africans, including both present and future generations. However, these principles are irrelevant if they are not carried through and supported in the legislation.

The National Water Act, 1998[49] was assented to on 20 August 1998 with most sections coming into operation on 1 October 1998[50]. However, by 1 October 1999 all provisions of the Act had come into effect.[51] The Act has its basis in re-assessing water as a natural resource in South Africa, and how it has been regulated in the past. To this end, the long title of the Act states:

> *'To provide for fundamental reform of the law relating to water resources; to repeal certain laws; and to provide for matters connected therewith.'*

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[49] Act 36 of 1998 as amended by the National Water Amendment Act, 1999 (Act 45 of 1999)

[50] *Government Gazette* 19269 dated 25 September 1998, Proclamation No. R.95. The sections excluded from operation at this time included 33, 37, 38, 40-42, 56-60, and 76.

[51] *Government Gazette* 19618 dated 11 December 1998, Proclamation No. R.131 brought sections 33(1), 33(2) and 33(3) into effect as of 1 January 1999, whilst *Government Gazette* 20513 dated 1 October 1999, Proclamation No. R.102 brought the remaining sections, namely 33(4), 37, 38, 40-42, 56-60 and 163(1) into effect as of the 1 October 1999.

The long title is broad and does not indicate the direction of law reform with regard to water resources. It is therefore necessary to analyse the preamble of the Act to gauge the direction and extent of water resource management in South Africa and compliance with the fundamental principles.

2.2 Preamble – principles and objectives of the Act

The approach to water law reform and water resource management in South Africa should be identified in the Preamble to the Act. The Preamble states the following:

> *'**Recognising** that water is a scarce and unevenly distributed national resource which occurs in many different forms which are all part of a unitary, inter-dependent cycle;*
> ***Recognising** that while water is a natural resource that belongs to all people, the discriminatory laws and practices of the past have prevented equal access to water, and use of water resources;*
> ***Acknowledging** the National Government's overall responsibility for and authority over the nation's water resources and their use, including the equitable allocation of water for beneficial use, the redistribution of water, and international water matters;*
> ***Recognising** that the ultimate aim of water resource management is to achieve the sustainable use of water for the benefit of all users;*
> ***Recognising** that the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources in the interests of all water users; and*
> ***Recognising** the need for the integrated management of all aspects of water resources and, where appropriate, the delegation of management functions to a regional or catchment level so as to enable everyone to participate'*

The first principle upon which the Act is founded is that the water resource is part of a cycle and is not point specific. By recognising the hydrological cycle as a whole, the Act should be better able to manage water resources in an holistic manner. The integration and inter-dependence of the different parts of the cycle makes it important to view the cycle as a whole to ensure proper and effective resource management. This first principle differs markedly from the 1956 Act approach where only surface water was regulated. By recognising the hydrological cycle inter-dependence, the Act should be regulating any aspect or factor that may affect any part of that cycle, such as ground water, atmospheric water or surface water (Figure 1.1).

The second principle recognises the inequalities of the past and hopes to address these inequalities in terms of access to and use of water resources. Although this does not directly affect the approach to water resource management, it does have an indirect impact on the potential volume of consumption and may change the area and pattern of water use. However, past inequalities relate mainly to personal

consumption, which in the overall scheme of water resource management has a lower impact on the resource than development and industry. Linked to this principle is the third principle of national responsibility to manage the resource effectively to ensure sufficient and sustainable use. This idea changes the emphasis of water as a resource from the private and public divisions of the 1956 Act to a wholly "public" entity. The right of "ownership" vests in the State and hence forms part of the "commons" for use and the benefit of all. This principle is important to effective management of the resource and to ensure equality in access and use. This principle is also the one that indicates a drastic change in the National Government's outlook on water resource management, and is likely to have the most opposition, especially from farmers who in the past had riparian rights to the water resource flowing through their land. The potential limitation of individual rights is justified in terms of the 1996 Constitution[52]. The right of access to sufficient food and water in terms of section 27(1)(b) of the Constitution relates to "everyone" and therefore is seen as the greater right over the individual. This issue is discussed further in Section 2.3.1.

The fourth principle and objective is also linked to the Government's responsibility to its subject in terms of water resource access and use as well as the inter-dependent cyclical nature of the resource. This principle recognises the concept of sustainability. This is an important concept for effective renewable resource management. Sustainability is another form of holistic approach in that it looks at the economic, social and environmental aspects to ensure that they all have long-term viability and benefit. In terms of water use, sustainability would look at the overall water balance - i.e. the needs, requirements, resource potential, recharge rate and any surplus for distribution. In terms of the hydrological cycle, this would mean assessing sustainability for the different areas and catchments of South Africa. Linked to sustainability is the fifth principle or objective of ensuring water quality. This furthers the holistic approach to resource management in that not only is the quantity of available water important, but also that the quality of that water should not be compromised. The saying of "water, water everywhere, but not a drop to drink" should really apply only to the ocean and should not be transferred to the land-based water resource. Poor water quality affects the economic sustainability of the resource in terms of potable water supply. It is evident that water, as a resource, is complex and that the management thereof will necessarily contain many inter-relationships and inter-dependencies of the factors. This aspect of water resource management is highlighted in the sixth and final principle in the

[52] Act 108 of 1996

Preamble, namely the need for integrated management of all aspects of water resources. Acknowledgement of the complexity of this integration function is confirmed through the potential to delegate management functions from national to regional or catchment level.

The Preamble provides a very promising start to the Act. It acknowledges the complex inter-dependency of the hydrological cycle and the need to ensure sustainability of water quality and quantity for effective water resource management. These are good starting principles, however one needs to analyse the effectiveness of the powers, functions and procedures put in place by the Act to give effect to these principles.

2.3 Structure of the Act

The Act is divided into 17 Chapters and seven (7) Schedules. The index of the Act's Chapters is as follows:

'Chapter 1: Interpretation and fundamental principles
Chapter 2: Water Management Strategies
Chapter 3: Protection of Water Resources
Chapter 4: Use of Water
Chapter 5: Financial Provisions
Chapter 6: General Powers and Duties of Minister and Director-General
Chapter 7: Catchment Management Agencies
Chapter 8: Water User Associations
Chapter 9: Advisory Committees
Chapter 10: International Water Management
Chapter 11: Government Waterworks
Chapter 12: Safety of Dams
Chapter 13: Access to and Rights over Land
Chapter 14: Monitoring, Assessment and Information
Chapter 15: Appeals and Dispute Resolution
Chapter 16: Offences and Remedies
Chapter 17: General and Transitional Provisions'

A brief description of the content of each chapter is given in sections that follow.

2.3.1 Interpretation and Fundamental Principles

Chapter 1 of the Act consists of four sections that set out the definitions and interpretative use in the Act (s 1), the purpose of the Act (s 2), public trusteeship of the water resource (s 3) and entitlement to water use (s 4). The preamble to Chapter 1 states the following:

> *'This Chapter sets out the fundamental principles of the Act. Sustainability and equity are identified as central guiding principles in the protection, use, development, conservation, management and control of water resources. These guiding principles recognise the basic human needs of present and future generations, the need to protect water resources, the need to share some water resources with other countries, the need to promote social and economic development through the use of water and the need to establish suitable institutions in order to achieve the purpose of the Act. National Government, acting through the Minister, is responsible for the achievement of these fundamental principles in accordance with the Constitutional mandate for water reform. Being empowered to act on behalf of the nations, the Minister has the ultimate responsibility to fulfil certain obligations relating to the use, allocation and protection of and access to water resources.'*

Chapter 1 lays an important foundation for the rest of the Act. The preamble helps to reiterate the key focus areas with regard to water resource management of sustainability and equity. However, neither of these factors is specifically defined. The idea of State trusteeship, as elaborated in section 3, is hinted at in the preamble with regard to a shared resource servicing the needs of present and future generations. This also recognises the principle behind the environmental right in terms of section 24 of the Constitution. Apart from stating that '*everyone has the right to an environment that is not harmful to their health or well-being*', section 24 also states that everyone has a right '*to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures*'[53]. Effectively section 3 is taking water law back to the Roman law origin of *res omnium communes* with a uniform system of water rights allocation over which the State has complete "control".

The response of critics has been that this policy will effectively nationalise every drop of water in and under the country that the government has not already commandeered[54]. However, what critics are neglecting is the reason for trusteeship, and for whom the water is in trust. It is not that the State is taking control of water resources for its own gain, but for the benefit of the nation as a whole – this

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[53] Subsection 24(b) of the 1996 Constitution where it further states that the measures must *(i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.*

[54] Singh *op cit* n 12 at 46

includes farmers, industry, and other high consumption water users – effectively existing water users and critics. The State cannot (and will not) promote people's right of access to water over the joined right of access to food[55]. By necessity these require farming to supply food and industry for employment and economic independence. Singh[56] further states that it is submitted by some that a sane policy would recognise that water per se is abundant, not scarce, and that it is the capital, infrastructure and ingenuity to economically impound, treat, and reticulate the water resource that is scarce. It is argued these jobs would be more efficient and less contentious if water were privatised and not nationalised. However, this argument is flawed as it deals merely with water supply and not the management of the resource as a whole. The Act does not deny the importance of private sector input and this is evident in the establishment of Catchment Management Agencies (CMAs) and Catchment Management Forums (CMFs) that are discussed in later sections. The concept of "control" is often viewed as autonomous, yet this is not the case with the current legislation. Oakes[57] states that there are three arguments that favour State control, namely:

- Hydrographic surveys show that only a small percentage of South African river water is put to use, with most simply draining into the ocean[58].
- The State is the only body capable of funding costly water infrastructure.
- Natural population growth requires central regulation of increasing demand.

In addition, some catchments span a number of provincial boundaries; therefore management of the resource requires overall national control. Water is not a static object, such as land, and the hydrological cycle needs to be taken into account. Apart from these factors, the overall objective of the Act is management of the resource and not ownership or control. There is a difference between ruler and controller. The State is trustee of water resources for the benefit of current and future generations. The "Minister" responsible for application of the Act is the Minister of Water Affairs and Forestry.

The purpose of the Act as stated in section 2 is a broad outline of water resource management that includes protection, use, development, conservation, management and control of the nation's water

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[55] Section 27(1)(b) of the 1996 Constitution

[56] *Op cit* n 12 at n 46

[57] D Oakes 'Who owns the water? – Part 1' (19 June 1998) *Farmers Weekly* at 28

[58] Israel and Turkey have a policy of 'not a drop in the sea', and it is advocated that South Africa should have a similar policy. Oakes *op cit* n 57

resources such that a number of objectives are met. These objectives hinge on sustainability, equity and international obligations. They range from the socio-economic aspects of meeting present and future generation basic human needs (s 2(a)); promoting efficient, sustainable and beneficial use of water in the public interest (s 2(d)) and facilitating social and economic development (s 2(e)) to the environmental aspects of protecting aquatic and associated ecosystems and their biological diversity (s 2(g)); reducing and preventing pollution and degradation of water resources (s 2(h)) and managing floods and droughts (s 2(k)).

The entitlement to water use in section 4 indicates the manner in which water resource use is to be regulated by the Act and the effective application of the Act in relation to the right of water use. The main divisions used for licensing or waiving of the licence requirement in terms of section 22 are set out, namely Schedule 1 uses, existing lawful water use, and general authorisation or licensing.

Chapter 1 of the Act gives a good grounding of the fundamental principles that apply to the Act and interpretation of the provisions. It reiterates the focus of the Act on sustainability and equity with regard to water resource management.

2.3.2 Water Management Strategies

Chapter 2 of the Act is divided into two parts, namely the National water resource strategy (s 5-7) and the Catchment management strategies (s 8-11). These sections deal with the establishment, content, and giving effect to the strategies.

The National water resource strategy (NWRS) provides the framework for water resource management in the country as a whole, as well as guiding the regional or catchment management strategies (CMS). As strategies, these involve progressive development and review. They are not static documents or ideas, but will change progressively to an ideal or with the changing needs of society and the environment. The CMS must be developed in cooperation with stakeholders and interested parties in the catchment, and seek to holistically address the allocation, use and protection of the resource.

In terms of the Act, water resource management is therefore based on two levels of strategy. The first is the NWRS that sets out a framework for the country as a whole, providing general guidelines and standards. The second is for individual regions or catchments that use the framework in conjunction with existing localised conditions to formulate a workable strategy for the region. These strategies need to be based on the principles of sustainability and equity as expounded in Chapter 1 of the Act. However, they will deal with the technical aspects to ensure that these principles are maintained. It is important to note that the two-tier strategy system reiterates the complexity of water resource management and the inability to produce a single approach or standard to management for South Africa as a whole.

A similar strategy approach is followed with success in Western Australia, where a State Water Quality Management Strategy has been developed to establish a co-ordinated and consultative structure for effective water quality management in line with the National Water Quality Management Strategy[59]. The National strategy provides information and tools to help communities manage their water resources to meet current and future needs. It provides policies, a process and a series of national guidelines for water quality management. This could be equated with the NWRS in South Africa that is also there to provide a framework for overall water resource management. However, the focus appears to be maintenance of the resource through quality management. The Water and Rivers Commission[60] have developed the State strategy in association with numerous other government departments, such as Agriculture, Conservation and Land Management, Mineral and Petroleum Resources, Health, and Planning and Infrastructure[61]. The State Water Quality Management Strategy also recognises guidance from the community, existing State mechanisms, and policies such as the State Planning Strategy. The State Water Quality Management Strategy may be equated with South Africa's CMS, however the CMS is devised for each water management area (catchment basis) whereas the Western Australian strategy for the State area. This additional strategy is missing from South Africa, and would potentially be in line with a Provincial Strategy. However, this would be an unnecessary addition to SA legislation requirements as the overall basis of resource management is catchments rather than political boundaries. In addition to these strategies, Western Australia has Water Source Protection Plans that

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[59] http://www.wrc.wa.gov.au Australia works on a federal system

[60] The Water and Rivers Commission is a Government Agency established in terms of the Water and Rivers Commission Act 1995 to ensure that the State's water resources are managed to support sustainable development and conservation of the environment, for the long-term benefit of the community. The Commission has been in existence since 1 January 1996 (*op cit* n 59).

[61] The Australian approach to water resource management is based on Integrated Natural Resources Management (see Chapter 1)

establish the level of protection required within Public Drinking Water Source Areas[62]. These plans identify development pressures, the vulnerability of a water source to contamination, establish Priority Protection areas and set out programs to protect the resource. Forty-five Water Source Protection Plans are available on-line that were drafted between September 1997 and December 2002. The plans are similar to the CMS that have to be compiled in terms of South Africa legislation. These CMS will also be available on-line once drafted and approved.

As the NWRS and CMS form the basis of South Africa's approach to water resource management, they will be dealt with in more detail in later sections.

2.3.3 Protection of Water Resources

Chapter 3 of the Act is divided into five parts, namely Classification system for water resources (s 12); Classification of water resources and resource quality objectives (s 13-15); The Reserve (s 16-18); Pollution prevention (s 19) and Emergency incidents (s 20). Parts 1 to 3 are factors to be included in the development of the NWRS and the CMS. They require the Minister to determine various technical aspects of the resource as soon as reasonably practicable. This is a process of:

- Prescribing a system for classifying resources, including procedures for determining classes and the reserve or quality assessment.
- Classifying all or part of every significant resource including class and resource quality objectives (RQO) based on class for any aspect of the resource.[63] A preliminary determination may be made prior to a classification system being prescribed.
- Determination of the Reserve.

Important to this process is public participation in the form of at least consultation[64]. However, this may be extended further to involvement or even collaboration, in that stakeholder participation in the CMA

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[62] *Op cit* n 59: These are areas declared as such by the Water and Rivers Commission to control activities surrounding water resources used for public drinking water, and to ensure their protection and management, as public health is of paramount importance. These resources may be surface or groundwater and protection is based on three risk management-based priority zones for land, where the priority classifications have been determined in the Water Source Protection Plans.

[63] Section 13(3)(a) to (h) of the National Water Act, 1998. Factors include the Reserve, instream flow, water level, presence and concentration of certain substances, characteristics and quality of water, characteristics and distribution of aquatic biota, instream or land-based activities, or any other characteristic of the water resource.

and CMF occurs in the research stage of this process, even though the Minister has the final say. It must be remembered that this is a process and progressive improvement in classification is likely to be encouraged. Once a class and RQO are prescribed for a specific resource, the strategy to maintain or improve these factors comes into play (CMS). The strategy will require constant monitoring and review to ensure that the objectives are sustainably met – owing to the integrated and complex nature of the resource and land use.

Part 4 that deals with pollution prevention (s 19), places a similar duty of care on the public in general to minimise or prevent pollution as section 28 of the National Environmental Management Act, 1998[65] (NEMA). The body with the power to enforce compliance with section 19 is the CMA that is established in terms of Chapter 7 of the Act. The CMA may also remedy pollution and recover the costs thereof from the benefiting party, in a similar fashion to the Director-General in NEMA. The remedy and costs recovered must be reasonable. Section 19 therefore advocates the international principles of prevention, precaution and the polluter pays.

Part 5 takes the duty of care idea one step further with regard to emergency incidents (s 20). In addition to the duty to remedy the effect of the emergency incident the responsible person, or any other person involved or with knowledge of the incident, must report such to the Department of Water Affairs and Forestry, the South African Police Services or the CMA. If the CMA conducts the remediation then the reasonable costs may be claimed from the responsible person/s.

Therefore, apart from the State's duty to ensure sustainability and equity within water resource management through the NWRS and the various CMSs, the Act also places a duty of care on the public to ensure that their activities do not adversely impact the resource and its management. This reiterates the change in focus of the Act from a division of public/private water to trusteeship of the resource for the benefit of all, and the importance of public participation in the process.

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[64] In terms of public participation there are a number of levels namely (i) inform; (ii) consult – where feedback is required from participants; (iii) involve – where the public is worked with directly; (iv) collaborate – where there is a partnership decision with the public; and (v) empower – where the final decision rests with the public. J Van Wyk *Water Related Institutions* (2002) - (herein after cited as Van Wyk (2002c)).

[65] Act 107 of 1998

2.3.4 Use of Water

Chapter 4 of the Act lays the basis for regulating water use and is divided into 10 parts, namely:

- General principles (s 21-26)
- Considerations, conditions and essential requirements of general authorisations and licences (s 27-31)
- Existing lawful water uses (s 32-35)
- Stream flow reduction activities (s 36)
- Controlled activities (s 37-38)
- General authorisations (s 39)
- Individual application for licences (s 40-42)
- Compulsory licences for water use in respect of specific resource (s 43-48)
- Review and renewal of licences, and amendment and substitution of conditions of licences (s 49-52)
- Contravention of or failure to comply with authorisation (s 53-55).

The Act defines 11 types of water use that is far broader than the conventional idea of use in terms of consumption[66]. Included as water uses are non-consumptive activities such as storage, discharge into the resource and recreation[67]. The stance taken is that essentially all water uses require licensing, however it is the exceptions that are explicitly stated in section 22. The exceptions would appear to be low water users, users that are already regulated in terms of other legislation or have been permitted and are known from the old 1956 Act, and groups of users that can be controlled through a general authorisation. Therefore, it is the main bulk users of the water resource that currently require licensing in terms of the Act. Nevertheless, existing lawful uses require registration (primarily for data collection). It would appear that registration and licensing not only helps with control of quantity and quality of use, but will also help in the establishment of an holistic water balance for each catchment and nationally that can

[66] In terms of section 21 a water use includes – (a) taking water from a resource; (b) storing water; (c) impeding or diverting the flow of water in a water course, (d) engaging in a stream flow reduction activity contemplated in section 36, (e) engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1), (f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit; (g) disposing of waste in a manner which may detrimentally impact on a water resource; (h) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process, (i) altering the bed, banks, course or characteristics of a water course; (j) 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 (k) using water for recreational purposes.

[67] DWAF has devised a Policy for Using Water for Recreational Purposes (2002).

be linked to the relevant strategies. Licensing (and registration) is a form of data collection that will help with overall resource management.

One of the problems with registration and licensing is that, many viewed it to be a back door for the Department of Water Affairs and Forestry to create revenue through consumption charges. Consumers or users, who in the past had free access to water, are loath to register their water uses for fear of having to now pay. However, this view does not totally appreciate the integrated and inter-dependent nature of the hydrological cycle and the attempt to change water resource management to a more holistic, equitable and sustainable process. Without the input of water uses by for example, farmers from boreholes and surface dams, the effect of water use for a catchment or subcatchment cannot be precisely modelled and analysed. If the national and catchment strategies are to succeed in managing water resources sustainably, then the more information supplied on uses that potentially have major impacts on the resource, the better and more advised the strategy will become. In addition, users need to be educated on the legislation and its impact on their daily lives.

In addition to the worry of new charges, there is the viewed threat of not being allowed use of water that previously was exclusively within one's domain. This is expressed by Havinga[68] stating that the new water law is '*just another attempt to steal from those who have rights and giving them to those who do not*'. However, the Act is based on the equitable distribution of a scarce and life giving resource, and not the "stealing" of rights. Water is the basis of life that private ownership should not monopolise. This is also a misinterpretation of "rights" especially in light of the 1996 Constitution where a right is not absolute but may be limited in terms of section 36[69].

It is evident that new water use allocations may impact on existing rights to water use. However, the debate is whether this impact is a deprivation or expropriation of the rights, where the latter requires compensation[70]. What constitutes a deprivation versus an expropriation may be linked to the extent of

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[68] C Havinga 'Ploughing a furrow – the case against the Water Act' (8 May 1998) *Farmers Weekly* at 33

[69] Rights may be limited '*in terms of the law of general application to the extent that the limitation is reasonable and justifiable in an open and democratic society based on human dignity, equality and freedom*'. It is implied that the welfare of the majority outweighs an individual right in terms of access to water.

[70] Section 25 of the 1996 Constitution permits deprivation of property in terms of the law of general application so long as it is not arbitrary (s 25(1)), and permits property to be expropriated in terms of the law of general application so long as it is in the public interest and subject to compensation (s 25(2)). The Law Review Panel (*op cit* n 16) analysed the water law prior to the enactment

the limitation or removal of the right and the reason there for. It is submitted that if the State were to limit certain rights because the water resource could not sustain those rights then this would be a legitimate deprivation and would not require compensation[71]. However, if the right removed is matched by a corresponding acquisition by another (usually the State[72]) or the economic utility of the water resource to the original holder is effectively destroyed[73] then it is an expropriation and requires compensation. In practice it is more likely that a right will be limited rather than removed, and this will mostly be in relation to the resource capacity and public interest and not an acquisition by the State. It is submitted that this is a deprivation rather than an expropriation of the right. In any event, the Act provides compensation for a person who conducts an existing lawful water use where that use has been refused or curtailed resulting in '*severe prejudice to the economic viability of an undertaking in respect of which the water was beneficially used*'[74]. Right of water use is therefore based on beneficial use, and existing users are unlikely to be denied their current water uses if they can show that their use is efficient and beneficial[75]. Riparian landowners are far more likely to be able to prove beneficial use through economic efficiency of water use and return flow, than potential users further away from the resource. The compensation claim must be lodged with the Water Tribunal, who have jurisdiction to determine liability for and amount of compensation[76]. What will constitute "severe prejudice" remains to be seen[77].

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of the final 1996 Constitution, therefore a clause relating to compensation was included as it was uncertain how water rights would be viewed.

[71] In *First National Bank of SA Ltd t/a Wesbank v Commissioner, South African Revenue Services and Another* 2002 (4) SA 768 (CC), the Constitutional Court (at paragraph 100) discussed the question of "arbitrariness" in law (i.e. where a deprivation must not be arbitrary). It was held that, a deprivation will be arbitrary, and require compensation, when the 'law' in question does not provide sufficient reason for the particular deprivation in question or is procedurally unfair. A list of what constitutes "sufficient reason" is given. It is submitted that the limitation of water rights in terms of the Act would not be considered as arbitrary.

[72] In *Harksen v Lane NO* 1998 (1) SA 300 (CC), the Constitutional Court (at paragraph 29-39) held that expropriation is the transfer of property to the State. However, although this is the current binding law, this view is not universally accepted. It is debatable whether in water law that the limitation or removal of previous rights could be held as being transferred to the State.

[73] Water Law Review Panel *op cit* n 16 at 25

[74] Section 22(6) of the National Water Act, 1998

[75] It is interesting to note that Postel (*op cit* n 1 at 49) indicates that the old English common law required riparian landowners not to diminish the quantity or quality of water remaining for downstream users, and thereby inherently protecting stream ecology and habitats. This was changed by United States law to "reasonable use" that allowed for stream flow alterations. It would seem that SA water legislation is returning fully to its roots in requiring beneficial, non-detrimental, use.

[76] Sections 22(8) and 22 (9) of the National Water Act, 1998

[77] To date the only cases in relation to the National Water Act heard in the normal court system have been in terms of verification of the status of pending proceedings in the abolished Water Court in *Naude en andere v Heatlie an andere* 2001 (2) SA 815 (SCA) and *Ouderbaaskraal (Edms) Bpk en andere v Jansen van Vuuren en andere* 2001 (2) SA 806 (SCA). Although the water tribunal has heard cases, these are not reported.

In this regard, Part 8 of Chapter 4 of the Act is important in that it allows for compulsory licensing of all water users where a catchment is potentially stressed. This will allow for reallocation of water quantities to ensure that the needs of the aquatic system and downstream users are adequately met in a manner that is sustainable. It is unlikely in these instances, where all users are affected, that compensation will be paid. This is a deprivation rather than an expropriation. However, Bronstein[78] is concerned that licensing is the most interventionist of regulatory forms and that discretionary licensing systems are costly and create barriers to innovation and development. However, if one looks at the devolution of power from national to catchment level then a semi-market related licensing system might be achieved in that ultimately the CMA, comprising affected stakeholders, will control the licensing function. Part 10 also allows for suspension or withdrawal of water use entitlements, or surrender of licences for contravention of licence conditions.

The licensing procedure is not only important in terms of creating a base for the generation of revenue to effectively and efficiently manage the resource, but also provides vital input and a link to the proposed management strategies and the national information system (s 2.3.14).

2.3.5 Financial Provisions

Chapter 5 of the Act, which is divided into two parts, relates to financial provisions to finance the water resource management services through water use charges (s 56-60) and financial assistance (s 61-62). The Minister is given the power to establish a pricing strategy for water use charges (in concurrence with the Minister of Finance; s 56) as well as give financial assistance to any person for the purposes of the Act (s 61) and make regulations concerning such financial assistance (s 62).

The water use charges are related to any use of the resource (as determined in section 21) and not charges for water services[79]. Water users or consumers typically pay only the cost of reticulation (water

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[78] V Bronstein 'Drowning in the hole of the doughnut: regulatory overbreath, discretionary licensing and the rule of law' (2002) **119** *SALJ* at 483

[79] Water services include the provision of water supply through reticulation and sanitation services through sewerage removal to the consumer. This forms the focus of the Water Services Act, 1997 (Chapter 3).

services)[80], however withdrawals for their use or discharge into the resource may negatively impact on the water resource and its ecosystems. These environmental costs should be borne by the water users[81]. The pricing strategy may provide water use charges for funding water resource management[82], water resource development and use of waterworks[83], and to achieve equitable and efficient water allocations[84]. Havinga[85] states that the Act allows the income from within the water management area to be utilised outside the catchment area for non-specific purposes, such that the catchment management agency and water users in the area will not derive any benefit from paying levies. Although it is true that charges may be derived on a water management area, regional or national basis[86] the reason behind imposing these charges should not be dismissed. The overall objective is to fund water resource management and development. Therefore although national charges may not directly benefit the water management area in that the funds are placed at their disposal, the charges derived can only be used for water resource management as stipulated in section 56. Havinga seems to concentrate on a very narrow view of equality and ignores the overall reasoning behind the Act, namely integrated and holistic water resource management. Although the Act provides for national charges, it is envisaged that the CMA, in line with the resource quality objectives (RQO) and receiving water quality objectives (RWQO) outlined in the individual CMS, will derive most charges for the water management area.

In addition to raw water use charges for consumption and possibly recreation, the pricing strategy may also include a waste discharge charge system[87]. This is an economic instrument used to encourage internalisation of environmental costs of discharging into a resource to promote sustainable development, rather than a "pollution charge". However it is based on the polluter pays principle. A

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[80] Of 15 countries surveyed in 1995, South Africa had the fourth lowest average water price with the United States, Norway and Canada having the lowest prices. DWAF '16 Million South African's have no Clean Drinking Water' (1996) *Local Government Digest* 37. However, the Act advocates the polluter-pays principle and the consumption of water could be viewed as "pollution" through removal from, and degradation of, the system i.e. negatively impacting on the aquatic ecosystem.

[81] Postel *op cit* n 1 at 48: The example of American farmers pumping water from the Ogallala Aquifer is given, whereby they pay nothing extra for the right to earn their profits by depleting an irreplaceable resource, and indeed may claim tax relief from a depletion allowance based on a drop in water level below their land. In this instance the environmental costs of the resource use have not been taken into account, or internalised.

[82] Section 56(2)(a)(i)-(v) of the National Water Act, 1998. This includes gathering information; monitoring water resources and their use; controlling water resources; water resource protection; and water conservation.

[83] Section 56(2)(b)(i)-(vi) of the National Water Act, 1998. This includes the costs of investigation and planning; design and construction; operation and maintenance; water distribution; pre-financing of development and return on assets.

[84] Section 56(2)(c) of the National Water Act, 1998

[85] Havinga *op cit* n 68

[86] Section 57 of the National Water Act, 1998

[87] Section 56(2)(a)(iv) of the National Water Act, 1998

waste discharge charge system is important to water resource management in that it regulates the wastewater being discharged into the resource and can be controlled by the RQO and RWQO. The important factors in wastewater discharge or return flow is the quality and quantity of the wastewater and the quality and quantity of water in the resource. Previously discharge or return flow standards were determined by concentration of certain elements or compounds. The problem was that concentration could be reduced by dilution and increasing the volume discharged. The new system will look at waste load that includes both element or compound concentration and discharge volume. Waste load charges may vary according to river class, may allow for downstream compensation for poor water quality or quantity, and allow for cross-subsidisation between sectors.

It is proposed that South Africa use a four-tier charge system whereby the first two tiers are managed by the CMA and the third and fourth tiers by DWAF national[88]. The first tier would be based on a national waste standard, the second on an authorised discharge standard, and the third and fourth on a toxic or inhibitory pollutant standard. Tier three would act as a deterrent, whereas a waste load in tier four would attract a penalty. Water uses that may be included in this charge are controlled activities[89], discharging of waste or water containing waste into a water resource[90], and disposing of waste in any manner that may detrimentally impact on a water resource[91]. In developing such a charge system DWAF has researched international best practice[92] and used the practical experience of France[93].

There has however, been opposition to a waste discharge charge system in South Africa, especially from the mining industry. Opposition was initially raised on the proposed average basic charge of about 50 cents per kilolitre that would make it impossible for the industry to remain sustainable[94]. However, this proposed basic cost has decreased significantly to approximately 4 cents per kilolitre[95]. The aim of

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[88] P Viljoen *Towards a waste discharge charge system for South Africa* (2002) - (herein after cited as 2002b)

[89] Section 21(e) and section 37(1)(a) of the National Water Act, 1998: such as irrigation with industrial water, mining water or sewerage sludge, or oxidation pond overflow.

[90] Section 21(f) of the National Water Act, 1998 such as domestic, industrial, mining, stormwater, or irrigation return flow channels.

[91] Section 21(g) of the National Water Act, 1998 such as oxidation ponds, slimes dams, evaporation dams and stormwater (which is not currently licensed).

[92] This included 29 developed and developing countries such as Canada, France, Italy, Netherlands, Brazil, Columbia, Mexico and India. Viljoen (2002b) *op cit* n 88

[93] Viljoen (2002b) *op cit* n 88

[94] U Sibilski *Management of land use activities in mining* (2003). The mining industry pumps a large volume of "wastewater" from underground that requires disposal once it is on surface.

[95] Viljoen *op cit* n 24

water use charges is to ensure efficient and sustainable water use and not to act as a levy, tax or duty[96]. The pricing strategy will take into account quantity and quality of raw water used and quantity and quality of wastewater return to the resource. There has also been concern, especially by industry and high water users that the effect of water use charges will be to pay for water twice. However, this is not the case as in addition to the factors discussed above charges will also be based on net consumption or discharge and the effect on the specific catchment[97]. This means that a user may obtain a rebate for returning most of the abstracted water at a better quality than that abstracted, or charged for the deterioration in quality and quantity of the water returned to the resource. This is to try and create an incentive for water conservation and demand management (WCDM). That is to encourage conservation and reduction in water use, and to curb the required abstraction amount. The pricing strategy may also differentiate geographical areas, water use categories and water users on an equitable basis (s 56(3)(a)(i)-(iii)).

2.3.6 General Powers and Duties of Minister and Director-General

Chapter 6 of the Act is divided into 4 parts, namely Delegation, directives, expropriation, condonation and additional powers (relating to powers of the Minister; s 63-68); General provisions regarding regulations (requires the Minister to consult with the public when making regulations under the Act and submit the regulations for scrutiny by the National Assembly and the National Council of Provinces; s 69-71); Powers relating to catchment management agencies (where the powers and duties listed in Schedule 3 may be assigned to a CMA, and if a CMA is not established those powers vest in the Minister; s 72-74); and Powers of Director-General (s 75-76).

The Minister has made a number of regulations in terms of the Act, including, but not limited to, general authorisations[98], water for mining[99], water use registration[100], pricing strategy for raw water use

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[96] Section 57(5) of the National Water Act, 1998

[97] Viljoen *op cit* n 24

[98] *Government Gazette* 20526 dated 8 October 1999 Government Notice Regulation 1191, and draft regulations General Authorisations for Recreational Use *Government Gazette* 22357 dated 15 June 2001 Government Notice 540. The general authorisations relate to the water uses defined in sections 21 (a) 'taking water from a resource' and 21(b) 'storing water'; section 21(e) 'engaging in a controlled activity' specifically irrigation of any land with waste or water containing waste generated through any industrial activity or by a waterwork (this authorisation is directed at the lawful occupier of the irrigated land); sections 21(f) 'discharging waste or water containing waste into a resource through a pipe, canal, sewer, sea outfall or other conduit' and (h)

charges[101], and interest rate determination[102]. All the general authorisations stipulate that the precautionary principle applies and most were for a period of five years from date of notice that has, or will, end shortly. However, it is expected that these authorisations will be extended as DWAF has limited capacity, many users are still not licensed or registered, and the CMAs are not yet fully established. The idea behind the authorisations is an attempt to ease the transition from the 1956 Act to the new approach to water resource management. As the transition has not been fully effected, it would be detrimental to the process not to extend the general authorisations until either the CMAs have been established or licensing and registration is on track.

The powers and duties of the CMA, as given in Schedules 3 include:

- Power to manage, monitor, conserve and protect water resources in its water management area (WMA), and do anything necessary to implement its CMS.
- Make rules to regulate water use.
- Require the establishment of management systems, such as monitoring.
- Require alterations to water works.
- Temporary control, limitation or prohibition of water during periods of water shortage.

These powers are fairly broad, however they need to be assigned or delegated to the CMA, and require either public participation or *audi alteram partem* prior to any actions taken. To date the Minister has not assigned any of these powers to the CMAs as they are still being established (s 2.3.7 below).

2.3.7 Catchment Management Agencies

Chapter 7 of the Act provides for the progressive establishment of CMAs by the Minister to administer water resource management at catchment level and promote community participation. Where capacity

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'disposing in any manner of water which contains waste from any industrial or power generation process' where a discharge of 2,000 m^3 per day of a specific quality is allowed without a licence, however certain catchments are excluded; and section 21(g) 'disposing of waste in manner which may detrimentally impact on a water resource'.

[99] *Government Gazette* 20119 dated 4 June 1999 Government Notice Regulation 704.

[100] *Government Gazette* 20606 dated 12 November 1999 Government Notice Regulation 1352, and registration notices for water use in specific provinces or water management areas.

[101] *Government Gazette* 20615 dated 12 November 1999 Government Notice Regulation 1353. The objectives of the new pricing strategy include social equity, ecological sustainability, financial sustainability and economic efficiency.

[102] The latest being *Government Gazette* 23153 dated 1 March 2003 Government Notice Regulation 222

does not exist to establish a CMA, an advisory committee may be developed in terms of Chapter 9 of the Act to build the necessary capacity. This Chapter is divided into four parts, namely Establishment and powers of CMAs (s 77-80); Governing board of CMAs (s 81-83); Operation of CMAs (s 84-86); and Intervention, disestablishment or change of water management areas of CMAs (s 87-90).

The current aim is to establish a CMA for each of the 19 WMAs established[103] within South Africa (Figure 2.1). As each CMA has a CMS, this will ensure linkage from all catchments in South Africa into the NWRS and the national information system (s 2.3.14). The CMA is established by the Minister after submission of a proposal for establishment indicating the area, significant water resources, use and protection measures, the proposed CMA functions, how the CMA will be funded and the consultation process followed (s 77(1)). This appears to be a voluntary process on the part of stakeholders or water users. However, Oakes[104] states that although the Act places no obligation on stakeholders to establish a CMA, they would probably voluntarily comply with establishment to avoid and settle disputes, promote the beneficial use of water, to police water users, to police rights and to lobby for rights. In many instances the CMA will primarily incorporate water services authorities (WSA) and farmer's associations. Until establishment, the Minister may conduct the CMA functions. Currently, personnel of the Department of Water Affairs and Forestry, as agents of the Minister, have been tasked with establishing the CMAs in the various catchments. The CMA is important as it ensures the devolution of power to catchment level, that allows for integration, cooperation and public participation for long-term sustainability of the water resource. The CMA is the driving force behind the potential success of water resource management, and is the body responsible for enforcing compliance with section 19 (duty of care). The Minister also has the power to disestablish a CMA and reorganise the water management area (s 88).

According to Gorgens *et al*[105] each catchment management process needs to derive its own balance between the institutional extremes of a top-down "directive" approach and a bottom-up "organic"

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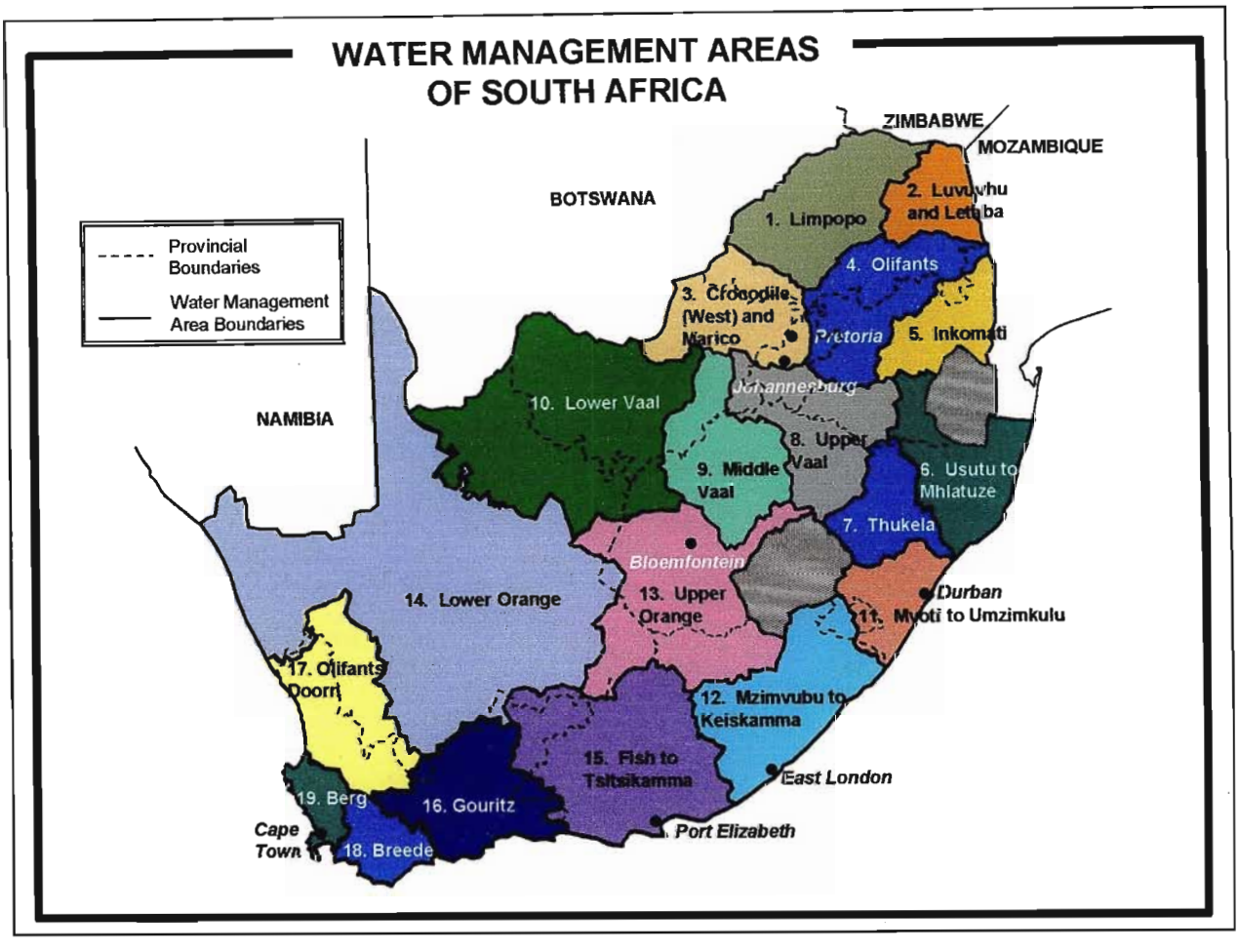
[103] *Government Gazette* 20491 dated 1 October 1999 Government Notice 1160: Establishment of water management areas and their boundaries as a component of the NWRS in terms of section 5(1) of the Act; and Viljoen *op cit* n 24

[104] D Oakes 'National Water Bill (9)' 14 August 1998 *Farmers Weekly* at 30-31

[105] A Gorgens *et al Guidelines for Catchment Management to achieve Integrated Water Resources Management in South Africa* (1998) at 9

approach. The CMA therefore needs to balance government dominance with community-based public and stakeholder participation.

Figure 2.1: The 19 water management areas defined in South Africa



Part of the initial functions of the CMA is to develop a CMS[106]. However, although this is the ideal situation, the CMA is supposedly funded by revenue obtained from licensing and implementing of the CMS. Therefore without the CMS, the necessary funding is not available to establish the CMA. However, the Minister has the discretion in terms of Chapter 5 of the Act to give financial assistance to any person for the purposes of the Act (s 61). It would be prudent to imply that this assistance is extended to CMA establishment. This is further substantiated in that in terms of section 84, a CMA may raise funds required to carry out its duties in terms of the Act by money appropriated from Parliament,

[106] Section 80 of the National water Act, 1998. Other initial functions include: investigate and advise on protection, use, development and management of the water resource; coordinate related activities of water users; promote coordination of development plan implementation; and promote community participation.

water use charges and any other lawful source. Therefore if Parliament has the ability to fund the functions of the CMA, then they should also fund the establishment.

In addition to the CMS, the CMA needs to promote community (or public) participation. As the CMA is responsible for the entire water management area, it is advocated that each CMA is comprised of a number of catchment forums that may be established at quaternary catchment level, or for a predetermined reach (length) of the water resource. This will allow for increased public participation. A catchment management forum (CMF) can be viewed as a water management institution as defined[107]. The role and function of a CMF is more suited to stakeholder participation that is required by the Act and will facilitate water resource management and operation of the CMA. Catchment forums allow for detailed study and analysis of local requirements of the Reserve, RQO and water use without establishing a fully functioning CMA. They may therefore be a precursor to the CMA. Ultimately, the CMA will be responsible for water resource management that includes water services provision (discussed in Chapter 3).

Currently the only functioning CMA is the Oliphants, as this catchment is known to be stressed thereby requiring compulsory registration of all users and probably compulsory licensing.[108] However, a number of proposals for the establishment of CMAs have been submitted. Regardless of the status of the CMA, DWAF has been funding research in the various catchments to determine the nature and status of the aquatic ecosystem and water resource. An example is the Tugela River Catchment in KwaZulu-Natal, where the catchment has been divided into a number of reaches (lengths) and community forums have been established to communicate and analyse scientific results pertaining to the aquatic ecosystem and river classes[109]. It may appear that five-years after enactment of the legislation very little has been achieved, however this merely emphasises the complexity and integrated nature of the new approach to water resource management, and the current lack of a solid scientific base on which to build a management strategy. Again, it must be remembered that the new approach is a process that will not

[107] Section 1(xxvi) where "water management institution" is defined as '*a catchment management agency, a water user association, a body responsible for international water management or* ***any person*** *who fulfils the functions of a water management institution in terms of this Act*'. Section 1(xiv) defines "person" as '*a natural person, juristic person, an unincorporated body,* ***an association****, an organ of state and the Minister*'. It is held that this is broad enough to include a group or association of persons at a level lower than that of the catchment management agency, namely a catchment management forum.

[108] Viljoen *op cit* n 24

[109] Thukela Water Project River Reach Forums and Stakeholder Reference Group documents (January 2002 – May 2003). Managing consultant: Acer.

change overnight, but with progressive improvement towards a strategic goal, will hopefully achieve long-term sustainability of the water resource. The CMA and associated public participation is integral to this success.

Once a CMA is established it has a duty to treat consumers and water users within its area equitably and fairly. If this is not achieved, or the CMA is unable to perform its duties effectively or is in financial difficulties, the Minister may intervene and issue a directive to remedy the situation or ultimately take over the CMA's functions (s 87). This ensures a check and balance approach, where the Minister, who has ultimate responsibility for water resource protection in South Africa, can monitor the CMA's progress, thus integrating the CMS with the NWRS and overall water resource management objectives – integration, equity and sustainability. DWAF has issued a guideline[110] on monitoring water management institutions and the key performance indicators that will be used in assessment.

The Water and Rivers Commission in Western Australia provides a similar function to the CMS, DWAF and Advisory Committee (see Section 2.3.9 below) combined. However, it is primarily a Government Agency with a Board that makes decisions and advises Government on water allocation and resource management. Numerous committees comprising specialists and interested parties advise the Board. The Commission provides overall coordination, whilst regional offices, community-based Waterways Management Authorities, and community groups undertake implementation of management and works programmes - community involvement is the cornerstone of the Commission's work[111]. The Commission therefore maintains State level control with public participation through implementation, whilst the South African approach is aimed at decentralising water resource management to catchment control. The reasoning behind State control in Western Australia could be the low population numbers in many of the interior catchments, as most development is along the coastline. With the opposition to State trusteeship of the water resource, overall national control rather than public participation through the CMAs and CMFs in South Africa would probably meet with more aggressive opposition.

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[110] DWAF *Monitoring the WMI* (2001) – referenced as DWAF (2001a)

[111] *Op cit* n 59

2.3.8 Water User Associations

Chapter 8 of the Act deals with the establishment, powers and disestablishment of water user associations (s 91-98). These are a form of water management institution, however unlike CMAs the primary purpose is not water management but co-operative groups of water users who wish to undertake water related activities for their mutual benefit. Such activities could include irrigation or stock watering, that currently may be part of a, soon to be restructured, form of water board. Establishment of the association, and assigning of their powers and functions is conducted by the Minister. In practice, water user associations could simplify the water resource management process by collectively grouping likeminded parties that fall outside the major urban, industrial and domestic users, namely the water services authorities.[112]

2.3.9 Advisory Committee

Chapter 9 of the Act deals with the establishment and regulations regarding the powers and functions, by the Minister, of advisory committees (s 99-101). There may be any number of advisory committees established to advise on specific purposes, such as the Advisory Committee on Safety of Dams and the National Water Advisory Council that were established in terms of the Water Act, 1956[113]. These, and other advisory committees established in terms of section 68(1) of the 1956 Act, are regarded as advisory committees as contemplated in the National Water Act, 1998[114]. The advisory committees could include technical persons that would facilitate the development of the NWRS and various procedures and guidelines for water resource classification and Reserve determination, as required in Chapters 2 and 3 of the Act.

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[112] Water Services Authorities (WSAs) are defined in terms of the Water Services Act, 1997 (Act 108 of 1997) and will be discussed in Chapter 3.

[113] Act 54 of 1956: section 9C(5)(a)(i) and section 3A respectively.

[114] Section 101 of Act 36 of 1998

2.3.10 International Water Management

Chapter 10 of the Act deals with the establishment, powers and functions of bodies to implement international agreements, both within and outside the Republic, in respect of shared water resources (s 102-108). Existing bodies, such as the Trans-Caledon Tunnel Authority (with Lesotho) and the Komati Basin Water Authority (with Swaziland), will be regarded as bodies contemplated in Chapter 10 until disestablishment by the Minister (s 108). The international agreements established by these bodies are important to the overall water resource management in South Africa. The quantity and quality of water purchased by South Africa, or that flows from South Africa into another country, has a direct bearing on the NWRS and the CMS of the relevant catchments. The quality and quantity of the resource demanded, or expected, by neighbouring countries must be taken into account when developing the strategies for that region. This means that the CMA and any international water management body must have a co-operative relationship to align their principles and ideals.

2.3.11 Government Waterworks

Chapter 11 of the Act deals with the establishment and operation of government waterworks in the public interest, such as storage dams, transfer schemes and flood attenuation dams (s 109-116). Any existing government waterworks are subject to this Chapter and the Act (s 114). The Government waterworks therefore need to comply with licensing and the NWRS and CMS. However, it is unlikely that works run by the Department will have licences. Nevertheless, the information on water use that a licence or registration would hold is important to the development of the CMS. All information on water uses that impact the hydrological cycle is necessary for the development of a comprehensive strategy for water resource management. The more information that is supplied, the better the chances are for the development of a strategy that will be sustainable over the long term.

2.3.12 Safety of Dams

Chapter 12 of the Act deals with control measures to reduce the risk and impact of dam failure where the dam poses a safety risk (s 117-123). This Chapter applies only to certain dams, namely of a specific size (50 Mℓ capacity or more) or one that has been declared a dam with a safety risk either as a category

of dam under section 118(2) or as a specific dam under section 118(3). Dam safety is important not only from an economic or social risk aspect, but also in terms of resource management. A large capacity dam usually provides water storage for consumption and other water uses such as recreation. Failure of a dam could have dire consequences to the overall strategy for management of the water resource, especially in areas of low-yield capacity where dam failure could lead to a stressed catchment and compulsory licensing.

2.3.13 Access to and Rights over Land

Chapter 13 of the Act is divided into three parts, namely Entry and inspection (s 124-125); Servitudes (s 126-134); and Waterworks and personal servitudes (s 135-136). This Chapter essentially deals with the powers and duties of appointed authorised personnel to access property of another to ensure compliance with or enforcement of provisions of the Act; the servitudes required for authorised water users to gain reasonable access to a water resource for effective water use; and the transfer of personal servitudes held by the State in terms of State owned waterworks on private land. These are administration issues and will facilitate the enforcement and compliance of the Act, and the overall water resource management objectives.

2.3.14 Monitoring, Assessment and Information

Chapter 14 of the Act is divided into three parts, namely National monitoring systems (s 137-138); National information systems on water resources (s 139-143); Information on floodlines, floods and droughts (s 144-145). This Chapter is important for achieving the objectives of the Act and ensuring the best possible strategies for water resource management. Essentially Parts 1 and 2 place a duty on the Minister to establish national monitoring and information systems on water resources as soon as reasonably practicable. This involves the collection and storage of relevant information with certain aspects pertaining to floods, droughts and potential risks that must be made available to the public in terms of Part 3. An early warning system to minimise damage associated with potential risks may also be established. The contents of this Chapter are very much linked to the effectiveness of water resource management through the NWRS and CMS. In order to facilitate planning, DWAF currently houses information on their website that relates to water resource management. However, specific technical

details that can only come from comprehensive analysis of each WMA, will probably only become available once each CMS has been developed. Nevertheless, the base for housing and capturing the data exists.

In Western Australia a web-based information system is used to collect and provide data on water quality monitoring of rivers in the various catchments. The website has a hyperlink to the water quality for each basin that includes the results of salt, nitrogen, phosphorus, colour, turbidity, suspended solids, pH, dissolved oxygen or dissolved carbon for monitored rivers, streams and drains. In addition, approximately 6,000 monitoring boreholes provide data on groundwater quantity and quality that is used to develop protection policies. This database is similar to the existing national groundwater database (NGD) held by DWAF in South Africa. However, the problem is operation and maintenance of the South African database, such that over the years data capture has fallen far behind and the information is no longer up to date. The NGD does not hold information on monitoring boreholes only, but is rather a comprehensive database on boreholes throughout the country. Monitoring is still an issue that requires further encouragement in South Africa, and forms part of the WSDP requirements. The National water resource database will hopefully link the existing groundwater information with surface water and monitoring data.

According to the Australian Water Partnership[115], there is a lot of uncertainty about how catchment management organisations (like CMAs, Committees and Trusts) access, use, exchange and spread information to people in their catchment. There are substantial institutional and social issues that can be barriers to immediate implementation of an information exchange programme. These include:

- lack of coordination mechanisms;
- lack of long term funding;
- lack of leadership to build regional information exchange protocols and processes;
- institutional lethargy;
- scepticism by government of farmers' best practices;
- loss of scientific ownership of project results by researchers; and
- unwillingness to handle co-managed, co-owned information management systems.

[115] http://www.qwpaustralia.org/index.html The Australia Water Partnership is an association, incorporated in Australia's Capital Territory, set up to link Australia effectively to the work of the Global Water Partnership.

South Africa needs to ensure that these issues are dealt with in the individual CMSs, as the source of most data collection.

2.3.15 Appeals and Dispute Resolution

Chapter 15 of the Act deals with the establishment of the Water Tribunal as an independent body to hear appeals against decisions made by a CMA, water management institution or responsible authority anywhere in the Republic (s 146-150). The powers and functions of the Water Tribunal, as well as its constitution are dealt with, as well as the power of the Minister to direct persons to settle a dispute in terms of the Act through mediation or negotiation. Appeal to the High Court from a decision of the Water Tribunal may only be made on a question of law (s 149(1)). Although the Tribunal has heard a few cases these are not reported. To facilitate transparency and efficiency, it may aid and educate water users if these cases were summarised on the Government or DWAF websites.

2.3.16 Offences and Remedies

Chapter 16 of the Act creates offences from non-compliance of certain provisions of the Act (s 151). The offences range from an unauthorised water use, failure to comply with licence or registration conditions or a directive issued, to intentional or negligent pollution or detrimental effect, or the likelihood that such may occur, on a water resource, and failure to comply with temporary water use restrictions. The penalties for conviction are relatively strict when compared with other legislation, and this indicates the serious light in which these offences are held by the State. The penalty for a first conviction is a fine or imprisonment not exceeding five years, or both such, with subsequent convictions resulting in a fine or imprisonment not exceeding 10 years, or both such. It is pleasing to note the severity of these penalties when dealing with water resource management, as compliance ultimately determines the effectiveness of the strategies. Penalties for non-compliance will hopefully act as a deterrent, however enforcement of the provisions of the Act will ultimately determine the relevance, and the actual importance placed on these offences and penalties. Upon conviction, the court may during the same proceedings enquire into harm, loss or damage caused to another person and award damages in respect thereof (s 152-153). This will hopefully shorten the procedure and quicken the payment of compensation for damages. The

Act also expressly permits the High Court to grant an interdict, or any other appropriate order, against a person who has contravened any provision of the Act (s 155). This is important as it includes any provision where contravention has not been made an offence.

Although offences and penalties are provided for, there is a general trend towards incentive compliance in environmental law. This would hold true for water resource management as a lack in human and financial capacity could hamper the effectiveness and "success" of the Act. Therefore, it is important that the CMAs create incentives for compliance for their individual catchments within their CMS. These incentives may be National, such as water use and water discharge charges, or specific to the area and users of the catchment, such as specific WCDM procedures and rebates. Compliance also hinges on the extent of public participation and education of the reasoning behind, and need for, water resource management.

2.3.17 General and Transitional Provisions

Chapter 17 of the Act is divided into two Parts, namely Liability (s 156-157) and Powers and authorisations (s 160-164). This ties together a number of unrelated issues, effectively of a technical or procedural nature, to put closure to the Act. Of importance is the express provision of section 156 that the Act binds all organs of state. This means that the Department of Water Affairs and Forestry, acting on behalf of the Minister, may issue directives or require compliance not only from their own Department, but also from other National Departments. The problem with this is that in effect the state will enforce regulations against itself, however in practice this may very rarely be seen. Nevertheless, the Constitutional requirement of co-operative governance and transparency at all spheres should ensure compliance by all organs of state without the need for the proverbial "big stick". This may also be the reasoning behind the devolution of power to the CMAs, in that they are bodies established in terms of an Act rather than provincial or national state organs. The CMA is primarily made up of major stakeholders in the catchment. Therefore, many may be from the private sector rather than a sphere of government. In addition, the CMS may be comprised of a number of CMFs that further dilute the National or State autonomy with regard to water resource management.

Another important aspect of this Chapter in terms of water resource management is the repeal of laws (s 163). Numerous Acts are repealed in Schedule 7, most of which are in their entirety. The Water Act, 1956, which lends credence to an existing lawful water use in terms of section 22, is also repealed in whole. However, section 163(3) states that '[a]*nything done under a law repealed by this Act remains valid – (a) to the extent that it is not inconsistent with this Act; and (b) until anything done under this Act overrides it.*' Section 163(4) further states that '[a]*ny regulation made under a law repealed by this Act remains in force and is considered to have been made under this Act – (a) to the extent that it is not inconsistent with this Act; and (b) until it is repealed by the Minister under this Act.*' Therefore, these sections ensure a smooth continuance of the status quo until such time as the new provisions can enter into effect. This is important from a water resource management perspective in that licensing of existing lawful water uses need not occur until the CMS has been adequately formed and the CMA is effective.

2.4 Approach to Water Resource Management in South Africa

In developing a sustainable and integrated water resource management policy in South Africa, there are a number of water problems that need to be addressed. These include:

- South Africa is a semi-arid country.
- Erratic rainfall patterns.
- Regions of high runoff – largely away from areas of major demand.
- Groundwater is limited and is often of a poor quality.
- Catchments are invaded with alien vegetation that reduce water flow and availability.
- Water quality deterioration impacts on water availability for use.
- Socio-economic complexities.

These factors result in the reduction of the water resource assimilative capacity; therefore the opportunity of resource use is diminished[116]. The approach to water resource management in South Africa is based on:

- The classification of river systems in terms of the resource system and the resource quality objectives (RQO).

[116] Viljoen (2002b) *op cit* n 88

- The determination of the reserve required to sustain the aquatic ecosystem and basic human needs (this includes quality and quantity of water).
- International obligations (quality and quantity of water).
- Equitable and sustainable allocation of the remaining resource through licensing and registration.

This approach is based on integrated water resource management (IWRM, as discussed in Chapter 1), and recognises the mutual dependence of water and land management at local catchment level to ensure sustainability. The National Water Act, 1998 provides a framework to achieve these objectives through a two-tiered strategy system.

The water management toolbox includes strategies, policies and mechanisms to effect efficient water resource management. As such, the toolbox includes: NWRS, CMSs, demand management policy, pricing strategy, protection, licensing, disaster management policy, irrigation policy, water services development plans (WSDPs) and any other factor that may impact on the water resource. Previously the approach to water management used supply-side management that required the expansion of supply to meet the ever-increasing demand. This approach did not take account of wastage and the finite nature of the available supply, and it was also very costly. The demand management policy is formulated to encourage more efficient water use from users to ensure long-term sustainability. Demand management aims to utilise existing infrastructure to meet water use requirements by encouraging water conservation measures such as water-saving devices, reduced water supply pressure, and removal of water depleting alien vegetation from riparian zones (Working for Water Programme). This aspect is very much part of the WCDM required in the WSDP (Chapter 3). As mentioned earlier, the pricing strategy is for use of water from the resource and not for water services. Principles of the new pricing strategy include social equity, financial sustainability, ecological sustainability, and economic efficiency that allow for opportunity costs and economic incentives[117].

DWAF has issued a number of policies and strategies to help institutions in water resource management. These deal with aspects such as water quality, WCDM, water use authorisations, groundwater and

[117] Section 56 and P Viljoen *A pricing strategy for water use charges* (2002) - (herein after cited as Viljoen (2002c))

mining.[118] These documents are written to help those persons working in the water sector to understand and comply with the legislation and to apply the relevant resource management strategies. They help with the transition from an approach of supply management to the new focus of demand management and conservation.

All the policies and strategies that are included in the water resource management "toolbox" will ultimately be implemented through two levels, namely at national level through the NWRS and at primary catchment level through the CMS. These strategies provide the foundation for the success or failure of water resource management in South Africa.

The Minister must establish the NWRS as soon as reasonably practicable[119]. However, the strategy may be in a phased and progressive manner, and must be reviewed at least at five-year intervals[120]. Section 6 of the Act sets out a comprehensive list of contents for the NWRS such that overall the strategy must '*set out the strategies, objectives, plans, guidelines and procedures of the Minister and institutional arrangements relating to the protection, use, development, conservation, management and control of water resources*' (s 6(1)(a)). The minimum requirements of the NWRS include provision for the Reserve, international rights and obligations, actions for projected future water needs, and water use of strategic importance[121]. The Reserve has been defined as the quantity and quality of water required to satisfy basic human needs and to protect aquatic ecosystems sustainably[122]. This provides the aquatic ecosystem and basic human needs with inalienable rights over other water users. A further requirement of the NWRS is to establish water management areas (WMA) and to determine their boundaries[123], with nineteen having been established (Figure 2.1).

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[118] Examples of the strategies and policies issued mainly by the Water Quality Management Division of DWAF include: *A strategy to manage water quality effects of settlements* (April 1999); *Water conservation and demand strategy for the agricultural sector* (December 2000); *Water use authorisation process* (December 2000); *Policy and strategy for groundwater quality management in South Africa* (2000); *Guideline document for the implementation of regulations on use of water for mining related activities aimed at the protection of water resources* (May 2000).

[119] Section 5(1) of the National Water Act, 1998

[120] Section 5(4) of the National Water Act, 1998

[121] Section 6(1)(b) of the National Water Act, 1998

[122] Section 1(xviii) where it is further stated that basic human needs are satisfied '*by securing a basic water supply, as prescribed under the Water Services Act, 1997 (Act No. 108 of 1997), for people who are now, or who will, in the reasonably near future, be (i) relying upon; (ii) taking water from; or (iii) being supplied from, the relevant water resource*'. The minimum standard is prescribed at 25 litres per person per day to satisfy basic human needs. This issue falls under water services provision (Chapter 3).

[123] Section 6(c). See also *op cit* n 103.

Overall five water users[124] and eleven water uses[125] have been identified (Figure 2.2) and are controlled through the NWRS. This strategy filters fundamental principles to each CMS. The IWRM approach is highlighted in the NWRS, in terms of resource directed measures or management (RDM)[126] and source directed controls (SDC)[127] including the concepts of water quality management, resource quality management (RQM), receiving water quality management (RWQM), and water conservation and demand management (WCDM). The NWRS has four main objectives, namely to establish the national framework for managing water resources, to establish a framework for the preparation of catchment management strategies, to provide information, and to identify development opportunities and constraints. Part of this strategy is the important aspect of monitoring to fulfil DWAF's water resource management goal of "some, for all, forever"[128]. This goal is in line with the integrated and sustainability approach of the international principles laid out in Agenda 21[129].

Overall the NWRS process focuses on the water resource itself through RDM as well as the potential pollution sources or water users through SDC and WCDM. All these measures and controls are then monitored to ensure compliance and effectiveness and sustainability for water conservation and protection.

The RDM is part of the catchment forum visioning that involves the CMA to determine the CMS and includes:

- Classification of the system – determining acceptable risk and impacts controlled for protection of the resource as indicated in section 12.
- Determination of the reserve – analysis of the ecological reserve and basic human needs reserve at least at a quaternary catchment level.

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[124] The five water users include aquatic ecosystem, domestic, industrial, agriculture and recreation.

[125] The eleven water uses are given in section 21(a)-(k) of the Act.

[126] Resource directed measures are those that are focussed on the quality and overall health of water resources. This includes water quantity and quality, character and condition of in-stream and riparian habitats, and the characteristics, condition and distribution of the aquatic biota (aquatic ecosystem). NWRS Summary August 2002 at 11

[127] Source directed controls are designed to control water use activities at the source of impact, through tools such as standards, and conditions in water use authorisations. NWRS Summary August 2002 at 11

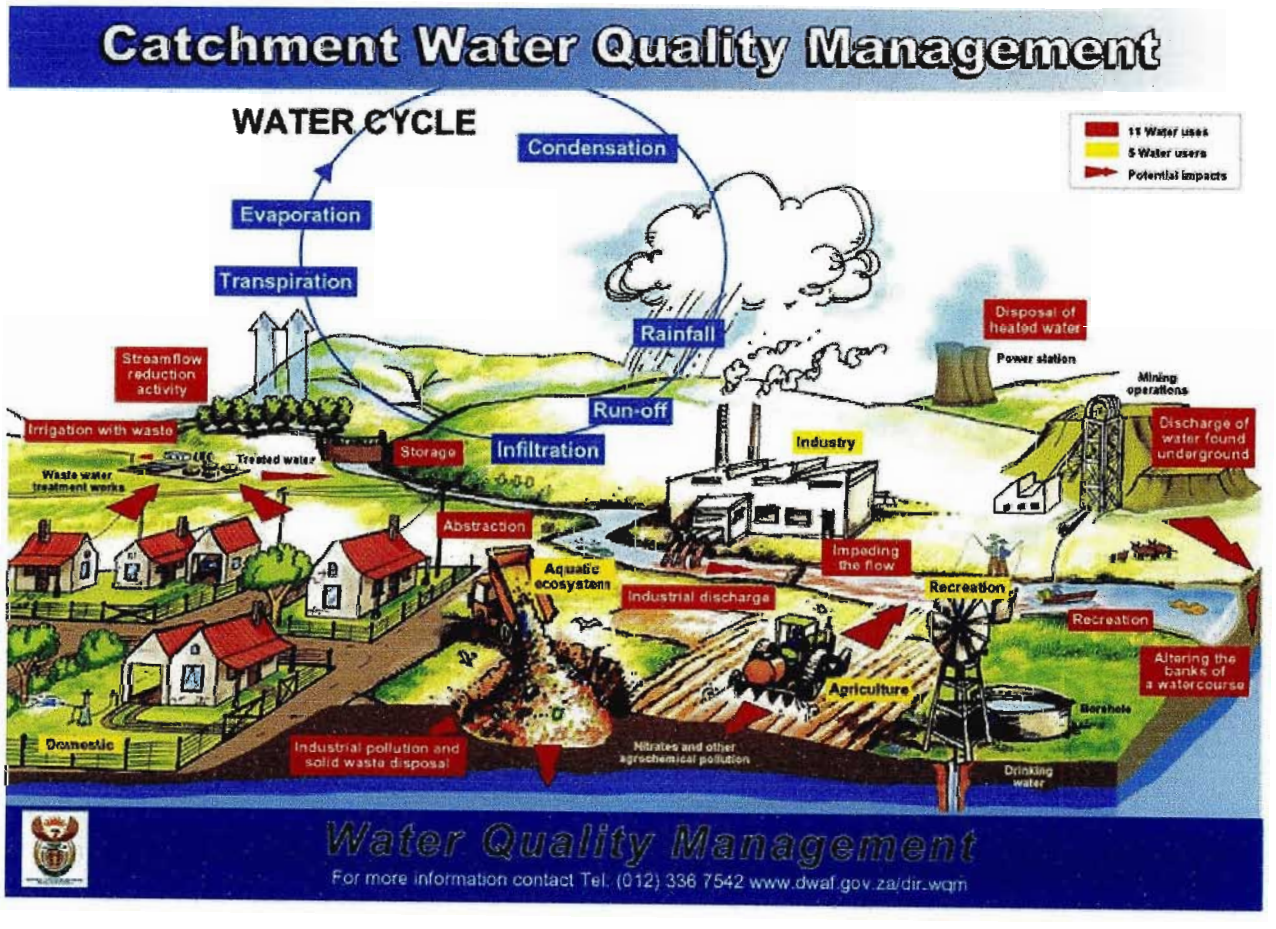
[128] DWAF website: www.dwaf.gov.za

[129] *Agenda 21: An agenda for Sustainable Development into the 21st Century* that was adopted as an action plan for sustainable development during the 1992 Conference on Environment and Development (or Rio Summit).

- Determining resource quality objectives – best assessment of resource quality values necessary to provide the desired level of protection to a water resource with a particular degree of risk.
- Determining receiving water quality objectives – linking resource quality objectives to discharge or return flow quality and downstream requirements to maintain the desired level of water resource protection.

SDCs manage the impacts on the resource and include factors such as licensing.

Figure 2.2: Diagram of water users and water uses defined in South Africa



Each CMA that is established will provide information for input into the NWRS and the national water resource information system. The CMA seeks cooperation and agreement on water issues from various stakeholders and interested persons to form and manage the CMS. This is a delegation of water

resource management to catchment level, however the CMA cannot decide the reserve levels. The catchment management process involves continuous improvement through the following cycle[130]:

- Planning – initiation, assessment and visioning.
- Implementation.
- Operation – performance assessment and corrective action.
- Auditing and control – management review.
- Feedback to stakeholders.

The CMS has a specific role to formalise the catchment vision, the mission of catchment management and the understanding of the management objectives and issues. The strategy agreed with stakeholders should be the outcome of "interests-focused", as opposed to "rights-focused", bargaining[131].

Ultimately according to Viljoen[132] water resource management involves:

- CMS planning and implementation.
- Monitoring and assessment of the water resource.
- Licensing evaluation and processing.
- Disaster management.
- Water conservation and demand management.

2.5 Summary

Overall these strategies and the Act still concentrate on surface water flow. However groundwater, wetlands and springs need to be included in the overall management process, and will be viewed as a whole in the strategy to maintain the class and RQO of the Reserve. The strategies are not a once off hardcopy document that sits on the shelf, but a planning process that requires review and progressive improvement and change according to the changing needs of both the resource and society. The only way to manage the environment is through a process as the balance between conservation and development is constantly changing. This new Act recognises this fact, however although the persons

[130] J Van Wyk *Water management and water use strategies* (2002) - (herein after cited as Van Wyk (2002d))

[131] Gorgens *op cit* n 105 at 22: This document has been designed to help government officials and catchment management structures in the implementation of the catchment management process.

[132] Viljoen (2002c) *op cit* n 116

driving this new approach and process may understand the need for change, success of process implementation at ground level still requires a substantial amount of awareness, education and public participation programmes[133] to involve all water users in planning and implementation.

Failure of water resource management worldwide is mostly as a result of the inability to deliver the product on the ground to the satisfaction of end-users despite adequate representation of the correct aspirations for resource management.[134] This is probably as a result of insufficient public participation. Therefore success of South Africa's water resource management is likely to rest on the extent of public participation and involvement. Where water resources are scarce it is unlikely that conflict between water users will be resolved, however, consensus and compromise through information sharing, education, open negotiation and exploration of options for water use and allocation may be reached.

No one has ever said that management is easy. By its very nature it requires the integration of numerous factors into a comprehensive and workable "whole". Using the National Water Act, 1998 this equates to a large part of the success of water resource management falling onto the CMA and public participation. The decentralisation of water management to the CMA allows for public participation and stakeholder involvement. According to Viljoen[135], it is the intention to progressively decentralise many of DWAF's current functions to the CMA, so that DWAF is ultimately merely an overseeing body and not the actual implementing body.

Although there are many issues that may hamper the progress of water resource management in South Africa, such as funding, human capacity, lack of CMA establishment, lack of base data for management of the resource, insufficient public participation and opposition by ill-informed persons, the legislation itself and its approach to water resource management provides a good framework for success. A change from an entrenched water use philosophy requires continual and progressive change through the cyclical process for long-term sustainability to be established.

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[133] Van Wyk (2002c) *op cit* n 64: Depending on the nature of the decision, the different levels of participation are used, however for the success of the WRM the CMA and catchment forums will probably use a combination of involvement and collaboration.

[134] Van Wyk (2002d) *op cit* n 127

[135] Viljoen *op cit* n 24

Chapter 3: Water Services Act, 1997

3.1 Introduction

In addition to the National Water Policy for South Africa, a Water Services Policy document was produced based on Principles 25 to 28[136]. The overall outcome is the Water Services Act, 1997[137] that was assented to on 27 November 1997 and commenced on 19 December 1997. The Act has its basis in the Constitutional rights of access to sufficient water and health care services (s 27(1)(b)) and '*an environment that is not harmful to [ones] health or well-being*' (s 24(a)), as well as the founding principles of an '*open democratic society based on human dignity, equality and freedom*'. To this end, the long title of the Act states:

> *'To provide for the rights of access to basic water supply and basic sanitation; to provide for the setting of national standards and of norms and standards for tariffs; to provide for water services development plans; to provide a regulatory framework for water services institutions and water services intermediaries; to provide for the establishment and disestablishment of water boards and water services committees and their powers and duties; to provide for the monitoring of water services and intervention by the Minister or by the relevant Province; to provide for financial assistance to water services institutions; to provide for certain general powers of the Minister; to provide for the gathering of information in a national information system and the distribution of that information; to repeal certain laws; and to provide for matters connected therewith.'*

Unlike the National Water Act, 1998, the long title for the Water Services Act, 1997 is very specific, indicating the precise direction of the Act and aspects of relevant law reform. It is evident that this Act fits in with the National Water Act, where monitoring and information gathering is linked to the national information system that the Minister may establish in terms of section 139 of the National Water Act. Where the National Water Act attempts to manage the water resource directly through strategies and licensing, the Water Services Act manages the resource indirectly by regulating the water delivery function. Analysis of the preamble will indicate the extent that this Act helps in water resource management in South Africa.

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[136] See Chapter 1 and Appendix II.

[137] Act 108 of 1997

3.2 Preamble – principles and objectives of the Act

The approach to water services delivery and its application to water resource management in South Africa should be identified in the Preamble to the Act. The Preamble states the following:

> *'**Recognising** the rights of access to basic water supply and basic sanitation necessary to ensure sufficient water and an environment not harmful to health or well-being;*
> ***Acknowledging** that there is a duty on all spheres of Government to ensure that water supply services and sanitation services are provided in a manner which is efficient, equitable and sustainable;*
> ***Acknowledging** that all spheres of Government must strive to provide water supply services and sanitation services sufficient for subsistence and sustainable economic activity;*
> ***Recognising** that in striving to provide water supply services and sanitation services, all spheres of Government must observe and adhere to the principles of co-operative government;*
> ***Acknowledging** that although municipalities have authority to administer water supply services and sanitation services, all spheres of Government have a duty, within the limits of physical and financial feasibility, to work towards this objective;*
> ***Recognising** that the provision of water supply services and sanitation services, although an activity distinct from overall management of water resources, must be undertaken in a manner consistent with the broader goals of water resource management;*
> ***Recognising** that water supply services and sanitation services are often provided in monopolistic or near monopolistic circumstances and that the interests of the consumers and the broader goals of public policy must be promoted; and*
> ***Confirming** the National Government's role as custodian of the nation's water resources'*

The first principle upon which the Act is founded is, as stated earlier, the Constitutional right of access to basic water and sanitation and the environmental right. To ensure that these rights are enforceable and enforced requires effective water resource management. Water use and supply forms part of the hydrological cycle through the removal of water from the system (water supply) and possible return of water to the system (wastewater and effluent treatment). The "basic" standards, as defined, mean the prescribed minimum that is set out in a regulation in terms of Section 9 of the Act, and attempts to address past inequalities that relate mainly to personal consumption. These minimum standards are important for overall current and future water resource management, although the impact is lower than development and industry. Linked to this principle are the second and third principles of national responsibility that place a duty to ensure equal, efficient and sustainable services that are further expressed in terms of economic viability. Sustainability includes economic, social and environmental aspects for long-term viability and benefit, and is also a concept of effective renewable water resource management. In this, the part of "use" is linked to the sustainability of the hydrological cycle as a whole. The National duty shows the change in approach to water as a resource, namely that the State holds

water in trust for the use and benefit of all, as well as the importance of the supply of, what has been termed, "basic" services.

The fourth and fifth principles are based on co-operative governance, such that a duty is placed on all spheres to ensure effective and progressive compliance with the Act - i.e. to assist in the enhancement of municipal capacity. This is important, especially where achieving, and then supplying, the prescribed minimum standards places a burden on the municipalities both in terms of finances as well as human capacity.

The sixth principle recognises the link between water services and water resource management. This is an inter-dependent and inter-related aspect of resource management owing to the cyclical nature of the water resource. This may be linked with the seventh principle of promotion of public policy and the interests of the consumers, especially in light of the new approach to water resource management. Service provision of the broader group will outweigh the rights of the individual. As a final statement the Preamble confirms the State's role as trustee over the water resource.

The Preamble provides a good base to the Act. Apart from the direct purpose of the Act to regulate the provision of water services in an equitable, efficient and sustainable manner, there is also the acknowledgment of the role of water services in overall resource management. The inter-dependence and inter-relationship of services delivery with the hydrological cycle is also alluded to, and the need to ensure sustainability for effective water services is linked to resource management. In terms of water resource management one needs to analyse the effectiveness of the powers, functions and procedures put in place by the Act to give effect to these principles. The effect of prescribing a "basic" or minimum service standard in relation to the available water resources in the specific catchments is also of importance to the overall water resource management.

3.3 Structure of the Act

The Act is divided into 12 Chapters and two (2) Schedules. The index of the Act's Chapters is as follows:

'Chapter I: Introduction provisions
Chapter II: Standards and tariffs
Chapter III: Water services authorities
Chapter IV: Water services providers
Chapter V: Water services intermediaries
Chapter VI: Water boards
Chapter VII: Water services committees
Chapter VIII: Monitoring and intervention
Chapter IX: Financial assistance to water services institutions
Chapter X: National information system
Chapter XI: General powers and duties of Minister
Chapter XII: General provisions'

A brief description of the content of each chapter and its link to water resource management is given in sections that follow.

3.3.1 Introductory provisions

Chapter I of the Act consists of eight sections that set out the definitions and interpretational use in the Act (s 1), the main objectives or purpose of the Act (s 2), everyone's right of access to basic water supply and sanitation (s 3), requirements for conditions for water services provision (s 4), preference for basic services over other consumer requirements (s 5), provision of services must be through a nominated water services provider (s 6), industrial use of water must comply with water services authority provisions (s 7) and regulating approvals of water services authority and appeals against any decision (s 8).

Chapter I of the Act lays an important foundation for the rest of the Act. The "Minister" responsible for application of the Act is the Minister of Water Affairs and Forestry.

The main objectives of the Act, as stated in section 2, are a broad outline of water services management that includes the setting of national standards and norms for service levels and tariffs (s 2(b)); preparation of water services development plans by the water services authorities (s 2(c)); regulatory framework for water services institutions, intermediaries, water boards and committees (s 2(d) & (e)); monitoring of services, gathering of information for the national information system, accountability of water services providers and intervention by the Minister (s 2(f), (h) & (i)); financial assistance to water institutions (s 2(g)); and promotion of effective water resource management and conservation (s 2(j)). These objectives hinge around sustainability, efficiency and equity. The Act aims to provide structures

and finances to facilitate planning and provision of basic water services, recognising the need for effective water resource management.

Of specific importance to water resource management are the water services development plans (WSDPs) that will link to the catchment management strategy (CMS)[138], and the gathering of information for the national information system. These provisions will have a direct impact on water resource management, as regulated by the National Water Act, 1998.

Chapter I of the Act, provides the fundamental principles that apply to the Act and its interpretation. The focus is on sustainability and equity with regard to water services provision, and the inter-relationship with water resource management.

3.3.2 Standards and tariffs

Chapter II of the Act is divided into two sections, namely Standards (s 9) and Norms and standards for tariffs (s 10). These sections give the Minister power to make or prescribe standards. Section 9 relates to compulsory standards in terms of water services provision, water quality, effective and sustainable use of the water resource, and requirements for works or consumer installations. In prescribing these standards the Minister must consider a number of factors[139]. Included in these factors, and important to water resource management, is the consideration of '*any impact [that] the water services might have on the environment'* (s 9(3)(g)) and '*the obligations of the National Government as custodian of [the] water resource*' (s 9(3)(h)).

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[138] The CMS is regulated through the National Water Act, 1998 as discussed in Chapter 2 of this dissertation.

[139] The considerations that the Minister must take into account when prescribing compulsory national standards are given in section 9(3) and include such factors as '(a) *the need for everyone to have a reasonable quality of life*'; '(b) *the need for equitable access to water services*'; '(c) *the operational efficiency and economic viability of water services*'; '(d) *any norms and standards for applicable tariffs for water services*'; '(e) *any other laws and or any standards set by other governmental authorities*'; '(f) *guidelines recommended by official standard-setting institutions*'.

The Minister has made regulations in terms of compulsory national standards and measures to conserve water[140]. As part of these standards, those that will affect water resource management include basic water supply at a minimum standard of 25 litres per person per day or six kilolitres per households per month[141] at SABS quality standards[142] and conservation measures to reduce demand and requirements from the water resource such as repair of leaks, maximum system pressure, metering systems and control devices, control of objectionable substances in stormwater systems or any watercourse, and grey water and effluent disposal, use, quality and quantity. The minimum basic sanitation service of a ventilated improved pit latrine (VIP)[143], may impact on water resource management as it forms a potential point source of pollution. However, if designed, constructed and maintained properly, this form of sanitation system helps to reduce the demand for water.

The minimum basic standard for water supply is in line with Gleick's[144] basic water requirement of 5 litres for drinking and 20 litres for sanitation and hygiene per person per day to meet the most basic human needs. In addition, he advocates that 15 litres is required for bathing and 10 litres for cooking per day, giving a total of 50 litres per person per day. Many would state that this is insufficient to live on, however the idea is not to ensure water supply for maximum consumption levels, but to provide a basic human need. It should be remembered that this is a minimum standard and not the ultimate target for supply. Gleick further states that it is not the amount stipulated that is important, but the fact that it is stipulated – i.e. setting a goal and implementing actions to reach that goal (WSDP).

Section 10 of the Act relates to the setting of tariffs and allows for the Minister to prescribe such in concurrence with the Minister of Finance. These norms and standards are not compulsory, however, tariffs may not differ substantially from those prescribed[145] (s 10(4)). Tariff setting does not impact on water resource management, other than to possibly reduce demand or internalise environmental costs.

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[140] *Government Gazette* dated 8 June 2001 Government Notice Regulation 509. These regulations have been promulgated under sections 9(1) and 73(1)(j) of the Water Services Act, 1997. Section 73(1)(j) gives the Minister power to prescribe measures to conserve water.

[141] Regulation 3. Other technical aspects also form part of the standards such as a minimum flow rate of 10 litres per second, a supply within 200 m of the household and at 98% effectiveness. Appropriate education on effective water use is also prescribed.

[142] Regulation 5. SABS 241: Specifications for drinking water.

[143] Regulation 2. See footnote 135.

[144] PH Gleick 'Basic water requirements for human activities: meeting basic need' (1996) 21 *Water International* at 83-92

[145] *Government Gazette* dated 20 July 2001 Government Notice Regulation 652 sets out norms and standards in respect of water services in terms of section 10(1) of the Water Services Act, 1997.

However, water available for distribution in terms of the CMS is finite and tariff structuring as a function of water resource management is merely a form of recouping operation and maintenance costs of the water services infrastructure.

In addition to tariff regulations, National Government has a policy of "free basic services" provision. Therefore, the minimum prescribed standards for water services should be supplied free. Although this is a policy and not a regulation, political pressure is giving free basic water (FBW) effect. However, the financial implications of implementing such a policy, is placing WSAs under additional financial pressure. This in turn may negatively impact water resource management, as funding is not available to ensure environmentally sustainable and water efficient water services infrastructure, as well as, a lack of funding for public education and awareness programmes such as environmental protection, water conservation and health and hygiene promotion. The provision of water services may therefore be rendered unsustainable. Based on the low income and poverty level in many rural areas, it is likely that the minimum basic standards of a communal level water supply and VIPs are likely to be viewed as a long-term "solution", as this service will effectively be free.

Overall the standards and norms prescribed through Chapter II of the Act will impact water resource management in terms of service levels (i.e. through the minimum standards determining "basic" that will be used in determination of the reserve in terms of the CMS), the conservation measures that will link to the WSDP for each water services authority (WSA) that in turn feeds into the CMS, and the tariff structuring, to efficiently, effectively and sustainably manage water services with minimal impact on the water resource.

3.3.3 Water services authorities

Chapter III of the Act is divided into eleven sections (s 11-21) that regulate the functions of the WSA[146]. Section 11 places a duty on the WSA to ensure '*efficient, affordable, economical and sustainable access*

[146] A water services authority is a municipality assigned to supply water services, and may be a local or district municipality. For most of the country local municipalities have WSA status, however in KwaZulu-Natal this is predominantly a district function. The implications thereof relate to the relevant competencies of each municipality type and the nature of their powers and functions. This affects primarily funding, human capacity and the ability to cross-subsidise income and expenditure from the various municipal functions.

to water services' to all consumers and potential consumers. This duty is subject to resource availability and the duty to conserve water resources, amongst others[147]. This section recognises the inter-relationship between water services and management of the resource. This recognition is continued in sections 12 to 18 where a duty is placed on the WSA to prepare a draft WSDP for its area of jurisdiction within a year of the Act's commencement[148], and includes requirements that the WSDP must fulfil, such as content, public participation and review. The WSDP explains how the WSA will provide access to water services, the levels of service that will be provided, conservation and demand measures to be taken and the resources that will be used. As such, this plan will link directly into the CMS in terms of resource allocation and management. Sections 19 and 20 relate to the mechanism used for water services provision and that this function must be separated from the planning and regulating function of the WSA, such as the bylaws pertaining to conditions of water services (s 21). The provider function may be conducted by the WSA, through a joint venture with another water services institution, or by contracting the function out (s 19(1)). In this respect the Local Government: Municipal Systems Act, 2000[149] also applies.

Planning of water services through the WSDP is linked directly to water resource management through the CMA and the CMS. This issue will therefore be dealt with in more detail in a later section.

3.3.4 Water services providers

Chapter IV of the Act relates to the provision of water services by a water services provider (WSP). A WSP is defined as '*any person who provides water services to consumers or to another water services institution, but does not include a water services intermediary*' (s 1). Section 22 stipulates that the WSA must give approval to the WSP for a specific area and section 23 states that the WSP must provide information reasonably called for by the WSA, Province, Minister or consumer.

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[147] Section 11(2) also includes equity in terms of resource allocation and regulation of access, duty of consumers to pay and the right of relevant water services authorities to limit or discontinue services provision when there is failure to comply with reasonable conditions, and topographical constraints.

[148] Section 12(1) of the Water Services Act, 1997

[149] Act 32 of 2000. Sections 76 to 82 regulate the process of outsourcing municipal functions.

Singh[150] indicates that a community-based water committee may also be a WSP, even though it is not expressly mentioned in the Act. In many rural areas this form of WSP is the most sustainable option. Community-based providers also allow for a sense of ownership in the water services infrastructure by the community. They are also more likely to be aware of the actual cost of water services provision, and therefore likely to conserve water and maintain the system efficiently. However, with the advent of the National Government's Free Basic Water Policy, many of the rural water schemes are being incorporated into regional schemes to ensure economic sustainability, thus making water committees redundant. In addition, the process[151] for contracting with an external WSP may also effectively make water committees an unsustainable option.

3.3.5 Water services intermediaries

Chapter V of the Act regulates water services intermediaries (s 24-27). These sections pertain to registration, duties, default by, and monitoring of performance of water services intermediaries. A water services intermediary is defined as '*any person who is obliged to provide water services to another in terms of a contract where the obligation to provide water services is incidental to the main object of that contract*' (s 1). An example of a water services intermediary would be a farmer providing water services to his farm labourers, or a factory to its compound workers. However, the WSA has the overall obligation and duty to provide the minimum national standards to all consumers or potential consumers within its area of jurisdiction, and is required to plan and account for all water provided. The question that arises is whether the WSA has an obligation in terms of the persons who are provided a service by a water services intermediary. As most of these consumers are located on private land, it is difficult for the WSA to obtain funding to provide the infrastructure. However, in terms of section 26, the WSA may direct a water services intermediary to rectify any failure in services provision and may even take over this task should it fail to take the necessary action. The financial implications of such actions may restrict the use of this section. The WSA may also require all water services intermediaries to register (s 24). Monitoring

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[150] Singh *op cit* n 12 at 55

[151] Local Government: Municipal Systems Act, 2000 at sections 76 to 82 indicate that internal and external assessments are required, incorporating public participation, before an external WSP is contractually appointed. Assessment of numerous factors is required including capacity (both human and economic), cost benefits, environmental sustainability, and ability of the potential provider to supply sustainable services over the long term at the requisite standards, to name a few.

of water services intermediaries will ensure that the WSA fulfils its statutory duty of services provision, and provide necessary information for incorporation into the WSDP and ultimately input into the CMS.

3.3.6 Water boards

Chapter VI of the Act regulates water boards (s 28-50). These sections provide for the establishment, disestablishment, activities, powers and duties, governance, constitution and reporting of water boards. A water board is defined as '*an organ of state established or regarded as having been established in terms of this Act to perform, as its primary function, a public function*' (s 1). This includes such institutions as Rand Water, Mhlatuze Water and Umgeni Water. The primary activity of a water board is to provide water services to other water services institutions (s 29), therefore it forms part of the services delivery function as a bulk water provider. The effect of inclusion of Chapter VI in the Act '*must not be construed as giving any executive or legislative power to any Province in respect of water boards*' (s 50). A water board may only be established, disestablished, have a change in service area or its name by the Minister after he has consulted with, amongst others, the WSA having jurisdiction in the service area (or proposed service area; s 28(1) and 28(2)). The water board must therefore form part of the WSA plan for water services provision in its area.

3.3.7 Water services committees

Chapter VII of the Act regulates water services committees (s 51-61). These sections provide for the establishment, disestablishment, powers, functions and duties, and governance of water committees. The function of a water committee is to provide water services to consumers within its service area (s 52). A water committee may only be established, disestablished, have a change in service area, name or powers by the Minister after he has consulted with amongst others, the WSA having jurisdiction in the area in question (s 51(1) and 51(2)). The water committee may not be established if the WSA is able to provide effective water services (s 51(3)). Therefore, the committee is established to provide capacity for the WSA to achieve its statutory duties, and in this regard the Minister may regulate member qualifications and appointments (s 61(1)).

3.3.8 Monitoring and intervention

Chapter VIII of the Act provides for monitoring of water services institutions by the Minister or Province to ensure compliance with the national standards, norms and standards for tariffs, and applicable plans or policy statements (s 62), and intervention by the Province at the request of the Minister, in consultation with the Minister for Provincial Affairs and Constitutional Development, if a WSA has not performed any of its functions effectively (s 63). This will include factors related to water resource management such as environmental sustainability and water conservation and demand management (as discussed in Chapter 2). DWAF will monitor the WSA functions through an annual review process of the W SDP progress report.

3.3.9 Financial assistance to water services institutions

Chapter IX of the Act regulates the powers of the Minister to make grants and loans and give subsidies to water services institutions (s 64), applications for financial assistance (s 65), and provides for the Minister to make regulations relating to financial assistance (s 66). The funds for financial assistance are those appropriated by Parliament, contributed by individuals or non-governmental organisations, or contributed by other governments and governmental institutions (s 64(1)(a) to (c)). This would include funding by the United Nations to help in capital infrastructure. Currently water services infrastructure is funded primarily through DWAF, Consolidated Municipal Infrastructure Programme (CMIP) and Local Government and Housing. However, only DWAF funding is strictly for the provision of water services. New developments in National Government funding for capital infrastructure is such that by 2005 all grant funding will come from a single source, that will be channelled through the Municipal Infrastructure Grant (MIG)[152]. It is hoped that the conditions of funding include minimum quotas for water and sanitation services, otherwise the funding is likely to be spent on salaries, cars and housing, whilst neglecting the alleviation of water services backlogs or the upgrade of services. This in turn could negatively impact on water resource management through a lack of control or monitoring of water use and conservation measures.

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[152] J Ferreira *Water Services Provision* (2003)

3.3.10 National information system

Chapter X of the Act regulates the national information system (s 67-70). These sections provide for the establishment, purpose, information provision and funding of such a system. Although section 67(1) indicates that the national information system is on water services, section 67(2) implies that this may form part of a larger system relating to water generally. In this regard the system could link into the national information system on water resources established in terms of Chapter 14 of the National Water Act, 1998. Water services are integrally linked to water resources, therefore information relating to quantity, quality and resources used could service both information systems. Ideally one system for both aspects will reduce repetition and streamline the approach to water resource management. Water services provision is merely a facet of water resource management when viewed holistically in the hydrological cycle.

The purpose of the national information system is to provide data for the development, implementation and monitoring of the national policy on water services and make information publically available to monitor performance of water services institutions and for research purposes (s 68). This is important for public participation and ultimate success of water conservation and demand measures taken by the WSP and WSA, as highlighted in the WSDP. This links overall to the success of the CMS and water resource management.

3.3.11 General powers and duties of Minister

Chapter XI of the Act regulates the general powers and duties of the Minister (s 71-76). These include the Procedure for making regulations (s 71); Compliance with the consultation requirements (s 72); General powers of the Minister (s 73); Delegation of powers by the Minister (s 74); Consideration of draft regulations by Parliament (s 75); Appointment of and regulations pertaining to advisory committees for any matter falling within the scope of the Act as determined by the Minister (s 76).

The Minister has made four regulations in terms of the Act. The first relates to the transfer or disposal of water services works in terms of section 73(2)(a)[153], the second and third relate to standards and norms and standards in terms of sections 9 and 10 (as discussed in an earlier section above)[154], and the fourth relates to regulations pertaining to water services provider contracts[155]. However, many of the regulations made in terms of the National Water Act, 1998 also apply, especially with regard to the WSA and implementation of the WSDP in light of the CMS.

3.3.12 General provisions

Chapter XII of the Act (s 77-85) regulates general provisions ranging from Transferability of servitudes (s 77); Compliance with other laws relating to the abstraction and use of water or the disposal of effluent (s 78); Ownership of water services works remains with the water services institution when placed on property not owned by it (s 79); Entry and inspection of property (s 80), to Expropriation of property is allowed with written approval of the Minister (s 81) and Offences (s 82). The offences created include wasting water after being called upon to stop such action; unlawful and intentional/negligent interference with a water services work; intentional use or disposal in contravention of sections 6 or 7 (relates to approval by WSA of the WSP or industrial use); intentional obstruction of person authorised to enter and inspect property in terms of section 80; and failure or refusal to give information or failure to provide documents or assets when required in terms of the Act (s 82(1)(a) to (f)). Conviction will result in a fine or imprisonment or both such (s 82(2)), however the limits of the fine or imprisonment have not been included.

Of importance is the express provision of section 83 that the Act binds the State and its organs. This means that the Department of Water Affairs and Forestry, acting on behalf of the Minister, may require compliance not only from their own Department, but also from other National Departments. This may be problematic in that the state will effectively be enforcing regulatory compliance against itself, whereas in practice this may very rarely be seen. Nevertheless, this highlights the importance of co-operative governance and transparency at all spheres of government or organs of State.

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[153] *Government Gazette* dated 15 September 2000 Government Notice Regulation 902

[154] *Government Gazette* dated 8 June 2001 Government Notice Regulation 509 and *Government Gazette* dated 20 July 2001 Government Notice Regulation 652 respectively

[155] *Government Gazette* dated 19 July 2002 Government Notice Regulation 980

Another important aspect of this Chapter in terms of water resource management is the repeal of laws (s 84). Numerous Acts are repealed in Schedule 2, many in their entirety. Mostly these Acts pertain to water boards, however sections of the Water Act, 1956 were also repealed. Owing to the fact that the entire Water Act, 1956 has since been repealed by the National Water Act, 1998, this does not appear to make any difference to the current status of water law. Section 84(2) does however allow for the continued existence of water boards, and section 84(6) states that '[a]*nything done before commencement of this Act by an organisation contemplated in subsection (2) and any regulation made or condition set under or in terms of any law repealed by subsection (1) remains valid and is deemed to have been done, made or set under or in terms of the corresponding provision of this Act if – (a) it is capable of being done, made or set under or in terms of this Act; and (b) it is not in conflict with the main objects of this Act as set out in section 2.*' Therefore these sections ensure a smooth continuance of the status quo until such time as the new provisions can enter into effect. This is important from a water services perspective in that it gives the WSA time to adjust to its new role and develop a strategic plan for the provision of water services in its area of jurisdiction.

3.4 Water services development plans and water resource management

The most important provision of the Water Services Act in terms of water resource management is that pertaining to the WSDP. The required content of the WSDP is given in section 13 of the Act. There are numerous factors to consider, and the issue is complex. Every WSA is required to produce a WSDP, therefore for the sake of uniformity[156] and to facilitate the WSAs in this new function, DWAF devised a guide[157]. The guide divides the information required into twelve chapters (Figure 3.1). Each chapter has a number of sections that are comprised of tables, with annotated text to help in table compilation. Although this guide simplifies the data into a tabulated format, the issue is still complex as the detailed data required is often not available. Municipalities are also required to ring-fence water services to determine the actual cost of provision; this was not done in the past. Previously, cross-subsidisation of municipal function occurred in that salaries, vehicles, administration etc were often separated from function. The WSDP requires not only the ring fencing of water services from other municipal functions, but a separation between water and sanitation divided into different settlement types[158].

The Act required a draft WSDP to be submitted/prepared within one year of its commencement (s 12(1)). Almost six years on, many WSAs are only now preparing and drafting a long-term water services plan. To date only 26 of the 170 WSAs have a WSDP approved by their Executive Council, with 44 having a working document only (Table 3.1). A major stumbling block has been the lack of capacity within many of the municipalities to comply with all the powers and functions derived from the numerous new pieces of legislation (specifically the implications of the Local Government: Municipal Structures Act, 1998[159] and the Local Government: Municipal Systems Act, 2000)[160]. In addition to this lack of capacity, the WSDP does not require approval of the administrative body, namely DWAF. Therefore, despite being a legislative requirement, the WSDP functionality and sufficient detail thereof, does not appear to be

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[156] Uniformity allows DWAF to include the data directly into the national information system on water services, which may ultimately link to the national system on water resources.

[157] DWAF *Water Services Development Plan guide for water services authorities* (July 2001) – referenced as DWAF (2001b)

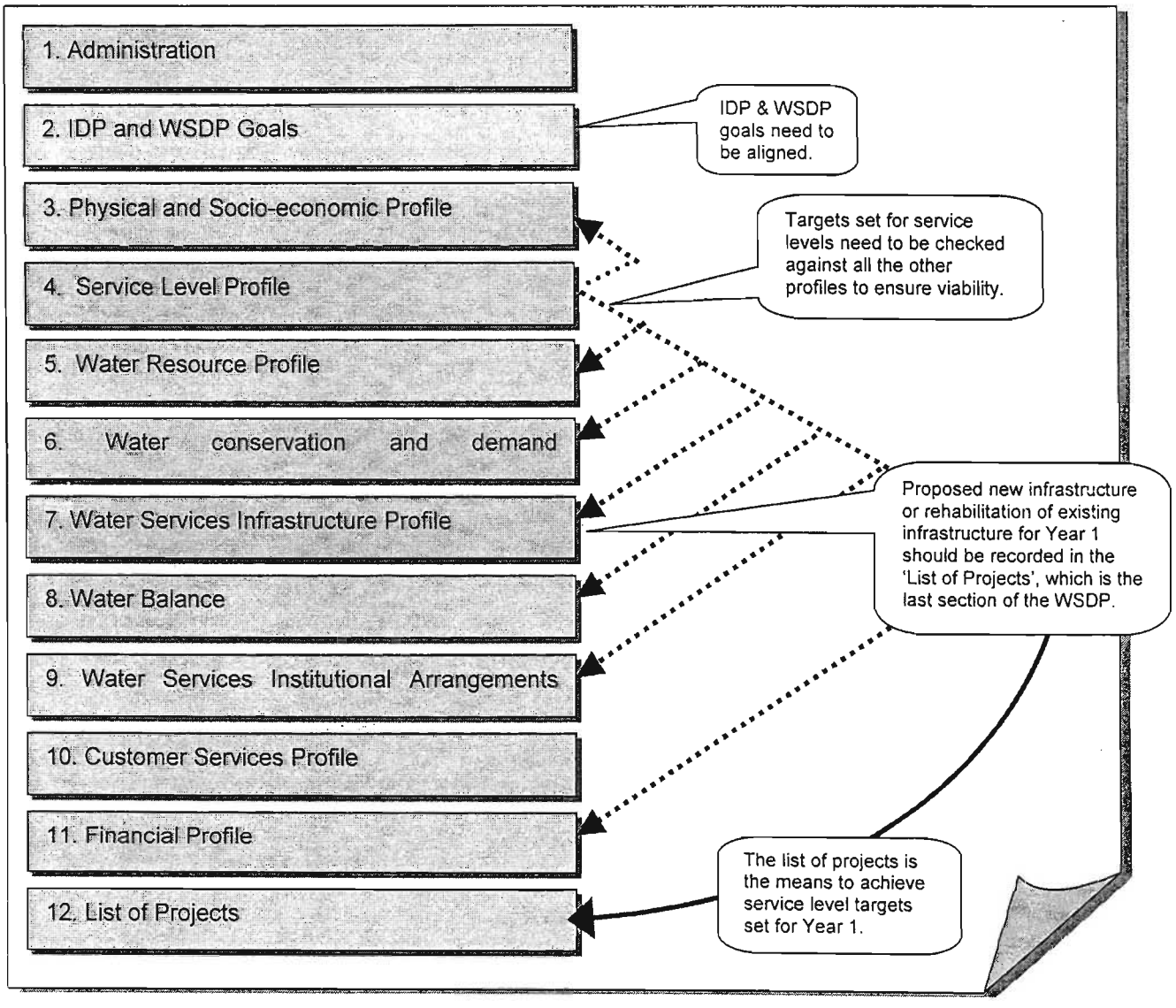
[158] This is a division based on population size and density per community with the divisions of urban, dense, village, scattered and farmland.

[159] Act 117 of 1998

[160] In this regard the Implementation of Sustainable Water Services Institutions Programme (ISWIP) has been funded to help build capacity within municipalities.

relevant – i.e. the WSDP merely needs to exist. Hence, the DWAF guide and their supply of funding to facilitate in the drafting of a competent, practical and usable WSDP. Although DWAF does not approve the WSDP, it is submitted that funding for water services hinges on the long-term planning and internal review of this document. Therefore, DWAF will approve funding for individual schemes that are inline with competent and sustainable planning within the WSDP.

Figure 3.1: WSDP structure from DWAF Preparation Guide



(Source: DWAF WSDP Preparation Guide – 2001)

Table 3.1: WSDP status summary

Region	Total Municipalities	Total WSAs	Current Status for year 2002/03				Process Initiated
			Interim (Working document)	Draft (Pre public comments)	Draft (Post public comments)	Adopted	
Eastern Cape	45	17	0	1	16	0	17
Free State	25	21	0	15	6	0	21
Gauteng	9	8	6	1	0	1	8
KwaZulu-Natal	61	14	6	1	2	5	14
Limpopo	26	10	0	0	6	3	9
Mpumalanga	20	19	0	12	7	0	19
North West	25	13	12	1	0	0	13
Northern Cape	27	27	11	4	4	8	27
Western Cape	30	30	7	1	16	6	30
Gauteng / Mpumalanga	3	2	1	1	0	0	2
Gauteng / North West	3	3	1	1	0	1	3
Mpumalanga / Limpopo	2	2	0	0	1	1	2
North West / Northern Cape	2	2	0	0	1	1	2
Northern Cape / North West	2	2	0	2	0	0	2
National Totals	**280**	**170**	**44**	**40**	**59**	**26**	**169**
Percentage		**60.71%**	**15.71%**	**14.29%**	**21.07%**	**9.29%**	**60.36%**

(Source: www./dwaf.gov.za/dir_ws/wsdp/statustracking)

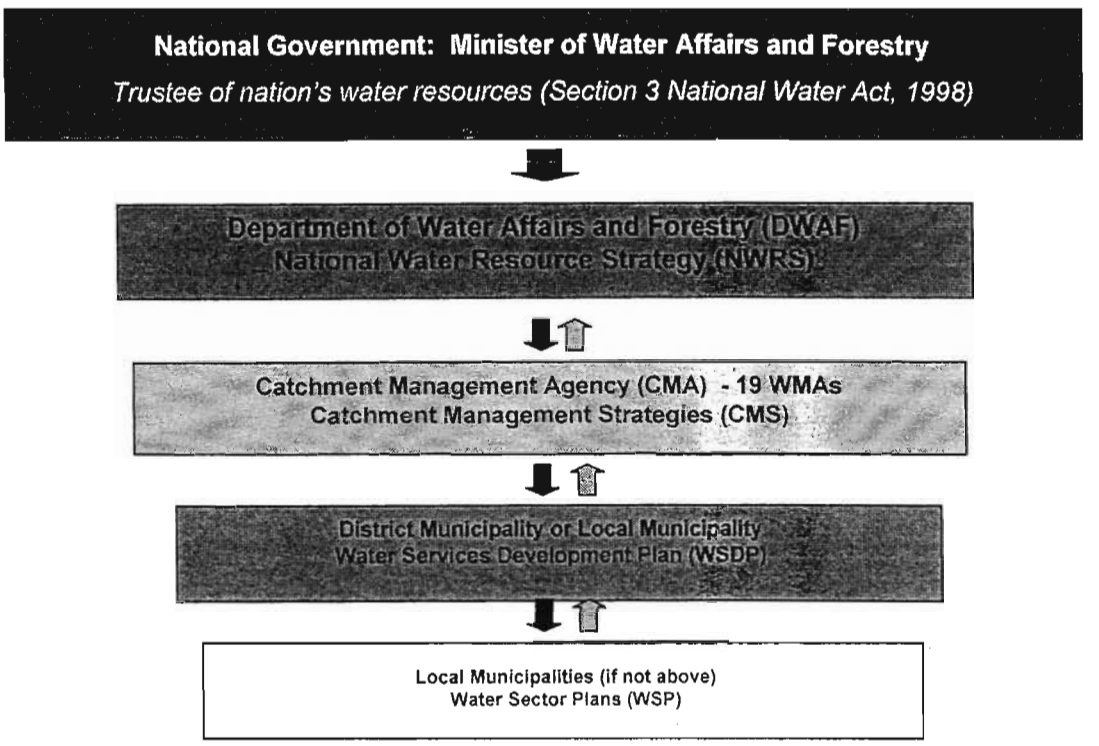
The information required in the WSDP has a direct bearing on water resource management, with sections on the water resource profile, water conservation and demand strategies of the WSA, the infrastructure profile and the water balance. The WSDP, if competently completed, will provide base data for both the water services and water resources national information systems. The tabulated format of the DWAF guide facilitates data input into a national database, that can be viewed on the DWAF website (www.dwaf.gov.za), as well as facilitating assessment by DWAF on the progress of the WSA in providing and planning water services. However, this need for uniformity often results in an inability to complete the tables, as available information may not fit exactly into the table design. Much of this information is detailed and often irrelevant to many municipalities. South Africa has a range of socio-economic conditions and communities; therefore it is difficult to create a single database of all relevant factors. Nevertheless, as a guide, these tables will help future data collection and research. In the long term this will hopefully result in a comprehensive national water services (and water resources) database.

The overall aim and objective of preparing a WSDP is to ensure long-term sustainability of water services that includes environmental, social and economic sustainability. The WSDP is required to plan to address the water services backlog, and provide services in line with at least the minimum national standards, to comply with the Constitutional right of access to "sufficient" water. The link between the NWRS, the WSDP and the water sector plans (that form part of the local municipality Integrated Development Plans (IDPs), where the WSA is a district municipality) is given in Figure 3.2. It is evident that the WSDP provides base information on water use and is linked to the CMS. As a major water user the WSA should be represented on the CMA. This will facilitate the requirement of informing neighbouring WSAs and affected users of the WSDP content[161]. In addition, a public participation process is required to allow affected parties to comment on the plan[162].

[161] Sections 14(1)(c) and 15 (3) of the Water services Act, 1997

[162] Sections 14(1), 15(1) and 15(2) of the Water Services Act, 1997

Figure 3.2: Water resource management structure in terms of SA legislation



The idea of a long-term plan, that will facilitate sustainable water resources management, is often overlooked and misinterpreted as a five-year plan. The Act stipulates that the WSDP must contain details '*of a time frame for the plan, including the implementation programme for the following five years*' (s 13(c)). The fact that the DWAF guide requires five-year projections has lead to a misinterpretation of the Act by some to mean that the WSDP is a five-year plan. However, to adequately facilitate water resources management, the WSDP requires long-term (possibly 20 years) information on water resource requirements (that include WCDM) and the infrastructure required, as well as a detailed five-year plan listing specific projects. The WSDP requires annual review as part of the municipality's IDP process[163], therefore it forms a process rather than being a static document, similar to the CMS.

In developing water services there is a complex balance between the realisation of environmental and actual cost of water use and the funding implications of National Government's policy of free basic water (FBW) provision. The cost of FBW must be borne by someone. The financial implications of FBW may result in the inability of the WSA to enforce and comply with the WCDM, environmental and water

[163] In terms of the Local Government: Municipal Systems Act, 2000, as well as annual reporting on progress in terms of section 18 of the Water Services Act, 1997 and preparation of a new document at intervals prescribed by the Minister (s 16).

conservation education and awareness programmes, and overall water resources protection. The policy of FBW moves away from the founding principles of water law reform, that include community ownership, because of the required scale of economy to subsidise FBW. Over-use of FBW in unmetered rural areas may result in insufficient capacity with regard to water supply[164] and the resource. This has been experienced in certain areas of KwaZulu-Natal[165] where existing resources are insufficient to supply the increased demand that has compounded the effect of the current "drought" situation. This highlights the requirement, not only for adequate metering and monitoring of water supply, but also for adequate planning in water-related disaster management, such as droughts, floods and fires.

The issue of the provision of basic water services often looks at communal water supply at the minimum national standards and the provision of a ventilated improved pit latrine (VIP) per household. However, because there is no waterborne sanitation system the issue of household wastewater requirements is often neglected. Although the quantity of wastewater from each household may be negligible, the cumulative effect on health and the water resource may be significant. Planning in these areas requires not only the supply of water and sanitation, but includes the removal of wastewater through "stormwater" drains and waste via collection. These functions are often dealt with through the roads and health departments, thereby highlighting the need for cooperation and integration of projects between departments. Without holistic planning[166], the concentration on water resource management and pollution prevention[167] of the resource, will not result in protection. This emphasises the cooperative governance and promotion of land use control as advocated in Principles 17 and 18 (Appendix II).

Although integration and sustainability are complex issues, the National Water Act, 1998 and the Water Services Act, 1997 provide a competent framework for the link between water resources protection and

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[164] Although communal standpipe schemes are designed to supply the basic minimum standard (25 litres per person per day), most of the reticulation infrastructure could accommodate a 60 litre per person supply. However, water supply deficit may result from the bulk infrastructure such as the pump, storage or treatment capacity not being designed for and able to cope with the increased demand.

[165] Example: Currently the Limehill Complex in Indaka Local Municipality (uThukela District Municipality) is without reticulated water, as the increased consumption from "free basic water " in conjunction with the low rainfall experienced has resulted in insufficient capacity of the water resource (Oliphantskop Dam). Water is being tankered in from adjacent Emnambithi Local Municipality in line with section 11(5) of the Water Services Act, 1997. However, a major problem is that part of the area has house connections and waterborne sewerage systems. The lack of water in this situation can create a major health and environmental hazard. u*Thukela District Municipality Water Services Development Plan*, July 2003.

[166] The municipality is also required to produce an integrated development plan (IDP) of which the WSDP forms the water sector.

[167] Duty of care put in place by section 19 of the National Water Act, 1998.

water services provision. As with any new scheme or philosophy, nothing changes overnight. It is better to build slowly on a good solid foundation (base data) to achieve sustainability, than to have rapid development on haphazard and shaky foundations. The fundamental ideas and principles behind water resource management in South Africa are sound. However in relation to water services, cooperation and understanding of the process by WSAs and the public needs to be achieved through education, as well as addressing the problematic issue of funding and financial sustainability with regard to operations and maintenance of costly capital infrastructure in light of FBW. Success is therefore dependent on education, public participation, human capacity and financial capacity.

Chapter 4: Water Research Act, 1971

4.1 Introduction

The Water Research Act, 1971[168] was assented to on 7 May 1971 and commenced on 6 August 1971. Although this Act was developed prior to the major changes in South African law, and especially water law, it is still in existence. Even though the Act is a pre-1996 piece of legislation, it compliments and forms part of the suite of water law that has newly come into existence. The Act aims:

> *'To provide for the promotion of research in connection with water affairs; for that purpose to establish a Water Research Commission and a Water Research Fund; and to provide for matters incidental thereto.'*

Based on the long title, it is evident that this Act may link to water resource management by providing a vehicle for research and study into aspects of water management in South Africa. Determination of the reserve, questions of quantity and quality of South Africa's water resource, impacts of global warming and sea-level rise on water availability and catchment management, are merely some of the projects that may be funded through the Water Research Commission and filter through to the policy on water resource management. This Act therefore presents possibilities for effective and efficient water resource management.

4.2 Structure of the Act

The Act is relatively short, comprising of only 19 sections, and is aimed at the establishment and functioning of the Water Research Commission. The structure of the Act is as follows:

'Section 1: *Definitions*
Section 2: *Establishment and general objects of Water Research Commission*
Section 3: *Functions of the commission*
Section 4: *Constitution of the commission and period of office of its members*
Section 5: *Advisory members of commission*
Section 6: *Remuneration and allowances of members of commission*

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[168] Act 34 of 1971 as amended by the five Water Research Amendment Acts, namely Act 16 of 1974, Act 73 of 1975, Act 106 of 1977, Act 10 of 1982 and Act 93 of 1985, and the General Law Amendment Act, 1996 (Act 49 of 1996).

Section 7: Meetings of commission
Section 8: Validity of decision taken by, or act performed under authority of, the commission
Section 9: Rules of the commission
Section 10: Executive director and officers and employees of commission
Section 10A: Committees of the commission
Section 10B: Delegation of powers of the commission
Section 10C: Delegation of powers by executive director
Section 11: Levying of rates and charges
Section 12: Establishment of Water Research Fund
Section 13: Administration of the fund
Section 14: Auditing and annual report
Section 14A: Delegation of powers by Minister'

The objects of the commission are to co-ordinate, promote and encourage research in respect of '*the occurrence, preservation, conservation, utilisation, control, supply, distribution, purification, pollution or reclamation of water supplies and water*' and the use of water for agricultural, industrial and urban purposes (s 2(3)). It is evident that the brief of the commission is broad, therefore, in order to promote such research, the commission establishes research programmes in terms of section 3(1)(b) and makes grants available to prospective researchers as individuals, universities and institutions to conduct such research (s 3(1)(c)). In order to provide these research grants, the Act establishes a Water Research Fund in terms of section 12. The fund consists of moneys appropriated by Parliament; rates and charges levied on irrigated land or water supplied in terms of section 11 and donations; bequests or contributions to the commission. In this regard, the Minister of Water Affairs and Forestry has made regulations in terms of section 11 by levying rates and charges on irrigated land and urban, domestic and industrial consumption[169].

4.3 Discussion

It would appear that the principles and objectives of the Act would help in promoting efficient and effective water resource management, however the trend has been to fund politically correct research into the effects of human health, HIV/AIDS, women in water, etc. Although these projects will help to create a holistic impression of water use and management in South Africa, they do not necessarily directly affect water resource management. The publications list of the Commission is divided into 17 categories, namely:

- Developing communities: water supply and sanitation.

[169] *Government Gazette* date 18 July 2003 Government Notice Regulation 1025.

- Potable water supply.
- Municipal wastewater management.
- Water quality management.
- Groundwater.
- Agricultural water management.
- Industrial water management.
- Membrane technology.
- Hydroclimatology.
- Integrated water resource management.
- Catchment hydrology.
- Conservation of water ecosystems.
- Mine-water management.
- Water policy.
- Information technology and research support services.
- Hydraulics.
- General.

A major programme of study is groundwater research, especially related to recharge and pollution. Although groundwater is an integral part of the water resource, it is often left out of the hydrological cycle and water resource management. Groundwater, and its effect on the base flow of rivers, is monitored. However, groundwater as its own resource is only now falling into the management net. Monitoring of the location, quantity and quality of farmers boreholes, as well as the abstraction rates, not only is requested in terms of the National Water Act, 1998, but is also a field of study in terms of the Water Research Act, 1971. Although the Act is more than 30 years old, it provides a mechanism to research and monitor water resource management to ensure sustainability of use and conservation.

Chapter 5: Conclusion

Water is the essence of life and a renewable resource that changes form within the hydrological cycle. There are many factors that affect the water cycle, and therefore the approach to water resource management such as climate, precipitation type, soil and rock type, landform and topography, land use, ecosystems and population. South Africa is a country virtually surrounded by water, yet fresh water is a scarce commodity and much of the population is currently without potable water. The country is defined as semi-arid with an average rainfall of 450 mm per annum that is unevenly distributed with seasonal variation between the east and west. There are a number of strong flowing rivers, however there are also large tracts of land without any natural surface water. Groundwater potential is variable and often limited with poor quality, depending on geology and recharge of the aquifers. Many of the catchments are invaded with alien vegetation that reduce water flow and availability, and socio-economic complexities exist in relation to existing water services and resource use.

The 1996 Constitution produced a new framework for South African legislation, and water resources have been identified as a national government function. The reform of water law in South Africa, from the 1956 Water Act to the National Water Act, 1998 and the Water Services Act, 1997, has changed the overall approach to water resource management. The new approach is termed Integrated Water Resource Management (IWRM) and it is a process that recognises mutual dependence of water and land management at local catchment level to ensure sustainability, as well as upward integration of strategic water management at scales beyond that of catchments. Cooperation between government departments and organisations is fundamental to success. This focus is more holistic than it was previously, emphasising management of entire catchments and protection of the hydrological cycle. Water is also no longer divided between private and public sectors, but is deemed to be a national resource under the trusteeship of the State for the benefit of present and future users to ensure the Constitutional right of access to sufficient water. The following change in features is important:

- Water resource now includes the entire hydrological cycle.
- State "ownership" of the water resource for the benefit of all and a change from inherent rights to an administrative system of equitable entitlements to water use based on beneficial use.

- Introduction of the concept of a Reserve that includes the requirements of the aquatic ecosystem and basic human needs.
- Change of institutional responsibility from national to regional or catchment management with associated cooperative governance and public participation.
- Receiving water quality objectives of the individual resource, assessing the assimilative capacity of individual resource, rather than merely defining national water quality standards.
- The demand management approach to water supply, rather than a supply approach, that requires public education and a change in use patterns that may reduce the need for further costly capital infrastructure.

Implementation of this approach is through two levels of strategy, namely a national water research strategy (NWRS) and catchment management strategies (CMSs, from the National Water Act, 1998) that will link to the water services development plan (WSDP, from the Water Services Act, 1997). The NWRS filters fundamental principles to each CMS, focusing on the water resource itself through resource directed measures as well as the potential pollution sources, or water users through source directed controls such as licensing and water conservation and demand management. These measures and controls are monitored to ensure compliance, effectiveness and sustainability for water conservation and protection. In turn each CMS will provide information for input into the NWRS and the national water resource information system. The WSDP, if competently completed, will provide base data for both the water services and water resources national information systems, as well as provide information on water use to link to the CMS, and ultimately the NWRS. However, the National Government policy of providing basic water services free may result in the inability of the WSA to be financially sustainable and effectively provide this function.

The institutions developed or responsible for driving this process are the catchment management agency (CMA) for the CMS and the water services authority (WSA) for the WSDP. The CMA seeks cooperation and agreement on water issues from various stakeholders and interested persons to form and manage the CMS. As a major water user the WSA should be represented on the CMA, thereby providing a link between the WSDP, CMS and NWRS. The catchment management process involves continuous improvement through a cycle of planning, implementation, operation, auditing and control, and feedback

to stakeholders. These strategies provide the foundation for the success or failure of water resource management in South Africa.

Other tools required include a demand management policy, pricing strategy, protection, licensing, disaster management policy, irrigation policy and any other factor that may impact on the water resource. Overall the approach to water resource management in South Africa is based on:

- Classification of river systems in terms of the resource system and the resource quality objectives.
- Determination of the reserve required to sustain the aquatic ecosystem and basic human needs (this includes both quality and quantity of water).
- International obligations (quality and quantity of water).
- Equitable and sustainable allocation of the remaining resource through licensing and registration bearing in mind the receiving water quality objectives.

Overall the NWRS, the CMS, and the National Water Act, 1998 still concentrate on surface water flow. However groundwater, wetlands and springs need to be included in the overall management process, and will be viewed as a whole in the strategy to maintain the class and resource quality objectives of the Reserve. The WSDP reviews all water resources used or that potentially may be used in water services. These strategies and plans are not static documents for reference only, but part of a planning process that requires review and progressive improvement and change according to the changing needs of both the resource and society. Integration with overall land use planning in the municipal IDPs is essential. Although integration and sustainability are complex issues, the National Water Act, 1998 and the Water Services Act, 1997 provide a competent framework for the link between water resources protection and water services provision. There are many issues that may hamper the progress of water resource management in South Africa, such as funding and financial capacity, human capacity, lack of CMA establishment, lack of base data for management of the resource, insufficient public participation and education, and opposition by ill-informed persons, however a change in philosophy takes time. Nevertheless, with progressive change through the cyclical process, long-term sustainability may be established. The fundamental ideas and principles behind water resource management in South Africa are sound. Success and sustainability of water resources management in South Africa is therefore dependent on cooperative governance, integration of environmental factors, public participation and education, administrative compliance and financial capacity.

References

Statutes and white papers

Constitution of the Republic of South Africa, 1996

Local Government: Municipal Structures Act, 1998

Local Government: Municipal Systems Act, 2000

National Water Act, 1998

Water Services Act, 1997

Water Research Act, 1979

White Paper on a National Water Policy, 1997

Journal papers and articles

Bronstein, V. (2002). 'Drowning in the hole of the doughnut: regulatory overbreath, discretionary licensing and the rule of law'. *SALJ*, **119**, 3, 469-483.

DWAF (1995). 'Water Management and the Law'. *Water sewage and effluent*, **15**, 1.

DWAF (1996). '16 Million South African's have no Clean Drinking Water'. *Local Government Digest*, 15, 6. 35-37.

Gleick, P.H. (1996). 'Basic water requirements for human activities: meeting basic need'. *Water International*, 21, 83-92.

Havinga, C. (1998). 'Ploughing a furrow – the case against the Water Act'. *Farmers Weekly*, 8 May.

Oakes, D. (1998). 'Who owns the water? - Part 1'. *Farmers Weekly*, 19 June. 29-29.

Oakes, D. (1998). 'National Water Bill (9)'. *Farmers Weekly*, 14 August. 30-31.

Books and other texts

DWAF (1995). *You and Your Water Rights.*

DWAF (2001a). *Monitoring the WMI.*

DWAF (2001b). *Water Services Development Plan guide for water services authorities* (draft).

DWAF (2002). *Proposed first edition National Water Research Strategy (and Summary).*

DWAF (2002-2003). *Thukela Water Project River Reach Forum and Stakeholder Reference Group Documents*. Acer Consultants.

Ferreira, J. (2003). 'Water Services Provision'. In: *The legal framework of managing water in South Africa*. Centre for Environmental Management: Potchefstroom University.

Glazewski, J. (2000). *Environmental Law in South Africa.* Butterworths: Durban. 903pp.

Gleick, P.H. (2000). *The World's Water 2000-2001: the biennial report on freshwater.* Island Press: Washington, 315pp.

Gorgens, A., Pegram, G., Uys, M., Grobicki, A., Loots, L. Tanner, A. and Bengu, R. (1998). *Guidelines for Catchment Management to achieve Integrated Water Resource Management in South Africa.* WRC Report No. KV 108/98. WRC: Pretoria. 29pp.

Milton, J.R.L. (1995). 'The history of water law 1652-1912'. In: *LAPC Water Law Legal Submissions to DWAF*. Unpublished.

Postel, S. (1984). *Water: Rethinking Management in an age of scarcity.* World Watch Paper 62: Washington. 65pp.

Singh, S. (1999). *A critical analysis of the development of water law in South Africa*. Unpublished LLM Dissertation. University of Natal: Pietermaritzburg. 61pp.

Sibilski, U. (2003). 'Management of land use activities in mining'. In: *The legal framework of managing water in South Africa*. Centre for Environmental Management: Potchefstroom University.

u*Thukela District Municipality Water Services Development Plan*, July 2003.

van der Leerden, F. (1975). *Water Resources of the World.* Water Information Centre: New York.

Van Wyk, J. (2002a). 'Management approaches'. In: *The legal framework of managing water in South Africa*. Centre for Environmental Management: Potchefstroom University.

Van Wyk, J. (2002b). 'Global and South African Water Resource Situation'. In: *The legal framework of managing water in South Africa*. Centre for Environmental Management: Potchefstroom University.

Van Wyk, J. (2002c). 'Water Related Institutions'. In: *The legal framework of managing water in South Africa*. Centre for Environmental Management: Potchefstroom University.

Van Wyk, J. (2002d). 'Water management and water use strategies'. In: *The legal framework of managing water in South Africa*. Centre for Environmental Management: Potchefstroom University.

Viljoen, P. (2002a). 'South Africa's approach to IWRM'. In: *The legal framework of managing water in South Africa*. Centre for Environmental Management: Potchefstroom University.

Viljoen, P. (2002b). 'Towards a waste discharge charge system for South Africa'. In: *The legal framework of managing water in South Africa*. Centre for Environmental Management: Potchefstroom University.

Viljoen, P. (2002c). 'A pricing strategy for water use charges'. In: *The legal framework of managing water in South Africa*. Centre for Environmental Management: Potchefstroom University.

Vos, W.J. (1978). *Principles of South African Water Law* (2nd Ed). Juta: Cape Town.

Water Law Review Panel (1996). *Fundamental principles and objectives for the new water law in South Africa*. Report to the Minister of Water Affairs and Forestry. 33pp.

Websites

Australian Water Partnership
www.gwpaustralia.org/index.html

Department of Geography, Okanagan University College:
www.geog.ouc.be.ca/physgeog/home.html

Department of Water Affairs and Forestry:
www.dwaf.gov.za
www.dwaf.gov.za/dir_ws/wsdp/statustracking

South African maps:
www.ngo.grida.no/soesa/nsoer/index.htm

Statistics South Africa, 2001 Census data:
www.statssa.org

Western Australia Water and Rivers Commission:
www.wrc.wa.gov.au

Appendix I:

Fundamental principles in water law as determined by the Water Law Review Panel (January 1996)

'1. Fundamental principles in respect of the hydrological cycle

1.1 All water forms part of the hydrological cycle.

1.2 The land-surface unit of the hydrological cycle is the catchment which may be divided into sub-catchments and is therefore the logical unit of water resource management.

1.3 Land use and human activities influence and impact upon the hydrological cycle and need to be managed together.

2. Fundamental principles in respect of aquatic ecosystems

2.1 It is necessary to sustain aquatic ecosystems which are the water resource base on which human populations are dependent.

2.2 Human populations and the results of their activities are an integral part of the environment.

2.3 The human use of water resources should not individually or cumulatively compromise the long term sustainability of aquatic ecosystems.

2.4 Aquatic ecosystems may be sustained at different levels of ecological health, depending on human decisions, to achieve a balance between development and ecosystem health.

2.5 The quantity and quality of water necessary to sustain ecosystem function and biotic integrity at the desired state of ecological health shall be termed the "ecological reserve".

2.6 The ecological reserve in respect of international rivers should include sufficient water of sufficient quality for the full reach of the river.

3. Fundamental principles in respect of the legal status of water

3.1 All water, where ever it occurs in the hydrological cycle, is a resource common to everyone, the use of which is subject to national government control. All water shall have a consistent status in law, irrespective of its volume, its capacity of common use, the purpose of use, its source or origin, the existence of original grants or subdivisions, its nature as running or stationary, its visibility or whether it occurs in a main stream, tributary, headwater or underground.

3.2 There shall be no ownership of the water but only a right to its use.

4. Fundamental principles in respect of water demand, apportionment and usage

4.1 Basic human need, to maintain a minimum standard of health, should have priority of use.

4.2 Water required for basic human need and for ecological reserve shall be termed the "Reserve".

4.3 On international rivers, sufficient water should be conserved to meet the needs of neighbouring countries in terms of international law and bi-lateral agreements, in a spirit of mutual support and good neighbourliness.

4.4 Water in excess of the Reserve is, subject to 4.5 and 4.6 below, available to be used in a reasonable and beneficial manner.

4.5 Subject to the recognition of existing rights as set out in Section 7 below, water will be allocated on the basis of efficiency of use, public interest and equity, with special preference for the development needs of poorer communities.

4.6 The location of the water resource in relation to land does not in itself confer preferential rights to usage.

4.7 There shall be a quantity of water, the use of which shall be sanctioned by general authorisation and which may very from area to area.

4.8 Water in excess of usage as determined in 4.7 above, may be allocated by the allocation authorities which have power to allocate, restrict, control or suspend rights of use in respect of any water in the public interest, subject to prevailing water rights.

4.9 Water shall be allocated so as to provide secure and predictable rights to the use of water. New water allocations should not be in perpetuity.

5. Fundamental principles in respect of water quality management

5.1 *The management of water quality should remain an integral part of overall water resources management and should therefore remain the ultimate responsibility of national government.*

5.2 *Water quality management should be effected through a consistent approach to land, air and water pollution.*

5.3 *Water quality management should ensure that water of acceptable, usable quality continues to be available to the use thereof and the relevant aquatic ecosystems.*

5.4 *Water quality management should endorse the precautionary principle. Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.*

5.5 *Water quality management should ensure that the party responsible for pollution is responsible for the consequences of that pollution.*

5.6 *Compliance records of polluters and information regarding enforcement actions brought by the authorities should be available for public scrutiny.*

6. *Fundamental principles in respect of the value of water*

6.1 *Water is a social and economic good. There is a price attached to water and a cost associated with any process that changes its quantity, quality, locality, accessibility and its dependability. Being essential for life and a necessary condition for economic development, it also has economic value. These characteristics require an integrated approach to water resources management, which focuses on social equity and economic efficiency.*

6.2 *Pricing policy in the water sector should reflect the fact that water is a scarce national resource, and that there is an opportunity cost in using it in a particular application. The price of water should therefore be guided by economic efficiency criteria, balanced by social equity considerations and taking into account national economic interests and sectoral requirements.*

6.3 *In order that water is allocated to its most economic use, it is necessary that it be transferable between users. Water law should facilitate the transfer of water use rights, subject to certain central government imposed constraints.*

6.4 *Where it is necessary to subsidise the provision of water services because of the inability of consumers to pay the full price of water, it is preferable, wherever possible, to use direct transfers to such consumers rather than subsidise the cost of water which may create distortions in the water sector.*

7. *Fundamental principles in respect of existing rights to the use of water*

7.1 *Subject to 7.2 and 7.3 below, lawful existing rights should be protected. Such rights should, in collaboration with stakeholders, be quantified and registered. A reasonable time period should be allowed for the registration and quantification of such rights and appropriate structures and procedures should be put in place for such purposes.*

7.2 *The protection of the reserve should be a priority and may, in the public interest, impinge on existing rights.*

7.3 *Anyone whose existing rights are reduced or taken away should be compensated, if such compensation is necessary to strike and equitable balance between the interests of the affected person and the public interest.*

8. *Fundamental principles in respect of management, administration and enforcement*

8.1 *The national government is the custodian of the nation's water resources, as an indivisible national asset, and has ultimate responsibility for, and authority over, water resource management, the equitable allocation and usage of water, the transfer of water between catchments and international water matters.*

8.2 *The functions of water management, administration and enforcement should be structured and performed so as to achieve the objectives of simplicity, minimum bureaucracy and minimum cost.*

8.3 *The management of water demand and the conservation of water should be a priority reflected in the law, because of the scarcity of the resource in South Africa.*

8.4 *The core objective of the water resource management function of the national government is to ensure that water is available in sufficient quantity, quality and reliability for the development and well-being of the nation.*

8.5 *Except where emergency water supply schemes are required, all water resources development should be subject to recognised integrated environmental management (IEM) procedures.*

8.6 Any land use development which will seriously affect the hydrology of a catchment should require the approval of the Minister, in conjunction with other line-function Ministers.

8.7 Within the framework of national control, local apportionment of water can best be done through local representative authorities appointed by the Minister.

8.8 There should be a right of appeal to or review by an independent tribunal in respect of any disputed decision made under the water law.

8.9 The water law should be strictly enforced in the public interest, at the appropriate national, catchment or local level. In the event of non-enforcement at catchment or local level for whatever reason, the national government may assume direct responsibility for ensuring compliance with the law.

8.10 Efficient enforcement is dependent on the speedy quantification of as yet undetermined water rights and the proper registration of all water rights, including existing rights. This should take place systematically over a short period as available finances will allow.

8.11 Provision should be made to raise sufficient funds in circumstances where control measures are introduced.

8.12 All water related works should, at the cost of the owner thereof, meet minimum safety requirements.

8.13 The building of storage dams for surface water shall not be a right vested in the owner of a right to water. The building of such dams may be authorised by way of specific approval or general authorisation.

9. Fundamental principles in respect of water supply and sanitation services

9.1 The provision of water services is separate from but related to the development and management of water resources and should be provided in a manner consistent with the principles and objectives of sound water resource management.

9.2 Subject to 9.3 below, all people have the right of access to basic water services (the provision of potable water supply and the removal and disposal of human excreta and wastewater) necessary to afford then a healthy environment on an equitable, economic and sustainable basis.

9.3 The national government is ultimately responsible to ensure that all people have at least an adequate basic supply of water, provided that supplies can be rendered in a sustainable manner and are financially and physically possible. Whilst the government may subsidise the capital costs of basic services, communities and individuals have an obligation to pay for services.

9.4 Water supply and sanitation services are the responsibility of local government or statutory local water committees, subject to national norms and standards. In the event of these local institutions not being able to perform their functions for any reason, the national government may assume direct temporary responsibility for local services.

9.5 The national government should provide an enabling environment for the engagement of the private sector in water services within a regulatory framework appropriate to monopoly services.

9.6 All aspects of water services shall be open to public scrutiny and shall be subject to periodic independent audit.'

These fifty-two Principles were subsequently summarised into a list of 18 fundamental Principles for water law that exclude the implementation approaches as follows[170]:

'Ownership of water and priority uses

A.1 In a relatively arid country such as South Africa, the unity of the water cycle linking evaporation, clouds and rainfall to underground water, river, lakes and the sea as well as the interdependence of all these elements must be recognised.

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[170] Water Law Review Panel (1996). Annotated Principles for Discussion. Addendum to Water Law Review Panel (1996) *op cit* 8.

A.2 The variable, uneven and unpredictable distribution of water in the water cycle must be acknowledged.

A.3 Because of the interdependence of elements of the water cycle and its variability, water in the cycle cannot easily be owned. It should therefore be treated as a common resource and its use regulated by the State.

A.4 The role of water as a vital component of the environment which is essential to sustain plant, animal and human life should be recognised and the quantity, quality and reliability required for this purpose, identified as "the ecological reserve", safeguarded.

A.5 The water required to meet basic subsistence needs, the needs of the environment and international obligations should be identified as "the Reserve" and its provision should enjoy priority of use.

Management objectives and approaches, the nature and handling of water rights

B.1 The objective of managing the quantity, quality and reliability of the nation's water resources is to achieve optimum social and economic benefit for the nation from their use, recognising that relative allocations may change over time.

B.2 The development, apportionment and management of water resources should be carried out in a manner which reflects the value of water to society while ensuring that basic human needs, the requirements of the environment and international obligations are met.

B.3 Water resources should be developed, apportioned and managed in such a manner as to enable all user sectors to gain equitable access to the desired quantity, quality and reliability of water insofar as this is practically possible.

B.4 Rights to the use of water should be conceded in a manner which is clear, secure and predictable and should be explicit in respect of the assurance of availability, extent and duration of use; further, the purpose for which the water may be used shall not arbitrarily be restricted. Since the value of the rights will accordingly be enhanced, beneficiaries shall contribute to the cost of the establishment and maintenance of the water rights system.

B.5 The conditions governing water rights should reflect the nature of the investment made by the user in developing infrastructure for the provision of the water or in the process in which it is used.

B.6 Lawful existing rights should be protected, subject to the public interest requirement to provide the Reserve. Where existing rights are reduced or taken away, compensation is necessary to strike an equitable balance between the interests of the affected person and the public interest.

B.7 Responsibility for the development, apportionment and management of available water resources in a region should, where possible, be delegated to a local or regional level to allow interested parties to participate and reach consensus.

B.8 Because the quality of water is inextricably linked to the quantity available, the management of water quality should be carried out integrally with the management of water quantity but approaches to water quality management should be consistent with broader environmental management approaches.

B.9 Since many land uses have a significant impact upon the water cycle, the regulation of land use should be used as an instrument to manage water resources where appropriate.

B.10 International water resources, specifically, shared river systems, should be managed in a manner that will optimise the benefits for all parties in a spirit of mutual cooperation.

Right to basic services

C.1 The right of all citizens to have access to basic water services (the provision of potable water supply and the removal and disposal or human excreta and waste water) necessary to afford them a healthy environment on an equitable and sustainable basis should be supported.

C.2 While the provision of water services is an activity distinct from the development and management of water resources, water services should be provided in a manner consistent with the goals of water resource management.

C.3 Where water services are provided in a monopoly situation, the interests of the individual consumer and the wider public must be protected and the broad goals of public policy promoted.'

Appendix II:

The 28 Principles and Objectives used to draft the White Paper on a National Water Policy for South Africa, 1997

'Legal aspects of water

Principle 1 *The water law shall be subject to and consistent with the Constitution in all matters including the determination of the public interest and the rights and obligations of all parties, public and private, with regards to water. While taking cognisance of existing uses, the water law will actively promote the values enshrined in the Bill of Rights.*

Principle 2 *All water, wherever it occurs in the water cycle, is a resource common to all, the use of which shall be subject to national control. All water shall have a consistent status in law, irrespective of where it occurs.*

Principle 3 *There shall be no ownership of water but only a right (for environmental and basic human needs) or an authorisation for its use. Any authorisation to use water in terms of the water law shall not be in perpetuity.*

Principle 4 *The location of the water resource in relation to land shall not in itself confer preferential rights to usage. The riparian principle shall not apply.*

The water cycle

Principle 5 *In a relatively arid country such as South Africa, it is necessary to recognise the unity of the water cycle and the interdependence of its elements, where evaporation, clouds and rainfall are linked to groundwater, rivers, lakes, wetlands and the sea, and where the basic hydrological unit is the catchment.*

Principle 6 *The variable, uneven and unpredictable distribution of water in the water cycle should be acknowledged.*

Water resource management priorities

Principle 7 *The objective of managing the quantity, quality and reliability of the Nation's water resources is to achieve optimum, long-term, environmentally sustainable social and economic benefit for society from their use.*

Principle 8 *The water required to ensure that all people have access to sufficient water shall be reserved.*

Principle 9 *The quantity, quality and reliability of water required to maintain the ecological functions on which humans depend shall be reserved so that the human use of water does not individually or cumulatively compromise the long-term sustainability of aquatic and associated ecosystems.*

Principle 10 *The water required to meet the basic human needs referred to in Principle 8 and the needs of the environment shall be identified as "The Reserve" and shall enjoy priority of use by right. The use of water for all other purposes shall be subject to authorisation.*

Principle 11 *International water resources, specifically shared river systems, shall be managed in a manner that optimises the benefits for all parties in a spirit of mutual cooperation. Allocations agreed for downstream countries shall be respected.*

Water resources management approaches

Principle 12 *The National Government is custodian of the Nation's water resources, as an indivisible national asset. Guided by its duty to promote the public trust, the National Government has ultimate responsibility for, and authority over, water resource management, the equitable allocation and usage of water and the transfer of water between catchments and international water matters.*

Principle 13 *As custodian of the Nation's water resources, the National Government shall ensure the development, apportionment, management and use of those resources is carried out using*

criteria of public interest, sustainability, equity and efficiency of use in a manner which reflects its public trust obligations and the value of water to society while ensuring that basic domestic needs, the requirements of the environment and international obligations are met.

Principle 14 *Water resources shall be developed, apportioned and managed in such a manner as to enable all user sectors to gain equitable access to the desired quantity, quality and reliability of water. Conservation and other measures to manage demand shall be actively promoted as a preferred option to achieve these objectives.*

Principle 15 *Water quality and quantity are interdependent and shall be managed in an integrated manner, which is consistent with broader environmental management approaches.*

Principle 16 *Water quality management options shall include the use of economic incentives and penalties to reduce pollution; and the possibility of irretrievable environmental degradation as a result of pollution shall be prevented.*

Principle 17 *Water resource development and supply activities shall be managed in a manner which is consistent with the broader national approaches to environmental management.*

Principle 18 *Since many land uses have a significant impact upon the water cycle, the regulation of land use shall, where appropriate, be used as an instrument to manage water resources within the broader integrated framework of land use management.*

Principle 19 *Any authorisation to use water shall be given in a timely fashion and in a manner which is clear, secure and predictable in respect of the assurance of availability, extent and duration of use. The purpose for which the water may be used shall not arbitrarily be restricted.*

Principle 20 *The conditions upon which authorisation is granted to use water shall take into consideration the investment made by the user in developing infrastructure to be able to use the water.*

Principle 21 *The development and management of water resources shall be carried out in a manner which limits to an acceptable minimum the danger to life and property due to natural or manmade disasters.*

Water institutions

Principle 22 *The institutional framework for water management shall as far as possible be simple, pragmatic and understandable. It shall be self-driven and minimise the necessity for State intervention. Administrative decisions shall be subject to appeal.*

Principle 23 *Responsibility for the development, apportionment and management of available water resources shall, where possible and appropriate, be delegated to a catchment or regional level in such a manner as to enable interested parties to participate.*

Principle 24 *Beneficiaries of the water management system shall contribute to the cost of its establishment and maintenance on an equitable basis.*

Water services

Principle 25 *The right of all citizens to have access to basic water services (the provision of potable water supply and the removal and disposal or human excreta and waste water) necessary to afford them a healthy environment on an equitable and economically and environmentally sustainable basis shall be supported.*

Principle 26 *Water services shall be regulated in a manner which is consistent with and supportive of the aims and approaches of the broader local government framework.*

Principle 27 *While the provision of water services is an activity distinct from the development and management of water resources, water services shall be provided in a manner consistent with the goals of water resource management.*

Principle 28 *Where water services are provided in a monopoly situation, the interests of the individual consumer and the wider public must be protected and the broad goals of public policy promoted.'*