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GENERAL NOTICE

NOTICE 1045 OF 2005

PREFACE TO THE PROPOSED

PRICING STRATEGY

FOR RAW WATER

The Pricing Strategy for raw water was first published in November 1999. Since then there has been a need to update the strategy to take into account:

- The introduction of the Waste Discharge Charge System.
- The treatment of commercial water projects financed by non-governmental funding.
- The alignment of the Water Pricing Strategy to the requirements of the Municipal Finance Management Act 56 of 2003.

The attached revised proposed Pricing Strategy is herewith gazetted for public comment in terms of Section 56(7) of the National Water Act 1998, which requires that before setting a Pricing Strategy for water use charges the Minister must-

a) publish a notice in the Gazette-
   i. setting out the proposed pricing strategy: and
   ii. inviting written comments to be submitted on the proposed strategy, specifying an address to which and a date before which the comments are to be submitted, which date may not be earlier than 90 days after publication of the notice.

In compliance with the above requirement, the public is invited to comment in written on the attached pricing strategy. Written comments must be forwarded to:

Department of Water Affairs and Forestry
Private Bag X313
Pretoria
0001
Attention: Ms Nisha Rooplall (Sedibeng 363)
e-mail: gae@dwaf.gov.za

As required by the National Water Act No. 36, 1998, a period of 90 days will be allowed for written comments.

The closing date for comments is 30 September 2005.

DEPARTMENT OF WATER AFFAIRS AND FORESTRY

NATIONAL WATER ACT (ACT No. 36 OF 1998)

ESTABLISHMENT OF A PRICING STRATEGY FOR WATER USE CHARGES IN TERMS OF SECTION 56(1) OF THE NATIONAL WATER ACT, 1998

I, Buyelwa Patience Sonjica, MP, Minister of Water Affairs and Forestry, with the concurrence of the Minister of Finance, hereby in terms of section 56(1) of the National Water Act (Act No. 36 of 1998), establish a pricing strategy for raw water use, as contained in the schedule hereto.

SCHEDULE

A PRICING STRATEGY FOR RAW WATER USE CHARGES

PREFACE

The National Water Act, 1998 (Act no. 36 of 1998), gives power to the Minister with the concurrency of the Ministry of Finance, from time to time by notice in the Gazette to establish a pricing strategy for charges for any water use within the framework of existing relevant government policy.

The previous pricing strategy was published in November 1999 and since its publication there have been various developments that necessitate this review which include:-

- The implementation of the Municipal Finance Management Act
- Further developments to the Departmental computer system for charge administration
- The incorporation of the Waste Discharge Charging System
- Requests from stakeholders for a review of the strategy
- Capital projects funded by private sector funding

The Pricing Strategy in addition to the above must also consider the development of Catchment Management Agencies which will have a significant bearing on the way water resources are managed and protected.

This document sets the strategy for implementing water management practices according to the user pays and polluter pays principles and is the result of a process of consultation as required by the Act. Interested parties contributed to the final form of this document through their comments, which were considered and, where acceptable, incorporated into the strategy.

The measures adopted I believe have resulted in a document that takes into consideration the diverse and sometimes competing interest of various sectors while at the same time promoting efficiency and redressing the imbalance in access to water as a result of past laws.

Buyelwa Patience Sonjica, MP
Minister of Water Affairs and Forestry

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ABBREVIATIONS

CMA	=	Catchment Management Agencies
CUC	=	Capital Unit Charge
DWAF	=	Department of Water Affairs and Forestry
IAP	=	Invasive Alien Plant
NWA	=	National Water Act, 1998 (Act 36 or 1998)
NWRS	=	National Water Resource Strategy
O&M	=	Operations and Maintenance
PPI	=	Producer Price Index
ROA	=	Return on Asset
RQO	=	Resource Quality Objective
SFRA	=	Stream Flow Reduction Activities
TCTA	=	Trans Caledon Tunnel Authority
WARMS	=	Water Use Authorisation & Registration Managemen System
WDCS	=	Waste Discharge Charge System
WMA	=	Water Management Area
WRC	=	Water Research Commission
WRM	=	Water Resource Management
WSDP	=	Water Services Development Plan
WUA	=	Water User Associations

1 INTRODUCTION

This document is the first revision and extension of the Pricing Strategy for raw water use charges which was published in the Government Gazette No. 1353 of 12 November 1999.

This strategy refers to pricing for the use of water from South Africa's water resources and not to the pricing of water services, which is dealt with separately under the Water Services Act, 1997. In other words, the approach deals with first tier water, i.e. the use of raw (untreated) water from the water resource. It does not deal directly with second and third tier water, i.e. water supplied in bulk (often by water boards) and distributed to households (usually via a water services authority), except for water supplied from government water schemes. The strategy deals with all first tier water as reflected in the use of ground and surface water resources and covers the setting of prices by DWAF as well as by water management institutions as defined in the NWA.

2 LEGAL MANDATE TO THE PRICING STRATEGY

In terms of Section 56 of the NWA, the Minister may, with the concurrence of the Ministry of Finance, from time to time by notice in the Government Gazette, establish a pricing strategy for charges for any water use within the framework of existing relevant government policy.

The Pricing Strategy contains the objectives, methodology and implementation strategy for setting water use charges for purposes of-

- funding water resource management by DWAF and water management institutions, through water use charges, Section 56 (2) (a).
- funding water resource development and use of waterworks by DWAF and water management institutions, Section 56 (2) (b).
- achieving the equitable and efficient allocation of water, through a charge hereafter referred to as the "economic charge", section 56 (2) (c).
- providing for a differential rate for waste discharges, hereafter referred to as the WDCS, Section 56 (5).

3 THE OBJECTIVES THAT SHAPE THE PRICING STRATEGY

The following objectives are of principal importance when formulating or amending the pricing strategy:

- Social equity

  The Pricing Strategy for water use charges coupled to the granting of financial assistance will contribute to social equity and redress of the imbalances of the past, both with respect to equitable access to water supply services and *direct* access to raw water.

- Ecological sustainability

  In terms of Chapter 3 of the NWA, the water needs for the effective functioning of aquatic ecosystems must be protected. The water required for the ecological reserve must be safeguarded and the cost of managing the Reserve must be paid for by all registered and billable users in terms of Section 56(2) (a) (iv) of the NWA. To promote the preservation of resource quality, the polluter pays principle for waste discharge will be adopted into this pricing strategy.

- Financial sustainability

  In order to ensure financial sustainability adequate revenue must be generated to fund the annual cost related to:
  - the management of the country's water resources.
  - the operations, maintenance and refurbishment of existing Government water schemes.
  - the development of augmentation schemes.

The financial framework makes accommodation for the financial autonomy of CMAs. As stated in the previous Pricing Strategy, the full financial cost of water resource management and supplying water should be recovered from water users, including the cost of capital. While is important to keep water prices as low as possible, DWAF has to ensure that water is priced at levels consistent with efficient and effective delivery of services. This approach may be phased in by taking account of constraints of various sectors to adapt quickly to price increases.

- Economic efficiency

In the context of water scarcity, ensuring an efficient allocation of scarce water resources requires that the price of water is set to reflect its scarcity value, to ensure firstly that water is conserved and secondly that some water used for low-value purposes is redirected to alternative high value purposes. This can be done administratively or by using market related mechanisms. It is also critical to ensure that the water resource management systems implemented are cost effective and do not become an unnecessary financial burden on the water users.

4 CLAIMS ON WATER NOT SUBJECT TO PRICING

- Permissible water use as described under Schedule 1 of the NWA. This represents, inter alia, reasonable use for domestic, small (non-commercial) gardening, stock watering and waste discharge purposes, where individuals have lawful access to any water resource or sewerage system. It also includes emergency use during fires.
- Basic human needs. This represents the first component of the Reserve as defined in Section 1 of the Act, and provides for the essential current and future (10 years horizon) needs of individuals served by water resources concerned and includes water for dinking, food preparation and personal hygiene defined as 25 litres per capita per day. The Schedule 1 use contains a basic human needs component for certain individuals who access the water resources directly.

- Ecological sustainability. This represents the second component of the Reserve and refers to water (quantity and quality) required to protect the aquatic ecosystems of the water resources and ensure their sustainability.
- International obligations. The water required to meet South Africa's commitments regarding international waters will receive priority and will not be allocated for pricing purposes, except where specific agreements have been reached concerning the supply of water to neighbouring countries.

The water that is available after the above claims have been met can be allocated and can include water imported from other water management areas by means of inter-basin transfer schemes. This water use will be classified as productive use of water and is subject to pricing in terms of this strategy.

5 DEFINITIONS OF WATER USE

Section 56 of the NWA instructs the Minister to establish a Pricing Strategy for charges for any water use described in Section 21:

(a) taking water from a water resource;
(b) storing water
(c) impeding or diverting the flow in a watercourse;
(d) engaging in stream flow reduction activity;
(e) engaging in controlled activity which has a detrimental impact on water resources;
(f) discharging waste or water containing waste into a water resource;
(g) disposing of waste in a manner which may detrimentally impact on a water resource;
(h) disposing of water which contains waste from any industrial or power generation process;
(i) altering the bed, banks, course or characteristics of a watercourse;
(j) removing, discharging or disposing of water found underground for continuation of an activity;
(k) using water for recreational purposes.

The above mentioned water uses can be broadly grouped under three categories in the NWA:

Abstraction related uses
- Section 21 (a), Section 21 (b) and Section 21 (d)

Waste discharge related uses
- Section 21 (e), Section 21 (f), Section 21 (g), Section 21 (h) and Section 21 (j)

Non-consumptive uses
- Section 21 (c), Section 21 (e), Section 21 (i), Section 21 (j) and Section 21 (k)

The pricing strategy prioritises uses of water stated above, and over time will charge for most defined water use after consultations with stakeholders. Strategies are already in place and under review for abstraction related uses. With the implementation of the waste discharge charge system, most of the above-mentioned consumptive use will be charged for. A strategy is also being developed for section 21 (k), recreational use and will form the subject of a separate publication.

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6 FUNDING OF WATER RESOURCE MANAGEMENT

Water Resource Management expenditure relates to those activities that are required to protect, use, conserve, manage and control the water resources and manage water quality located within Water Management Areas (WMA). These costs do not relate only to water subject to pricing, but to the management of all water within a water management area. These costs could include but are not limited to the following activities:-

- Planning and implementing catchment management strategies.
- Monitoring and assessing water resource availability and use.
- Water use allocations.
- Water quantity management, including flood and drought management, water distribution, control over abstraction, storage and stream flow reduction activities.
- Water resource protection, resource quality management and water pollution control.
- Water conservation and demand management.
- Institutional development and enabling the public to participate in water resources management decision making.

A more detailed description including a split between abstraction and waste discharge activities is provided later in this document.

Initially water resource management will continue to be the task of DWAF. However, the NWA clearly states that the intention is to create CMAs (the first of which has been established) to whom DWAF will delegate or assign significant water resource management functions (The activities of the CMAs will be funded from the water resource management charges). In WMAs where CMAs do not exist, DWAF will function as the CMAs until they are established. Regional offices will undertake WRM functions in WMAs where not all functions have been delegated to CMAs due to a lack of capacity. In WMAs where both DWAF and CMAs are performing WRM functions, income will be shared pro-rata to input cost and this split will be reflected in all sectoral charges.

6.1 Budgeting of activity costs

DWAF/CMAs will annually budget for the estimated costs of activities to be performed by them in each WMA. The WRM functions that may be relevant are shown in the schedule hereunder. The division of functions between abstraction and waste discharge related uses will be done in accordance with the schedule hereunder. The water resource management charge for abstraction related water uses will be based on the budget for abstraction activities and integrated functions. The cost of waste discharge activities and integrated functions will be used for setting the waste discharge component of the WRM charge.

The costs of certain functions may be entirely allocated to either abstraction or waste discharge related uses as indicated, while there are other functions that are inherently integrated in nature. The costs of integrated functions need to be allocated between abstraction and waste discharge related use in a transparent manner reflecting the management effort incurred in the WMA. Allocation of the costs of integrated functions between waste discharge and abstraction will therefore be according to the management effort (resources) being allocated to abstraction related uses versus management effort allocated to waste discharge related water uses within the WMA.

Water to be imported via an inter-basin transfer scheme will reduce the potential for generating funds in the donor WMA through water use charges and increase the potential in the receiver area. This loss in income in the donor WMA must be funded by water use charges raised in the receiver WMA. The receiver CMA must reimburse a fixed portion of the WRM budget of the donor CMA, based on the yield transferred calculated as a fraction of the total available yield at 98% assurance of supply, in accordance with the NWRS.

If the receiver WMA is still managed by DWAF and the donor WMA is taken over by a CMA, then DWAF needs to pay the CMA. If both the receiver and the donor WMA are still managed by DWAF, then DWAF will ring fence the transfer payment and spend this amount in the donor catchment.

Where the quality of streamflow from an upstream WMA to a downstream WMA imposes an additional water quality management cost on the downstream WMA, this additional cost needs to be funded by WRM charges on waste discharges in the upstream WMA. The upstream CMA must reimburse a fixed portion of the WRM budget of the downstream CMA (related to the additional water quality management cost), based on the discharge load in the upstream WMA as a ratio of the total discharge load in the downstream WMA.

6.2 Water resource management activities that could be taken into account for charge setting

No.	Function / Activities	Abstraction activities	Waste discharge activities
1	Catchment management strategy	• Resource studies, investigations and integrated strategy development	
		• Allocation plans	• Water quality management plan
2	Resource directed measures	• Reserve determination, Classification & Resource quality objectives.	
3	Water use authorisation	• Registration and verification of water use	
		• Abstraction & stream flow reduction activities licensing • Dam safety	• Waste discharge & marine outfall licensing
4	Control and enforcement of water use	• Abstraction & stream flow reduction activities control & monitoring	• Waste discharge and marine outfall control & compliance monitoring
5	Disaster management	• Flood & drought management • Dam safety control	• Pollution incident planning and response (management)
6	Water resources management programmes	• Integrated programmes	
		• Abstraction programmes [e.g. water conservation & demand management]	• waste discharge programmes [e.g. cleaner technology, dense settlements, waste discharge strategies]
7	Institutional development	• Stakeholder participation, empowerment, institutional development & coordination of	

No.	Function/ Activities	Abstraction activities	Waste discharge activities
		ities	
8	Water	E.g. hyacinth	
9	ial b i li Plant (IAP)	Control of invasive alien plants with acknowledged negative impacts on water resources; e.g. riparian zones, mountain catchment areas, wetlands and in areas where there could be an impact on aquifers.	
10	Geohydrology and hydrology	• Monitoring groundwater yields & compiling of maps and yield information • Extending and maintaining the hydrological database	
11	Administration & Overheads	Admin & overheads for regional office or CMA	

6.3 Determination of sectoral water resource management (WRM) charges per WMA for abstraction related water uses

6.3.1 Water use sectors

The user sectors for which unit sectoral water resource management charges will be calculated are:

- Domestic/industrial (water services authorities, industrial, mining, energy)
- Agriculture (irrigation and intensive stock watering)
- Stream flow reduction (commercial forestry at this stage, other sectors may be added)

6.3.2 Assurance of water availability

Water for productive use is available or is abstracted at different assurances and this must be reflected in the price paid for water resource management services. Assurance of availability is taken into account by registering the estimated long term average annual volumetric use of the various users. This determination must take into account the historic availability of water through rainfall, run-off and storage characteristics in respect of individual water users and the imposition of water restrictions during droughts. The estimated long term average water use will be based on water allocations qualifying as existing lawful use.

6.3.3 Determination of annual sectoral use volumes per WMA for pricing purposes

The registered water use of the various sectors will reflect volumes as determined by using the following methodologies for the water uses as defined.

Section 21 (a) use Domestic/Industrial	- Water allocations as reflected on a lawful permit, genera1 authorisation or licence and/or verified as existing lawful use, and amended for assurance of supply.
Irrigation	- The SAPWAT programme developed by the Water Research Commission or other methods as approved by the Department to determine average annual irrigated water use. Irrigation quotas, amended for assurance of supply, will be registered on waterworks owned by water management institutions.
Section 21 (b) use	- Where storage dams are built not for productive use, but only to enhance the real estate value of a property and the dam derives water from a watercourse having an assured low flow, or is fed by a stream controlled by DWAF or a water management institution, the initial filling, in the case of a new dam and the annual refilling, in the case of an existing dam, will determine the annual volume used consumptively. The registered volume subject to pricing will be based on the estimated net annual evaporation losses from the full supply surface area of the dam under average climatic and rainfall conditions. Section 21 (b) use will be classified as domestic/industrial and charged for under this sector
Section 21 (d) use SFRA (Forestry)	- Modified tables based on the WRC Report No TT 173/02 (April 2002): Estimation of streamflow reductions resulting from commercial afforestation in South Africa [MB Gush, DF Scott, GPW Jewitt, RE Schulze, TG Lumsden, LA Hallowes and AMM Gorgens] or other methods as approved by DWAF to determine average annual use.

The total volume of registered water use per WMA as captured by WARMS must be compared with the total allocable yield of resources within the WMA, in terms of the NWRS or the most recent determination. This volume must exclude the quantities set aside for the Reserve, international obligations and for existing transfer to other WMAs.

Where water in a WMA is fully utilised or over-allocated (registered use exceeds allocable water) the volume of registered sectoral water use will determine charges. In an under utilised WMA the volume of allocable water will determine charges. The estimated allocable sectoral use volumes will then be determined by applying the ratio of volumes registered by each sector to the allocable yield.

6.3.4 Cost Allocations to Sectors

Abstraction related water resource management activity costs must be allocated to sectors in proportion to volumetric mean annual sectoral use as registered, which reflects assurance of supply. Cost allocation will thus take assurance of supply into account, and differentiate between activities, as the cost of certain activities will only benefit some sectors and therefore will not be allocated to all user sectors. Cost allocations for abstraction related uses will be determined as follows:-

- Domestic/Industrial - This sector will attract all abstraction related activity costs pro rata to its share of total productive use in the water management area. The basic human needs requirement will be subsidised through the equitable share grants.
- Agriculture - This sector will attract all abstraction related activity costs pro rata to productive use.
- **Stream flow reduction activities - Afforestation will attract all abstraction** related activity costs, pro rata to productive use, except for dam safety control.

The activity input cost regarding an inter WMA transfer will be allocated only to those sectors that benefit directly through water allocations in the receiver WMA.

6.35 Geohydrology and Hydrology

The main charge under the above mentioned water resource management activity is for monitoring and is broken down into:-

- **Operational Purpose - This type of monitoring is necessary for efficient water** resources management and for water use billing.
- **National Network - The national network is designed to effectively monitor the country's water resources. DWAF** head office and regional office currently make the largest financial contribution towards identifying the need for new monitoring and continuation of monitoring at existing gauging points. Data and information gained at existing and new sites may be of direct benefit to a specific region or water management area. In these cases it is reasonable to charge a specific region or water scheme for this type of monitoring.
- **Compliance Monitoring** - Reserve determinations are being made and will be made in future. It is necessary to monitor the availability of the reserve on an ongoing basis. The existing network will be utilised for the purpose of reserve monitoring. Where this is not possible, and new monitoring points are needed, the beneficiary region or scheme will fund this function since it is part of effective water resources management.

It should be noted that the need for monitoring, as captured in the priority list for new gauging stations, stems from wide consultation which identified these requirements for purposes of planning, operation, resource quality management, surface and groundwater monitoring, flood and drought management. Charges for the above will only be applied to uses if the monitoring is specific to a particular water management area or a specific water scheme.

6.3.6 Water resource management charges

Unit sectoral water resource management charges for each water management area will be determined by dividing the total recoverable costs, per activity, by the registered or total

estimated allocable annual volume in an under utilised WMA for the sectors attracting the relevant activity cost. The resultant unit cost of activity will then be applied to each sector based on their relevant volumes, to arrive at a charge per activity. If an activity is not applicable for a specific sector, there will not be a charge for that sector and the cost of that activity must be divided by the volume of the remaining sector(s).

Unless other arrangements are approved by the DWAF/CMA the charges will result in a fixed payment which will be invoiced on a six monthly basis for the irrigation and stream flow reduction sectors and on a monthly basis for the other sectors. Maximum (capping) values could be determined on the basis of historical, socio-economic and other considerations. Reimbursement of inter WMA transfer payments will be done on a monthly basis in equal instalments.

It must be noted that if water use charges are too low they will lead to non-viable institutions, sub-optimal water resources services and overall deterioration of the water resources. There is therefore a need to adjust to higher real prices over time to accommodate the cost of effective and financially sustainable water management institutions.

6.4 Determination of sectoral water resource management (WRM) charges per WMA for waste discharge related water use

6.4.1 Water use sectors

The sectors for which waste discharge related water resource management charges will be calculated are similar to the sectors for the abstraction related charges, namely municipal (domestic), industrial, mining, energy and agriculture (excluding streamflow reduction activities). However, in calculating this charge, a distinction must be made between:

- Point source discharges directly to surface water resources
- Discharge to land based facilities (with potential non-point source impacts), such as irrigated effluent, tailings dams and evaporation ponds
- Point source discharges to the marine environment (marine outfalls)

6.4.2 Determination of annual waste loads per WMA for pricing purposes

Waste is defined in terms of Section 1 (1)(xxiii) of the NWA. The calculation of charges will be based on the registered discharge waste load of salinity and phosphorus, as representing the two most widespread water quality problems in South Africa, based on the following:

- Salt load will be estimated using electrical conductivity.
- Phosphorus (as the limiting nutrient for freshwater eutrophication) will be estimated using soluble phosphorus (phosphate).

The following methodology will be used to calculate waste loads for the following categories of waste discharge related water uses as defined

Section 21 (f) use -Discharged salt and phosphorus waste loads calculated as the average discharge concentration times the discharge volume as

reflected on a lawful permit or licence, general authorisation and/or verified as existing lawful use.

Marine outfall - Disposed salt and phosphorus waste loads calculated as the average concentration times the volume of water as reflected on a lawful permit or licence and/or verified as existing lawful use.

Section 21(g) use - Disposed salt and phosphorus waste loads calculated as the average concentration times the volume of water as reflected on a lawful permit or licence and/or verified as existing lawful use.

Section 21(e) use
Irrigated effluent [S37(1)a] - Irrigated salt and phosphorus loads calculated as the average concentration times the volume of irrigated water as reflected on a lawful permit or licence and/or verified as existing lawful use.

The point source salt and phosphorus waste loads in a WMA will be calculated from the registered discharge load in terms of Section 21(f). This will be distinguished from the total phosphorus waste load through marine outfalls [under S21(f)] and the total salt and phosphorus waste loads disposed to facilities [S21(g)] on land [S21(e)]

6.4.3 Cost allocations to sectors

The budgeted water resources management activity costs allocated to waste discharge related water use will be allocated to the water use categories according to the ratio of management effort applied in the WMA. Certain activities will only benefit or be related to specific water use categories and therefore will only be allocated to those categories. No differentiation will be made between sectors within a water use category. Cost allocations will be based on:-

- Point source discharges - Management effort for point dischargers, attracting all waste discharge related activity costs.
- Marine outfalls - Management effort for marine outfalls, attracting waste discharge activity costs except water resources monitoring, resource directed measures and water weed control.
- Waste disposal to facilities / land - Management effort for waste disposal to land, attracting all waste discharge related activity costs.
- Irrigated effluent - Management effort for irrigated effluent, attracting all waste discharge related activity costs.

The additional water quality management cost related to discharge load into a downstream WMA will be allocated to the waste discharge water use categories, except marine outfalls, based on the same management effort ratios.

6.4.4 Water resource management charges (Waste Discharge)

Waste discharge related water resource management charges for each water use category in each water management area will be determined by dividing the total cost allocated to each category by the total registered waste load of salt and/or phosphate for the water use category. The cost allocation to be recovered through charges on salinity and/or phosphorus loads will be based on the relative management effort associated with these two water quality problems within the WMA. In some WMA, this implies only salinity or

phosphorus discharge loads would be used to collect charges, while in other WMA the salinity and phosphorus loads would be weighted.

The charges will result in a fixed payment which will be invoiced on a monthly or six monthly basis, according to the abstraction related invoicing cycle.

6.4.5 Implementation of the charge

It is intended to implement the WRM charge on waste discharge in the 2007/08 financial year. This will require registration and validation of licensed, generally authorised and existing lawful waste discharge as soon as is reasonably feasible.

6.5 Other funding arrangements and limitations

6.5.1 SFRA (Forestry) **Cap**

WRM charges to the forestry sector are capped at R10 per hectare plus PPI rate (%) at June of each year with 2002-03 financial year as the base year.

6.5.2 Irrigation **Cap**

Water Resource Management charges to the **irrigation sector are capped at 1.5 cent per m³** plus PPI rate (%) at June of each year **with 2006-07 as base year.**

6.5.3 Phasing in of WRM charges

WRM charges for resource poor farmers and small forest growers will be phased in over five years through fiscal subsidy of amounts not recovered from the beneficiaries.

A differentiated subsidy policy will be applied to determine annual costs to be recovered from resource poor farmers and forest growers. A table providing details of the subsidy is **provided in a later chapter of this document.** The subsidy comes into **effect** on the date of **registration of water use by individual resource poor farmer.**

6.5.4 WRM functions undertaken by Water Boards, **CMAs and WUAs** on behalf of **DWAF**

In instances where Water Boards, CMAs, WUAs or local government perform water management functions on behalf of DWAF, an appropriate agency and compensation agreement will be drawn up between DWAF and the relevant Water Board, CMA, WUA or local government.

6.5.5 CMA as **a** DWAF agent for National Functions

A CMA may be contracted as a special project / programme (or even delegated) by DWAF to perform certain national functions, which DWAF would normally fund **through** parliamentary appropriation. A service or management **fee** will be payable by DWAF to the CMA **as** a condition of this contract or delegation. **Functions** that may be dealt with in **this** manner may include:

- National water resource monitoring (if this is not done by another institution)
- DWAF water resource management programmes or projects, where the CMA acts as an implementing agent on behalf of DWAF, possibly including compulsory licensing and classification.
- National developmental and/or empowerment programmes and projects where the CMA acts as an implementing agent for DWAF.

6.5.6 Other possible CMA sources of Income

In addition to water use charges and possible financial support from parliamentary appropriation, there are a range of other lawful income sources that the CMA may consider.

- Recreational concessions - Once the concession process for recreational water use has been established, the CMA may become responsible for implementing, administering or overseeing some of these concessions.
- Licence application fees - The CMA should receive a major portion of the license application fee as soon as it is performing licensing functions, and ultimately should receive the entire fee once it is the responsible authority.
- Donor support and sponsorship - A CMA may fund its activities through any lawful source in addition to water user charges and parliamentary appropriations, which may include donor support or sponsorship. However, transparency must be maintained, as actual or perceived conflict of interest must be avoided. This should include constraints over the types of functions that may be supported, particularly from bodies with a vested interest in the WMA. All sponsorship and donor contributions in excess of R350 must get prior approval from the Minister of Water Affairs and Forestry.
- Contractual payments - The CMA may perform ancillary functions outside of its WMA, as well as non-water resource management activities that are related (incidental) to its functions or mandate, as long as this does not jeopardise its functions or detrimentally affect another water management institution.
- In-kind contributions - Although in-kind contributions are not explicitly income, they would reduce the expenditure and required income of the CMA. They are most relevant for institutional development and stakeholder participation related functions, but may include other bodies involved in monitoring and other water resource management activities coordinated by the CMA. All in kind contributions in excess of R350 must be reported to the Minister of Water Affairs and Forestry for prior approval.

6.5.7 Clearing of Invasive Alien Plants (IAPs)

The cost of control of certain IAP's may be charged to affected water users. In this regard the Regional Office or future CMA, in consultation with affected stakeholders, will recommend whether the control of IAPs in a particular catchment is necessary for water security and, from the range of options available, a cost effective action to increase long term water security and availability. Once agreement is reached on the method of controlling IAPs, and before going ahead with clearing, the cost of control must be communicated to all affected stakeholder organisations. These costs may be supported by subsidy where available and appropriate.

The agreed upon cost of control will then be allocated to all water user sectors in proportion to their registered abstraction related water use.

In the event of consensus not been reached amongst water user sectors, Regional Offices or CMAs will go ahead with clearing in co-operation with those sectors who have agreed to participate in the clearing process. The resultant additional water after taking the ecological reserve and reducing over allocation into account may be allocated to sectors that financially participated in the clearing project

7 FUNDING OF WATER RESOURCE DEVELOPMENT AND USE OF WATERWORKS

Water resource development and use of waterworks refer to the planning, design, development, operation, maintenance, refurbishment and betterment (improvement) of Government water schemes and schemes to be funded by water management institutions like the TCTA and WUAs. If water use charges are too low, they will lead to underinvestment, over-consumption and unwarranted fiscal subsidies. There is therefore a need to adjust to higher real prices over time to accommodate the cost of investing in supply capacity to meet rising demand and to refurbish existing infrastructure.

7.1 Government Waterworks

In terms of section 56 (2)(b) of the National Water Act, 1998, water resource development costs could include the related costs of investigation, planning design and construction of water schemes, which constitute the capital cost of projects. This revised pricing strategy utilises the depreciation, return on assets (ROA), betterments, refurbishment and off-budget funding approach for setting charges to recover capital cost in respect of schemes owned by Government. In recent times, given the budgetary constraints from National Treasury on large-scale water resource infrastructure development, the mechanism of off-budget funding of commercially viable new water infrastructure by Funding and Implementing agents such as TCTA, has become accepted practice. The funding of these infrastructure developments requires loans, which naturally have certain repayment periods associated with them during which bulk water users must pay charges as per contractual agreement. State funding will in future be confined mostly to social, water resource development or betterment projects which conform to the purpose set out in section 2 of the NWA, 1998 and where the demand is not driven by specific commercial water users or sectors. Capital expenditure related to the promoting of equitable access to water, meeting international obligations and dam safety betterments on State owned dams will qualify for State funding. New infrastructure development may have a social as well as a commercial component in which case State funding and related charges will apply on the social component, while loan funding and related charges will apply on the commercial component.

There may be instances when the state will develop water infrastructure in the expectation of promoting economic development In these instances social users will be charged in terms of on-budget governmental funding, while a rate equivalent for off-budget funding will be negotiated with economic users. The classification of a project will be at the sole discretion of the Minister of Water Affairs and Forestry.

The table below shows the charges that will apply for schemes funded under different circumstances.

CHARGES TO BE LEVIED	EXISTING SCHEMES.	NEW SCHEMES		
	Historically funded by Exchequer or where off-budget debt has been repaid	Fully or partially funded by Government	Initially funded by Government and recouped from end users	Off-budget funding applied fully or partially
Operation and Maintenance	✓ (see 7.1.1)	✓ (see 7.1.1)	✓ (see 7.1.1)	✓ (see 7.1.1)
Depreciation (Refurbishment)	✓ (see 7.1.2)	✓ (see 7.1.2)	x	✓ (see 7.1.2)
Return on Asset	✓ (see 7.1.3)	✓ (see 7.1.3)	x	x (see 7.1.3)
Betterment	x (see 7.1.5)	x (see 7.1.5)	✓ (see 7.1.5)	✓ (see 7.1.5)
Capital Unit Charge	x	X	✓ (see 7.1.4)	✓ (see 7.1.4)

7.1.1 Operations and Maintenance

The operation and maintenance charge shall consist of the following:-

a) Direct costs:

Fixed and variable costs which can be attributed directly to administrating, operating and maintaining schemes and include:

- Administrative costs
- Operating and maintenance costs
- Pumping costs
- Distribution cost

Direct costs will be allocated directly to sectors where this is possible. The cost of joint works and operations will be shared on a volumetric basis.

b) Indirect cost:

These are the costs which cannot be directly attributed to a specific scheme, but which contribute towards the management of the water schemes of the entire area, and comprise of

- Allocated regional office/utility cost
- Allocated area office cost

Indirect cost that has been allocated to the schemes will be further allocated to the different sectors in an equitable time-based manner.

Operation and Maintenance charges shall be recovered on a scheme to scheme to basis. These charges (which include direct and indirect costs) can be recovered either on an

actual cost recovery basis or through an Operations and Maintenance Tariff which is based on the forecast of annual O&M costs.

7.1.2 Depreciation

Depreciation is defined as the loss in value of existing infrastructure that occurs due to wear and tear, decay, inadequacy and obsolescence, not restored by current maintenance. This capital value can only be restored through refurbishment.

For calculation purposes, depreciation is the systematic allocation of a depreciable amount of an asset over its useful life and will be applied as follows:-

- On a straight line basis over the useful life of the assets.
- The depreciation amount = annual depreciable portion of the replacement value of assets.
- Replacement value = revaluation of the value of the assets as determined in March 2000 (full technical revaluation will be carried out at least every 10 years). In intervening years, desk-top revaluation will be carried out annually which means that the Producer Price Index (PPI) of June of each year will be applied to escalate the base value of the infrastructure assets, and thus the annual depreciation amounts, to nominal values.

Schemes are in various stages of depreciation and need refurbishment at different points in time. It is intended that through cost recovery, depreciation charges will be used to refurbish existing assets on a prioritised basis, as and when required. Depreciation income from the general revenue base will only be used for the refurbishment of infrastructure assets once a dedicated refurbishment fund, from which refurbishment expenditure can be done in a controlled manner, has been put in place.

As refurbishment will only restore the original capital value of assets in real terms, no increases in charges will take place as a result of refurbishment. On schemes funded off-budget, the depreciation charge will only be applicable once the loans have been repaid. If refurbishment is required during the repayment period, a refurbishment charge will be arranged by agreement between the parties.

The depreciable portion and useful life over which the asset will be depreciated are in accordance with the table below, which is subject to revision when the next engineering revaluation of assets is due.

Component	Depreciable Portion (%)	Estimated Total Useful Life (years)
Dams & Weirs	10	45
Canals	40	45
Tunnels	10	45
Pump stations	40	30
Syphons & Concrete pipelines	30	45
Steel pipelines	75	30
Buildings	100	40

Calculation formula for annual depreciation cost (ADC):

ADC = Replacement value * Depreciable portion%/expected useful life

The depreciation charge is applicable to all sectors supplied from Government waterworks.

7.1.3 Return on Assets (ROA)

This component of the charge reflects payment towards the development and betterment capital value of waterworks on government water schemes. It will be determined by fixing a charge to earn a specific rate of return on the current depreciated replacement value of the infrastructure.

ROA is based on the social opportunity cost of capital to government and this should approach a level sufficient to fund the annual capital expenditure budget requirement for the development of new waterworks and betterment of existing infrastructure from the fiscus.

In view of the off-budget funding arrangement for certain projects, the target level of income to be generated through ROA charges is directed towards recovering the annual capital cost requirement for State funded social projects.

An investigation of possible new social projects envisaged in terms of the National Water Resources Strategy and the capital required to fund dam safety betterments, revealed that the ROA rate of 4% laid down in terms of the 1999 Pricing Strategy and which was based on the estimated growth rate for industrial and domestic demands at the time, can not be adjusted downward without seriously affecting the duration of the implementation programme. To cater for the estimated medium term demand for capital to be funded from the general revenue base, ROA will thus continue to be determined on a scheme or system related basis by applying a 4% rate to the State funded completion cost of new infrastructure or the depreciated replacement cost of existing infrastructure. The replacement and depreciation values will be based on engineering valuations, which were initially competed in March 2000, to be repeated within maximum intervals of 10 years. Between engineering valuations, the previous year's asset values will be inflated by the Producer Price Index (PPI) of June each year to determine the nominal values of capital costs for pricing purposes. This is done to cater for the declining value of ROA over time in real terms due to depreciation and also to ensure that the value of assets over time will more closely reflect the actual replacement value when a technical revaluation is done.

The ROA charge is applicable to State funded and owned assets for as long as they exist in an operable condition. On off-budget funded schemes no ROA charges will be imposed during the repayment periods to prevent double charging on water users. However ROA will be charged once the loans have been repaid.

The ROA charge is applicable to the following sectors supplied from government waterworks:

- Local Government (domestic)
- Industrial

- Mining
- Energy
- Agriculture - only for new schemes

For the Agricultural sector, ROA charges would not be applied to existing State irrigation schemes. These charges will also not be applicable to resource-poor farmers for existing and new schemes constructed. ROA will however be applicable for new government schemes constructed for established commercial farmers.

7.1.4 Government schemes funded off-budget

Water management institutions such as the TCTA, which are directed by the Minister of Water Affairs and Forestry to implement and fund government water schemes off-budget, are entitled by the NWA to raise loans to finance the development of new water resource infrastructure, and should therefore be able to service these loans through cost recovery. These institutions, in consultation with stakeholders, can on a project by project basis determine the extent of charges as determined by the proposed financial modelling. The primary charge will be the Capital Unit Charge (CUC).

In these circumstances, the water management institution may enter into an implementation agreement with the Department of Water Affairs and Forestry ("DWAF") and DWAF may thereafter enter into a water supply agreement with the end-users. Consequently these agreements will be "back-to back" and serve the purpose of recording the rights and obligations of the parties in the implementation, financing and supply of water pertaining to the new government water work. In these instances, the water management institution will levy the CUC onto DWAF and DWAF will in turn levy the CUC onto the end-users. A cession may be signed between the parties whereby the CUC charge is paid directly to the water management institution.
In this scenario, when the project debt has been repaid, the project will be treated as an existing scheme and the charges relating thereto will be applied.

Key principles of the **CUC**

- A tariff is determined which will ensure that the debt on the project will be fully paid by the end user within a reasonable period of time. A reasonable period is usually determined as being between 18 to 25 years, taking cognisance of both end user affordability and future augmentation of a scheme.
- The reasonable period of time to repay the debt, which shall not be longer than the economic life of the asset, will be determined on the basis of:
  - o The debt profile and acceptable growth and level of debt of the project;
  - o Not allowing the debt of a project to overlap to an unreasonable extent with another project causing financial strain to end users or unhealthy financial balance in the water sector; and
  - o The anticipated future funding requirements of the augmentation of the project.
- A tariff is calculated such that it is constant in real terms and grows with inflation, being CPIX, unless otherwise agreed to between the parties or any of the review triggers being applicable.

- A tariff may be phased-in during the construction period.
- Parties should endeavour not to capitalize interest after completion of construction.
- The tariff will be based on water used from a scheme and not necessarily water provided into a scheme, which will enable water demand management, water restrictions etc.
- Phasing-in and step down of the tariff can be allowed for if it still facilitates end user affordability, provision for future augmentation and debt is repaid within a reasonable period of time.
- Demand projections are used to determine a tariff which is reviewed annually taking account of changes in:
  - o Water demand projections;
  - o Real interest rate projections;
  - o Inflation projections and/or
  - o Cost of the scheme as well as cost and timing of future augmentation.
- From date of invoice amounts are payable to the water management institution within 30 days, unless otherwise agreed to between parties.

Review triggers of the CUC

The CUC charge may contractually be subject to an annual review where increases are passed through automatically or under specific conditions negotiated between the parties. These conditions shall take into account but not be limited to the following factors:

- Changes in the yield of the system;
- Changes in macro economic projections;
- Changes in legislative charges;
- Changes in construction costs;
- Any revenue generated by the scheme other than the CUC and as agreed to by the parties to decrease the amount outstanding to repay the scheme;
- Changes in water use allocations and compulsory licensing; and
- The timing and cost of future schemes.

7.1.5 Betterment charges

Betterment implies an improvement of an asset, resulting in an increased capital value thereof. Examples are the raising of an existing dam to increase the yield, the enlargement of a canal to increase capadty and improving the stability of dams for safety purposes.

On existing and new government funded schemes, betterments will be funded through the ROA provision. After betterment is introduced, the real value of the asset will

increase, resulting in an increased ROA amount for charge setting purposes. *On* off-budget schemes, the Minister of Water Affairs and Forestry or the water management institution may levy the charge in consultation with the end-users post construction of the new water infrastructure. The charge may, at the discretion of the end-user, either be determined on an actual costs recovery basis or determined taking into consideration the need to smooth over time the impact of the charge *if* high capital costs have to be incurred to *increase* the *availability of* water *or to maintain* the *assurance* of *supply.*

The same principles of the CUC will apply in collecting revenue from the charge.

7.1.6 Methodology in determining unit cost

7.1.6.1 Assurance of Supply (Section 56 (4)(b)(iii) of the Act)

The capital cost of multipurpose dams will be divided between sectors in proportion to the long term estimated average annual sector use of allocations. Average sectoral use will reflect curtailment during water restrictions, thus taking into account the assurance of supply. The ROA and depreciation charges per sector will then be determined by using the divided capital cost allocations.

Unless scheme-specific assurance of supply is available, the long term average annual use of the various user sectors will be considered to be the following percentage of allocations on government water schemes:

Sector	% of Sectoral allocation	Calculation of sectoral allocation %
Irrigation sector	91%	(100%@70%+70%@30% of the time)
Domestic, industrial and mining	97%	(100%@70%+90%@30% of the time)
Strategic industrial sector	100%	No water restrictions

- In the case of conveyance structures, the division of capital costs will be done in proportion to the required peak rates of supply to the various sectors.
- Percentages may be applied to determine the price differential on the CUC charges based on the Assurance of Supply.

The assurance of supply is applied as follows:-

- If for example a scheme has 100 million m3 of available water per annum:
- If 30% is allocated to domestic and industry, (30 million m3) and the balance of 70% is allocated to agriculture, then the long term average use of allocations will be calculated as follows:-

Domestic & Industry	30 million m3 x 0,97	29.1 million m³
Irrigation	70 million m3 x 0,91	63,7 million m3
Total		92,8 million m³
Domestic and Industry allocation of cost will be		
	29,1 / 92,8	31.36%
Irrigation allocation of cost will be		
	63,7 / 92,8	68,64%
Total allocation		100 %

Under the current example, Domestic and Industry will pay a premium of 1.36% as a result of a greater assurance of supply while Irrigation will receive a discount of 1.36% as a result of a smaller assurance of supply.

7.1.6.2 Consumptive charges on social projects

A unit cost will represent the consumptive charges to be levied on existing and new social (Government funded) water schemes. Unit costs will be determined based on the annual sectoral cost allocations in respect of ROA (where applicable), Depreciation and Operation and Maintenance.

Unit costs will be based on the estimated water use but consumptive charges will be invoiced on actual measured use.

On social projects where the long term yield of the dams has not been fully allocated, consumptive charges will be based on the long term yield, which implies a State subsidy.

On canal or pipeline scheme elements of social projects which are under utilised because full utilisation as planned could not materialise, the capacity volume of the canal/pipeline should be used as a basis for calculating charges.

Unless other arrangements are approved by DWAF, consumptive charges will be invoiced on a monthly basis for the domestic/industrial sector and bi-annually for the agricultural sector.

In order to promote water conservation and demand management, consumptive charges can consist of fixed and variable payments where agreements are concluded with user bodies.

7.1.7 Phasing in of consumptive charges

- Domestic/Industrial/Mining/Energy sector

Annual increases for social schemes will be limited to 10%+ PPI (rate taken in June) until full cost recovery is reached. During the phasing in period, charges will not be reduced below the previous year's level, except in extraordinary circumstances, which would make a reduction inevitable.

- Agricultural sector

o Established farmers

(a) Full Operation and Maintenance costs will be recovered annually, with an annual increase limited to 50%, if the current unit charge is still sufficiently far below the calculated unit cost to render reaching the full unit cost in one annual step impossible.
(b) Depreciation charges for existing schemes will be capped at 1.5 cents per meter^3 plus PPI (rate) with 2006/07 as base year.
(c) Full financial cost recovery (including ROA) for new schemes.

- Resource poor farmers

(a) Operation and maintenance charges will be phased in over five years from date of registration of the relevant water use.
(b) Depreciation charges will be waived for five years. Thereafter charges will be capped at 1.5 cent per meter³ plus PPI (rate).
(c) Capital cost for new development will be subsidised by the fiscus.
(d) Further waiving of charges will be considered for a limited time period on request by the custodian Department, where land and agricultural reform programmes are involved.

- WUAs as Billing Agents

As WUAs capacity develops, they may be used as billing agent for water charges. The timing of the transfer of responsibilities will be subject to an assessment by the Department of Water Affairs and Forestry.

7.1.8 Treatment of Reserve Funds

The depreciation and return on assets charges will result in reserve funds theoretically being managed by DWAF over time.

DWAF will only be in a position to finance capital cost requirements for refurbishment on specific schemes from its general depreciation charge revenue base and to finance the development of new social projects and betterment of existing projects from the general ROA charge revenue base once a dedicated reserve fund has been put in place, from which capital expenditure can be made in a controlled manner.

When the above structures have been put in place the depreciation charge for refurbishment may serve as a stabilization reserve whilst the ROA may be a provisioning reserve.

As stated above, once a ring fenced provision account for ROA has been established, ROA revenue will be applied to the funding of water resource development, prioritised as follows:

(i) Planning and feasibility of future augmentation
(ii) Betterment
(iii) Social projects

7.1.9 Water Supply Agreements

DWAF shall enter into water supply agreements with water boards which have to enter into long term water supply agreements with municipalities and other major bulk raw water users.

7.2 Schemes Owned by CMA's and WUA's

Catchment management agencies and water user associations must, when determining their revenue requirements on which water use charges for development and use of waterworks are based, take into account the following:

(a) recovery of overheads/management, operations and maintenance costs;
(b) recovery of capital costs and the servicing of loans (water management institutions are entitled by the Act to raise loans to finance new water supply infrastructure, and should therefore be able to service these loans through cost recovery);
(c) reasonable provision for the depreciation of assets, which can be placed in a reserve fund for utilisation at the appropriate time for refurbishment;
(d) other charges levied by law on the institution and in terms of this pricing strategy; and
(e) the financial targets included in its business plan.

Charges levied by water management institutions may be levied on a proportional or differential basis, depending on the relevant constitution, or if directed so by the Minister to give effect to the provisions regarding the rendering of financial assistance in terms of the NWA.

8. ECONOMIC CHARGES (S56 (2) (c))

The economic charge can be set only by DWAF, either:-

- administratively by determining a proxy for the economic value of water, or
- by selling water by public tender or auction to the highest bidders in accordance with regulations required in terms of the NWA, 1998

The administratively determined charge can be used in water stressed catchments to promote beneficial use through the reallocation of water to higher value users. This can be accomplished, inter alia, by allowing the transfer of authorisations to use water by trading. The administratively determined charge will be based on:

- The return on assets charge for government water schemes
- The opportunity cost of water as determined by prevailing transactions

Since the financial charges will go a long way towards improving the efficient allocation of water, the administratively set economic charge will not be introduced before compulsory licensing is implemented, and then only after consulting stakeholders and CMAs.

Where amounts of water are still available for allocation after compulsory licenses have been issued and there is competition for using this water, the public tender procedure may be followed.

This annual charge will be an add on to any charges levied for water resource management and development and use of waterworks.

9 THE WASTE DISCHARGE CHARGE SYSTEM

9.1 The Basis for a Waste Discharge Charge System

Section 56 (5) of the NWA enables the Minister to establish a system for charging waste discharges in terms of the pricing strategy. This waste discharge charge system (WDCS) is based on the polluter pays principle and aims to:

- promote the sustainable development and efficient use of water resources
- promote the internalisation of environmental costs by waste dischargers
- recover costs associated with mitigating resource quality impacts of waste discharge
- create financial incentives for waste dischargers to reduce waste and use water resources in a more optimal manner.

The WDCS is separate from the WRM charges on waste discharge defined in Chapter 6.4 of the Pricing Strategy. The WDCS provides an economic instrument to support the management of water quality, where problems have been identified through the processes of classifying the water resource [in terms of Section 13 of the NWA] and developing a catchment management strategy [in terms of Section 8 of the NWA]. It is therefore critical that the WDCS is implemented in a catchment as part of a resource quality management plan that includes regulatory and non-regulatory instruments/approaches. By so doing, the waste discharge charges are one element of an integrated approach to managing the resource quality problems in that catchment, linked to the catchment management strategy.

The WDCS may be implemented in catchments for which resource quality objectives (RQO) established in terms of Section 13 of the NWA to achieve the specified class of water resource are either exceeded or are threatened. In the absence of a classification system, a preliminary class or resource quality objective may be determined in terms of Section 14 of the NWA. This may include resource quality objectives relating to water quality, habitat and biota, as well as instream or land-based activities that affect the quality of the resource. The aim is that where resource quality objectives are not met or are threatened, the management of waste discharges should be based on achieving resource quality objective in the optimal way for the entire catchment, i.e. minimising the total combined cost incurred by all dischargers within the catchment. The class and the resource quality objectives should be set at optimal levels, to balance the need to protect and sustain water resources with the need to develop and use them.

The WDCS will be applied at a catchment, not a WMA scale (as is the case with the water resource management charge). The catchment area will be defined as those areas that have a significant impact on or are impacted by the specific water quality problem. This may therefore be an entire catchment in which a wide-spread water quality problem exists or may be a sub-catchment within a larger basin, which is bounded by large reservoirs and/or reaches in which resource quality objective are being met.

The WDCS may include, but not be restricted to, any of the following water quality variables:

- *Nutrients:* phosphate, nitrate & ammonium
- *Salinity:* total dissolved solids, electrical conductivity, chloride, sodium & sulphate
- *pH*
- *Heavy Metals:* arsenic, cadmium, chromium, copper, mercury, lead, nickel & zinc
- *Organic material:* Chemical Oxygen Demand

Water quality indicator variables will be selected in terms of the water quality problems and their critical impacts identified in terms of the resource quality objective and catchment management strategy. However, selection of a particular indicator variable will consider the type of waste discharge sources in the catchment, the nature of the waste typically discharged, and the cost-effectiveness of monitoring different variables.

The following considerations apply to implementation of the WDCS.

- Only registered waste discharge related water use in terms of Sections 21 (e), (f) and (g) of the NWA will be liable for waste discharge charges, which currently excludes most non-point sources. DWAF will develop a strategy that outlines the intended management approach to currently non-authorised non-point sources.
- The charge rate will not vary against concentration. The charge to a waste discharger will be based on a linear relationship against load, using a constant charge rate for a specific variable.
- Although the impact on groundwater resources is recognised, for this version of the WDCS, charges will be based on direct or indirect impacts on surface water resources. Groundwater resources may be considered for inclusion in future revisions of the Pricing Strategy.
- Where the average concentration in the discharge is less than the resource quality objective, the charge rate will be zero and therefore no charge will be applied.
- The average load associated with the intake of water supplied to the discharger will be subtracted from the load liable for a discharge charge.
- Minimum load thresholds for charging may be identified on the basis of cost considerations.
- Where downstream resource quality objectives are more stringent than upstream resource quality objectives, the WDCS may be applied to all discharges in the upstream catchment if the downstream resource quality objectives are threatened or exceeded, even where the upstream resource quality objectives are met.

The WDCS consists of two distinct water use charges, either or both of which may be applied in a specific catchment:

i. Charges that provide a disincentive or deterrent to the discharge of waste, based on the use of the resource as a means of disposing waste (incentive charge)

ii. Charges to cover the quantifiable costs of administratively implemented measures for the mitigation of waste discharge related impacts (mitigation charge).

The incentive charge is the basis of the WDCS and is applied to influence those dischargers that can reduce their load most cost effectively, thereby moving the resource quality towards the resource quality objective. Where mitigation may be more cost effective and acceptable in reducing the effective waste load in the catchment (in comparison to the incentive charge), this may be administratively implemented with costs recovered through the mitigation charge. Therefore it is most likely that the incentive charge will be applied in a particular catchment with possible application of the mitigation charge depending upon the nature of the water quality problem and opportunities for discharge load reduction and/or mitigation.

9.2 Incentive Charge

9.2.1 Introduction

The main purpose of the incentive charge is to ensure the optimal use of the resource for discharge or disposal of waste, in terms of Section 56 (2) (c) of the NWA, namely ***ensuring the equitable and efficient allocation of water.*** It is therefore not based on the recovery of costs, but rather represents an economic charge to promote the reduction of discharge in order to meet specified resource quality objectives.

While this is consistent with the intent of Section 56 of the NWA and represents a use of the water resource for the purposes of waste disposal, it is not strictly a **user** charge. **As** it represents an unrequited payment and is intended to influence discharge decisions, it should be defined as a levy and applied in terms of National Treasury's **environmental tax** policy. This will require the promulgation of a Money Bill by National Treasury (on behalf of DWAF) for the incentive charge, together with a specific WDCS amendment to Section 57(5) of the **NWA,** to enable the application of the incentive charge as a levy. It is intended that the Money Bill and amendment be promulgated before the end of 2006.

9.2.2 Calculation of the Incentive Charge Rate

The incentive charge rate in a catchment where the resource quality objective are not being achieved (or are threatened), is based on the average costs of reducing load from the different dischargers contributing to the water quality problem within the catchment. This may be based on the costs of an intervention at any stage in the production process, including treating effluent, improving management practices/systems or adopting cleaner technology.

Certain dischargers will tend to implement waste load reduction where the discounted costs of changing treatment, management practices or process technologies are less than the discounted costs of paying charges. Other dischargers may not change their waste load, as it would be more cost-effective for them to pay the charge. Except where zero impact technology is cost effective and implemented, dischargers that have reduced their waste loads would still be liable to pay charges for their remaining discharged waste loads. Therefore, as the charge level increases, it may be cost effective for these dischargers to implement further waste load reduction approaches.

Specifically, the incentive charge would be set at a unit cost level below which there are a number of dischargers for whom it is more cost-effective to reduce their waste loads, and that in combination their total reduced load would be adequate to achieve the resource quality objective. This would entail estimating the average unit cost per unit reduction in discharge load for the main registered sources (point discharge and nonpoint sources) within the catchment. These unit costs would be ranked and plotted against the potential load reduction from the different sources or sectors. The estimated reduction in load required to achieve the resource quality objective, in conjunction with other regulatory and non-regulatory interventions, may be used to indicate the discharger representing the equivalent point at which resource quality objectives would be met. The incentive charge rate (in Rand per unit load) would then be set at the average cost per unit load reduction for this discharger.

For point source discharge to surface water resources in terms of Section 21(f) of the NWA, the marginal cost per unit load reduction is related to effluent quality. For the discharge and disposal of waste to land, the approach is based on management practice and systems. For each sector and source type, three levels of management practice may be identified, namely those that do not comply with minimum standards, those that achieve **minimum**

standards and those that can demonstrate that they have zero impact and should therefore pay no charge. The cost per unit load reduction for those non point sources that are not complying would be based on the cost of complying with the minimum standards. Where there is a demonstrated option of moving to zero impact, the equivalent cost per unit load reduction would be adopted. Where minimum standards do not exist, these will be defined in consultation with the relevant sector stakeholders.

9.2.3 Implementation of the Incentive Charge

The incentive charge for point source dischargers [authorised under Section 21(f) of the NWA] will generally be based on monitored waste discharge load multiplied by the incentive charge rate. Where the discharge authorisation (license) conditions do not require monitoring at an adequate interval, the charges will be based on registered load. However, to simplify the logistical billing process, invoices during the year may be based on the registered discharge load, with an annual reconciliation against average monthly monitored loads at the end of the financial year.

The incentive charge for the other categories of water use [Sections 21 (e) and (g)] will be according to the three management practice/system levels, based on an estimate of the portion of the waste load from those areas reaching the surface water resource for each level. These percentages will be developed in consultation with the relevant sectors.

The setting of the incentive charge rates would be through a consultation process with the catchment stakeholders, in terms of the requirements of a Money Bill, and specifically will engage the implications for Local Government. The incentive charge rates within a catchment may be reviewed and revised according to the observed response within the catchment and the achievement of the resource quality objective, but the intention would be to maintain relatively stable charge rates over a multi-year period.

The incentive charge may be phased-in for a catchment as part of the resource quality management plan and reflecting the progressive achievement of the class and resource quality objective, thereby enabling coherent planning and response by the dischargers. As a further incentive, where the intention of a discharger to reduce load can be demonstrated through an implementation process, the equivalent charge may be waived (for an agreed period) until the waste load reduction has been realised.

9.2.4 Disbursement of Funds

While the primary aim of the incentive charges is to achieve the resource quality objective in a catchment, surplus funds will be generated. These funds will be earmarked for waste discharge related purposes through the Money Bill and will be disbursed in accordance with a multi-year National Disbursement Plan reviewed each year by DWAF in consultation with National Treasury, reflecting national and catchment level priorities. Emphasis will be on using the incentive charge funds in the catchment from which they were collected. This plan must be aligned with the Medium Term Expenditure Framework, National Water Resource Strategy and the relevant catchment management strategies. DWAF will manage the funds nationally in accordance with the plan, while CMAs will generally be the implementing agents through which funds are disbursed.

Funds will be used for four main purposes, namely:

- Compensation measures for impacted users downstream, in terms of providing alternatives or remediation of the impacts.
- Incentives (seed funding) for registered dischargers to reduce loads, where this is cost effective but there are institutional constraints.
- Initiatives to reduce the load from non-authorised non-point sources through non-regulatory or regulatory means.
- Covering the portion of the possible mitigation charges in a catchment associated with non-authorised non-point sources (see below).

Monitoring and reporting on the use of these funds will be in line with the Public Finance Management Act, with DWAF and the CMA being primarily accountable for disbursement and expenditure.

At a catchment level, the collection and disbursement of funds would be in line with the water quality management plan developed by the CMA in consultation with stakeholders. This brings together the regulatory, non-regulatory and economic instruments and sets management priorities within the catchment

9.3 Mitigation Charge

9.3.1 Introduction

The mitigation charge is a user charge established in terms of the pricing strategy to recover the costs of mitigating the impacts of waste discharge on the resource. It is intended for application where a mitigation measure provides an economically efficient option to support the achievement of resource quality objective in a catchment, in comparison to the costs of waste discharge reduction at source. As such it provides an administrative mechanism for collaboration between dischargers and therefore may have significant institutional requirements. It must be planned, developed and implemented in terms of the catchment management strategy, and the specific resource quality management plan developed to address a water quality problem in a catchment.

There are four situations for which the mitigation charge may be considered:

1. *Mitigation through removal of load from the resource:* enables the recovery of costs for developing and operating regional mitigation schemes, initiatives or projects for the mitigation of water quality problems within the resource.
2. *Water resource system operation for water quality management:* enables the recovery of costs associated with reduced system yield, due to the management of river-reservoir systems to reduce the impact of water quality problems.
3. *Mitigation for abstraction water users:* enables the recovery of costs incurred in developing and operating additional treatment requirements for downstream users, particularly where water quality does not meet specified resource quality objective.
4. *Treatment at source:* enables a group of dischargers to contribute directly to the costs of reducing waste load from a specific source discharger, but may be extended to include regional schemes that collect and treat waste from a number of dischargers before it enters the water resource.

9.3.2 Calculating the Mitigation Charge Rate

For a catchment in which the resource quality objective are not being met or are threatened, the incentive charge would be calculated as indicated above. Feasible mitigation measures may be identified and the average cost for an equivalent reduction in load would be estimated. This would be compared with the incentive charge rate and where the mitigation measure is more efficient it provides an optima1 intervention.

The mitigation charge rate is then calculated as the total cost of mitigation divided by the total discharge waste load in that catchment. The total discharge waste load in the catchment will be based on a catchment assessment, distinguishing the contribution from point sources, registered disposal to land or facilities (resulting in non-point impacts) and other anthropogenic non-point sources. Background loads will be excluded from the charge calculation.

This mitigation charge rate should be considerably lower than the incentive charge rate. It should reduce the incentive charge rate, because the total reduction in waste load required to achieve the resource quality objective should be decreased by the load reduction associated with the mitigation measure. Furthermore, the total waste discharge charge paid by a particular discharger should be equivalent to the incentive charge level, so any mitigation charge that is applied would be subtracted from the revised incentive charge.

9.3.3 Implementation of the Mitigation Charge

The mitigation charge for a discharger will be calculated from the mitigation charge rate and registered average waste load, in order to maintain a stable cost recovery and cash flow situation, particularly for repayment of fixed costs (including capital repayments).

As with the incentive charge, the mitigation charge for authorized discharge or disposal to land or facilities (creating non-point source impacts) will be based on the percentage discharge to the resource for the three management practice/system levels. This portion will be based on the current year impact associated with the waste disposal, and therefore there is no waiver of the long term liability for disposal sites. This is particularly important for the mining sector, where the closure fund assumes the liability for impacts *after* mine closure.

In terms of equitable cost recovery, the portion of the mitigation costs associated with estimated non-authorised non-point source waste load will be provided by DWAF, preferably funded through disbursement of the incentive charge revenue. However, DWAF is obliged to implement regulatory and/or non-regulatory approaches to reduce the load from these areas in terms of the resource quality management plan.

9.3.4 Institutional Arrangements

The collaborative and potentially long-term implications of implementing a mitigation measure in this manner require clear institutional roles and responsibilities, in terms of both the financing and operation of the measure.

Setting, collection and disbursement of mitigation charges are the responsibility of the CMA, in terms of the catchment management plan developed in consultation with stakeholders. This must comply with the requirements of the Public Finance Management Act and this Pricing Strategy.

The CMA may not be the implementing agent for the measure. This may rather be done by service providers, infrastructure operators or an independent implementing agent established by the dischargers. In most cases, an agreement will be required between the implementing agent and the dischargers, while the project funders may require the CMA to enter an agreement in terms of the collection and disbursement of funds.

Depending upon the design life and capital repayment schedule for the mitigation measure, these agreements may be in force for a number of years. This characteristic makes it critical that the mitigation measure is supported by all dischargers who may be liable for charges.

9.4 Implementation of the WDCS

This above outlines the concept and approach for a WDCS. The detailed methods to support its implementation will be developed and tested during 2005/2006, to support the first application of the WDCS to support catchment management processes from the 2007/8 financial year. The incentive and mitigation charges will be applied in priority catchments throughout South Africa, where resource quality objective are not being met or are threatened. The implementation of the incentive charge may be phased in over a 3-year period within a catchment, to facilitate effective planning and budgeting of the charge, whereas the cost recovery nature of the mitigation charge requires its full implementation once the relevant mitigation measure is implemented.

10. APPLICATION OF PRICING STRATEGY TO DIFFERENT CATEGORIES OF WATER USE / USER SECTORS

Section 56 of the National Water Act, 1998 also provides for the pricing strategy to differentiate on an equitable basis between-

- different types of geographic areas (S 56 (3) (a) (i))
- different categories of water use (S 56 (3) (a) (ii)); and
- different water users (S 56 (3) (a) (iii)).

Section 56 (6) (c) of the Act provides that in setting a pricing strategy for water use charges, the Minister must consider measures necessary to support the establishment of tariffs by water services authorities in terms of section 10 of the Water Service Act, 1997 and the use of lifeline tariffs and progressive block tariffs.

In terms of this pricing strategy for raw water use charges, the above requirement will not be accomplished by providing the raw water requirement for basic human needs (defined as the essential needs for drinking, food preparation and personal hygiene which is put at 25 litres per capita per day) free of charge to water services authorities, but through Equity Share Grants made in terms of the annually enacted Division of Revenue Act.

10.1 Impact of Raw Water Pricing Strategy on Different User Sectors

SECTOR	RESOURCE MANAGEMENT CHARGES	RESOURCE DEVELOPMENT CHARGES	PHASING IN OF CHARGES
Domestic/Industrial	• Full cost recovery on abstraction and	• GWS: Depreciation; ROA: O&M • WMI's: Full cost	• WRM charges introduced fully after registration of water use

SECTOR	RESOURCE MANAGEMENT CHARGES	RESOURCE DEVELOPMENT CHARGES	PHASING IN OF CHARGES
	waste discharge relateduse .	recovery	in WMA • Waste discharge related WRM charges to be implemented in **2007/08** • Annualincreaseon developmentcharge will be limited to **PPI + 10%** until target development charge is achieved on **GWS .**
Stream Flow Reduction **Activities** **Commercial growers**	**Full** recovery of allocated costs. **Note: Cost of Dam Safety Control and waste discharge related costs not allocated to the forestry sector.**	**Not applicable, except where negotiated for new development.**	**WRM charges introduced fully after registration but capped to R10 per ha plus PPI with 2002/03 as base year.**
stream Flow Reduction Activities Small mowers	**Full** recovery of allocated costs **to** be achieved in **5** years. **Note:** Cost of **Dam Safety** Control and waste discharge related costs not allocated **to** the forestry sector.	Not applicable, except where negotiated for **new** development	***As*** above, but subsidised for **5** years from date of registration. Subsidy starts at **100%** and reduces by 20% annually.
Irrigation Commercial farmers	• **Full recovery of allocated costs** • **Waste discharge related costs not applicable**	**GWS:** • **Full recovery of Depreciation plus O&M on existing schemes.** • **Full financial cost recovery for new schemes.** **WMI:** • **Full financial cost recovery**	• **Depreciation charge capped to 1.5 c/m³ plus PPI.** • **WRM charge introduced fully after registration of water use in WMA, but capped to 1.5 c/m³ plus PPI from 2006/07**
Irrigation Resource **poor** farmers	• As above, but subsidised for a **5** year period • Waste discharge related costs not applicable	GWS: • O&M subsidised for a **5** year period on existing and new schemes. • Depreciation ***charges*** waived for a five year period. **WMIs:** • Subsidies available under certain conditions.	**GWS** • **O&M** charges phased in over 5 years after registration at **20%** per **annum.** e Depreciation charge applied from year 6 onwards and capped to **15 c/m³** plus **PPI.** • WRM charge phased in over **5** years at **20%** per **annum.**

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10.2 Natural Disasters

Section *56* (3) (e) of the National Water **Act** allows the Minister to provide on **an** equitable basis for some elements of the charges to be waived in respect of specific users for a specified period of time.

In addition to the support offered hereunder, any relief offered by other government departments at the time of the natural disaster could also be applied to offset further water charges.

10.2.1 Forest fires and floods

In the event of forest fires or floods, when water resources are not in use as a result of damages caused, the Minister may apply her/his mind to grant some form of relief to affectedusers and will consider and may apply all or some of the following in determining support:-

- The extent of damage to crops.
- The relief will in all cases be limited to the actual Water Resource Management charges.
- Water Resource management charges could be fully or partially waived.
- Charges will be waived for a fixed period of time.
- Under no circumstances will cash grants be provided as relief.

10.2.2 Droughts

During times of droughts, the following rules will apply when water restrictions are imposed by the Department on established and emerging farmers on existing Government Water Schemes.

- In schemes where the historical supplies averaged 50% or higher than the irrigation quota, a minimum payment equal to the sum of O&M and WRM charges must be made.
- In schemes where the average supplies was less than 50% of the irrigation quota, a minimum payment equal to the relevant WRM charges must be made.

In both cases the full quota tariff will be decreased in proportion to the reduction in quota, but is subject to the stated minimum payments. CMAs or WUAs must approach DWAF with a motivation for drought relief.

10.2.3 Purchase of "extra water"

The policy of allowing scheduled irrigators on Government water schemes to purchase "extra water" under certain conditions at heavily subsidies prices will be discontinued. Only under exceptional circumstance, such as an unexpected heat wave, will irrigators be allowed to purchase additional water over and above the quotas. The tariff for such extra water will be the raw water tariff for domestic and industrial supply.

11. TRANSPARENCY AND ACCOUNTABILITY

In establishing the pricing strategy, every attempt will be made to control costs by the application of sound financial management principles such as strict budgetary control. The revised pricing strategy embraces the principle of transparency, which of itself should promote cost control. In terms of this principle, the forthcoming year's sectoral charges that are developed during the budgetary process for each water management area will be forwarded to regional offices for dissemination and discussion with interested parties.

Final sectoral charges will then be formalised and disseminated through the accounts receivable system to the water users prior to the commencement of the financial year.

12. IMPLEMENTATION DATE

This Pricing Strategy will first be published for public comments and then gazetted for implementation after considering comments received from the public. In order to implement the Waste Discharge Charge System, DWAF will have to formally define the resource quality objectives and also register waste discharges onto the WARMS system. It will therefore not be practical to implement this strategy in its totality until the required support systems are in place. For the 2006/7 price setting year starting in April 2006, DWAF will implement the new pricing strategy in as far as the Water Resource Development and Use of Waterworks (consumptive) charges are concerned, while the rest of the price setting process will be levied in terms of the 1999 Pricing Strategy. The balance of this pricing strategy will then come into force as soon as the required systems are in place for its effective implementation.

ANNEXURE A

WATER RESEARCH COMMISSION

WATER RESEARCH ACT (Act No. 34 of 1971)

ESTABLISHMENT OF A COLLECTION STRATEGY FOR WATER-RESEARCH CHARGES IN TERMS OF SECTION 11 OF THE WATER RESEARCH ACT, 1971

I, Buyelwa Patience Sonjica, MP, Minister of Water Affairs and Forestry, with the concurrence of the Minister of Finance, hereby in terms of Section 11 of the Water Research Act (Act No. 34 of 1971), establish a collection strategy for water-research charges, as contained in the schedule hereto.

SCHEDULE

A COLLECTION STRATEGY FOR WATER-RESEARCH CHARGES

PREFACE

The Water Research Act (WRA), Act No. 34 of 1971, gives power to the Minister, with the concurrence of the Ministry of Finance, from time to time by notice in the Gazette, to set tariffs in respect of water research charges levied on quantities of water supplied, or made available for use, for various purposes. The charges are paid into a national Water Research Fund and used by the Water Research Commission (WRC) to fund water-centred Research and Development (R&D) on behalf of the nation.

Historically, tariffs relating to water research charges have been reviewed on an annual basis, and adjusted, when necessary, taking into account the R&D needs of the water sector and the rate of inflation. It has been accepted that, as from 2004, the 2003/04 tariffs will form a baseline for the ensuing five years and annual tariff increases will be in accordance with the rate of inflation, by notice in the Gazette. Charges are currently based on volumes of water supplied and on irrigated land area. In terms of the WRA, the Department of Water Affairs and Forestry (DWAF) is obliged to collect water research charges on behalf of the WRC, unless the Minister approves otherwise.

Owing to various developments, the WRC has been required to review current practice and develop a new collection strategy, as presented here. The main developments that necessitate the change include:

- The establishment of a pricing strategy for water use charges in terms of Section 56(1) of the National Water Act (Act No 36 of 1998)
- Definitions of water use in Section 21 of the National Water Act
- The implementation of the Municipal Finance Management Act
- Developments to DWAF's computer-based system (SAP/WARMS) for registration and licensing of water use
- Arrangements for the collection of water use charges by DWAF.

Although none of the above-mentioned developments refer directly to water research charges levied in terms of the WRA, they all strongly affect the collection of water research charges by DWAF. DWAF's obligation to continue to collect such charges on behalf of the WRC necessitates a close link to the pricing strategy for water use charges in the interests of efficiency and effectiveness. In practice this means that a common user base will have to be identified and uniform billing arrangements adopted. However, it should be noted that the setting of water research charges remains independent of changes in water use charges governed by the NWA pricing strategy.

This document sets the strategy for linking the collection of water research charges to the pricing strategy for water use charges, whilst maintaining compliance with the requirements of the Water Research Act.

Buyelwa Patience Sonjica, MP
Minister of Water Affairs and Forestry

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ABBREVIATIONS

CMA	=	Catchment Management Agencies
DWAF	=	Department of Water Affairs and Forestry
NWA	=	National Water Act, 1998
WMA	=	Water Management Area
WRA	=	Water Research Act, 1971
WRC	=	Water Research Commission

1. INTRODUCTION

This Collection Strategy contains the objectives, methodology and implementation strategy for setting and collection of water research charges for purposes of finding water-centred Research and Development (R&D) on behalf of the South African water sector and the nation.

One of the key objectives of the collection strategy is to maintain levels of charges consistent with efficient and effective generation, dissemination and use of knowledge products required to sustainably manage South Africa's water resources, effectively deliver water services to all citizens and efficiently and beneficially use our limited water supplies.

DWAF has the obligation to continue to collect water-research charges on behalf of the WRC. In the interests of efficiency and effectiveness with regard to the collection of these charges, revision of the mode of collection is necessary to build a close link to the collection of water use charges as determined by the NWA pricing strategy. In practice this means that a common user base will have to be identified and uniform billing arrangements adopted.

This document sets the strategy for linking the collection of water research charges to the pricing strategy for water use charges, whilst maintaining compliance with the requirements of the Water Research Act.

2. LEGAL MANDATE TO THE PRICING STRATEGY

In terms of Section 11 of the WRA, the Minister may with the concurrence of the Ministry of Finance, from time to time by notice in the Gazette, establish tariffs for water research charges on the basis of water supplied or made available for domestic, industrial or agricultural uses.

3. IMPLEMENTATION OF THE WATER-RESEARCH CHARGE COLLECTION STRATEGY

3.1 Definition of Water Use

Section 11 of the WRA empowers the Minister of Water Affiirs to levy charges on water supplied or made available for use for agricultural purposes, urban purposes, industrial purposes or any other purposes by any water management institution. At the same time, the Minister may, in respect of the tariff pertaining to such charges, differentiate between different classes of use or user, and may absolve any particular use or user from liability for payment. The Act therefore gives the Minister wide discretionary powers to determine the user base liable for payment of water research charges.

In selecting the user base for the levying of water research charges, and bearing in mind the need to ensure compatibility with the user base liable for payment of water use charges, consideration is given to the definition of water use contained in Section 21 of the NWA. These water uses are given as:

(a) taking water from a water resource;
a. storing water
b. impeding or diverting the flow in a watercourse;
c. engaging in stream flow reduction activity;
d. engaging in controlled activity which has a detrimental impact on water resources;
e. discharging waste or water containing waste into a water resource;
f. disposing of waste in a manner which may detrimentally impact on a water resource;
g. disposing of water which contains waste from any industrial or power generation process;
h. altering the bed, banks, course or characteristics of a watercourse;
i. removing, discharging or disposing of water found underground for continuation of an activity;
j. using water for recreational purposes.

The above mentioned water uses can be broadly grouped under three categories in the NWA:

Abstraction-related uses
- **Section 21 (a), Section 21 (b) and Section 21 (d)**

Waste discharge-related uses
- **Section 21 (e), Section 21 (f), Section 21 (g), Sec**tion 21 (h) and Section 21 (j)

Non-consumptive uses
- **Section 21 (c), Section 21 (e), Se**ction 21 (i), Section 21 (j) and Section 21 (k)

The broad definition of water use in the NWA creates the option of including most, if not all, of the above-mentioned uses in the group which is liable for payment of water-research charges in terms of the WRA.

3.2 Collection Strategy for Water-Research Charges

Although the WRA allows for the inclusion of most of the above user categories in the group liable for payment of water-research charges, the collection strategy for water-research charges will initially focus on the same user group currently (in 2004) contributing towards water-research charges, i.e. those falling in the abstraction-related use category. This includes users of water for domestic, municipal, industrial and irrigation purposes. However, it is envisaged that over time, and in consultation with all relevant user bodies, payment of water research charges will be extended to other defined water uses.

Payment of water research charges in the case of urban, domestic and industrial uses is currently based on quantities of water supplied. However, in the case of irrigation, where much of the water supplied has not been metered, the WRA allows charges (rates) to be levied on the area (hectares) of scheduled irrigation land on Government water schemes

and schemes falling under Irrigation Boards. The WRA also makes provision for the levying of charges for water made available for all abstraction-related uses, thus providing for the change in the basis of collection of water-research charges which will allow a simple link to the collection of water use charges under the NWA pricing strategy.

A fundamental aspect of this water-research charge collection strategy is therefore the phasing out of payment of water research rates and charges on the basis of water supplied for domestic and industrial purposes and for irrigated land, and the simultaneous phasing-in, for all water uses (irrigation included), of payment on the basis of water made available, i.e. on the basis of registered or licensed water use.

Although the basis for levying of water-research charges will be changed, the new collection strategy aims to avoid any increase in charges for the various user groups. The underpinning principle is that in converting from 'water supplied' to 'water made available' as the basis for payment, every effort will be made to ensure that equivalent prices (tariffs) apply. This includes the land-area-based to water-volume-based conversion in the case of the water-research charge for which irrigation is liable.

It should be noted that [redacted] decision to accept 2003/04 tariffs as a baseline and to link annual tariff increases to the rate of inflation for the ensuing five years will be honoured, provided that national policy does not require a broadening of scope, or intensification, of water research, in which case an amendment of this strategy will be required.

3.3 Determination of Sectoral Water-Research Charges

3.3.1 Water use sectors

The user sectors for which unit sectoral water research charges will initially be levied are:

- Domestic/industrial (water services authorities, industrial, mining/energy)
- Agriculture (irrigation and intensive stock watering) on Government water schemes and Irrigation Boards/WUA schemes.

In time, other users and user sectors will be included, but not without prior consultation with user groups and other interested and affected parties.

33.2 Determination of registered water use volumes per sector for pricing purposes

The registered water use in the various sectors will reflect average volumes annually available as determined by using the following methodologies for the water uses as defined:

Domestic/Industrial	Water allocations as reflected on a lawful permit, general authorisation or licence and/or verified as

existing lawful use, and amended for assurance of supply.

Irrigation Irrigation quotas, amended for assurance of supply.

Adjustments to the volumes as determined above may be deemed necessary according to the level of under- or over-utilisation of water in a particular WMA. Should this apply, all adjustments will be done in strict compliance with rules laid down in the NWA.

3.3.3 Assurance of supply

Registered water use of various users takes into account the assurance of water availability or supply, according to rules laid down in the pricing strategy for water use charges.

3.3.4 Water-research charges for resource-poor irrigators

Resource-poor irrigation farmers will be exempt from the payment of water-research charges for an initial introductory period of five years or as otherwise negotiated.

3.3.5 Phasing in of water-research charges

The phasing-in of water-research charges based on registered water use will take place concurrently with the phasing-in, in terms of the NWA pricing strategy, of water-use charges in the various WMAs by the relevant water management institutions. Prior to that, the current practice, of levying charges on water provided and rates on listed irrigation land, will remain in force.

3.3.6 Tariffs relating to water-research charges

[redacted]

3.3.7 Differentiation and temporary relief with respect to payment of water-research charges

Section 56 of the National Water Act, 1998 provides for the pricing strategy for water-use charges to differentiate on an equitable basis between

- different types of geographic areas
- different categories of water use
- different water users,

or for some elements of the charges to be waived in respect of specific users for a specified period of time.

In terms of the WRA, the Minister has similar powers, which allow the pricing strategy for water-research charges to be consistent with the NWA pricing strategy in this regard.

4. COMMISSION FOR COLLECTION OF WATER-RESEARCH CHARGES

DWAF shall continue to be responsible for collecting charges from the relevant water management institutions and for paying these over to the WRC in accordance to the WRA, for which service the WRC will pay DWAF a commission.

5. BUDGETARY AND FINANCIAL CONTROL

In implementing the water-research collection strategy, every attempt will be made to collect revenue efficiently and maintain strict financial control. In terms of this principle, a budgetary process will be applied in each water management area. Budgets will be forwarded to regional offices for dissemination and discussion with interested parties. Full disclosure of the accounts of the WRC will be made and outcomes of the R&D funding process will be communicated to water users.

ANNEXURE B

GLOSSARY OF TERMS

Social equity: In the context of water resources, social equity implies that all user groups have fair and reasonable access to the nation's scarce water resources, and that the allocation of water resources facilitates universal and affordable access to a basic water supply.

Ecological sustainability: This concept captures the view that there is a need to treat ecological protection and continuing economic growth as mutually compatible rather than as necessarily conflicting objectives.

Economic efficiency: A condition that is achieved when resources are used over a given period of time in such a way as to make it impossible to increase the welfare of any person without harming another.

Economic value: The cost that represents the scarcity value of a good which would prevail in competitive markets.

Externalities: are essentially activities whose full cost or benefit is not incorporated into an economic decision; hence they lead to sub-optimal social allocation.

Market approach: This is an accepted means through which buyers and sellers can communicate and trade at mutually agreed terms.

Market clearance: A condition that is attained when the price of the good traded adjusts so that the quantity buyers wish to buy is equal to the quantity which sellers wish to supply.

Opportunity costs: The costs of alternatives forgone by using scarce resources in a particular manner.

Polluter pays principle: A principle that ensures that a charge per unit of pollution emitted into the ecosystem is charged to those responsible for such pollution in order to internalise the cost thereof.

Resource Poor Farmers: Farmers who are citizens of South Africa and who are members of the historically disadvantaged population group.

Scarcity: The situation which arises when demand for any given good outstrips the supply of that good.

SAPWAT: A software program providing a crop water requirement model for South Africa.