Draft National PRICING STRATEGY for Raw Water Use Charges

Version 3: 2022

WATER IS LIFE - SANITATION IS DIGNITY

water & sanitation
Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

2030 NDP

CONTENTS

FIGURES

TABLES

LIST OF ACRONYMS

CMA	Catchment Management Agency
CMS	Catchment Management Strategy
CPI	Consumer Price Index
CUC	Capital Unit Charge
DAFF	Department of Agriculture, Forestry and Fisheries
DWS	Department of Water and Sanitation (formerly referred to as Department of Water Affairs or DWA)
ER	Economic Regulator
FIBC	Future Infrastructure Build Charge
GWS	Government Water Scheme
HDI	Historically Disadvantaged Individuals
MIG	Municipal Infrastructure Grant
M&I	Municipal and Industrial
NWA	National Water Act, No. 36 of 1998
NWRIA	National Water Resource Infrastructure Agency
NERSA	National Energy Regulator of South Africa
NWRS2	National Water Resource Strategy (version 2)
PPI	Production Price Index
O&M	Operations and Maintenance
RWU	Regional Water Utility
RPF	Resource Poor Farmers
RQO	Resource Quality Objective
SFRA	Stream-Flow Reduction Activities
Stats SA	Statistics South Africa
TCTA	Trans-Caledon Tunnel Authority

VAT	Value Added Tax
WDCS	Waste Discharge Charge System
WHO	World Health Organization
WMA	Water Management Area
WMC	Waste Mitigation Charge
WRA	Water Research Act, No. 34 of 1971
WRC	Water Research Commission
WRL	Water Research Commission Levy
WRM	Water Resource Management
WRMC	Water Resources Management Charge
WUA	Water User Association

DEFINITIONS

In this pricing strategy any word or expression to which a meaning has been assigned in the National Water Act shall bear that meaning and, unless the context otherwise indicates –

Betterment:	The augmentation or alteration of an asset that results in a material improvement to the capacity or performance of that asset. Also known as Upgrade.
Capital Unit Charge (CUC):	A system and/ or scheme based charge for repayment of loans/funds raised in commercial markes(off-budget) to fund the development of bulk raw water infrastructure.
Catchment Management Agency:	An entity established in terms of S78 of the NWA as Schedule 3A public entities in terms of the Public Finance Management Act. Catchment Management Agencies are responsible for the management of water resources in a water management area.
Catchment area:	A per Section (1)(iii) of the Nation Water Act a catchment, in relation to a watercourse or watercourses or part of a watercourse, means the area from which any rainfall will drain into the watercourse or watercourses or part of a water course, through surface flow to a common point or common points.
Commercial water infrastructure:	Infrastructure provided to economic water users who produce a wide variance of private goods and are able to pay full costs for commercial use of water.
Consumer Price Index:	Measures changes in prices for a range of consumer products, it reflects the general cost of living and is a representative basket of goods and services to the consumer.
Controlled Activity:	Irrigation of any land with waste or water containing waste; an activity aimed at the modification of atmospheric precipitation, power generation activity which alters the flow regime of a water resource; intentional recharging of an aquifer with any waste of water containing waste; any activity that the Minister declared a controlled activity.

Depreciation charge:	A charge intended to fund the refurbishment of the water infrastructure to restore the assets in real terms, and improve its expected useful life.
Full cost:	Means the recovery of the full operational cost (Direct and Indirect) and Capital charges.
Future infrastructure build charge:	The charge levied against the user of a water resource for the management of raw water infrastructure as intended under section 56(2)(b)(I, II and III) of the National Water Act. This management includes Rehabilitation, Betterment, and new construction of bulk raw water infrastructure as required by the Department of Water and Sanitation or its successor.
Government water works:	As per Section 1(x) of the National Water Act, a Government Water Works is a waterwork owned or controlled by the Minister and includes the land on which it is situated
Operations and maintenance charge:	A charge intended to fund Operations and Maintenance costs of Government Infrastructure waterworks. As supported by NWA section 56(2) (b) (iv). (Operation an Maintenace cost: The estimated annual cost of operating and maintaining the water supply facility when operated at average day capacity.)
Production Price Index:	A measure of the change in the prices of goods either as they leave their place of production or as they enter the production process. It reflects the cost of manufacturing goods and includes capital and intermediate goods (excluded from the CPI), excludes VAT (included in the CPI) and excludes services.
Public interest functions:	Relates to water resource management activities that are in the public interest and the costs are funded through fiscal support.
Raw water:	means untreated water from the water resource
Resource poor farmer or tree grower:	Means a farmers or tree growers who are approved for financial assistance in terms of section 3(1) of the Regulations on Financial Assistance to Resource Poor Farmers as published in Government Notice No. R. 1036 of 31 October 2007, in alignment with s61-62 of the NWA.

Rehabilitation:	Works to rebuild or replace parts of an asset to enable it to the original capacity and performance, and materially extend its useful life (which may be a full or partial extension of life).
Resource Quality Objectives:	Clear goals relating to the quality of the relevant water resources. The resource water quality objectives are numerical and narrative descriptors of quality, quantity, habitat, and biotic conditions that need to be met to achieve the required management scenario, as per Chapter 3: part2 of the NWA.
Strategic Use:	Means uses that are strategically important to the national economy, as described in Section 6(1)(b)(iv) of the National Water Act and which must be authorised by the Minister, including the transfer of water from one water management area to another and the continued availability of water to be used for electricity generation throughout the country.
Scheme:	Means a single Government waterworks or collection of inter-related Government waterworks supplying a common user base.
Social water infrastructure:	The infrastructure provided to social water resource users that are not able to pay the full costs of the infrastructure, but that require the infrastructure either because it provides social or economic development according to national development plan.
The Department:	Refers to the Department of Water and Sanitation, which includes any reference to the former Departments of Water Affairs and Forestry or Water Affairs as Gazetted as well as its successor.
Waste Discharge Charge System:	Is a framework for charging for the discharge of waste into water resource. It is established in terms of section 21 (f)-(j), around the "Polluter Pays Principle" and the adoption of the economic instruments with the aim to promote the sustainable development and efficient use of water resources.

Waste Mitigation Charge:	Is related to the recovery of costs associated with mitigation and abatement measures employed in the water resource on the surface water and ground water. The User charge is established in terms of Section 56 of the NWA. It is based on the identification and assessment of feasible mitigation measures to reduce the catchment load or its impacts.
Waste:	As per section 1 (xxiii) of the NWA.
Water Reserves:	As defined in Section 1(xviii) of the NWA
Water use:	As defined in Section 21 (a-k) of the NWA.

1 INTRODUCTION

This draft revised pricing strategy is published for comment in terms of the National Water Act (NWA), 1998 (Act no. 36 of 1998).

1.1 Why this pricing strategy?

This pricing strategy provides the framework for the pricing of the use of water from South Africa's water resources, i.e. the use of raw (untreated) water from the water resource and/or supplied from government waterworks and the discharge of water into a water resource or onto land. It is developed in terms of the National Water Act, which empowers the Minister of Water & Sanitation, with the concurrency of the Minister of Finance, to establish a pricing strategy for charges of any water use within the framework of existing relevant government policy. Socio-economic, environmental and other changes warranted this third revision of the pricing strategy.

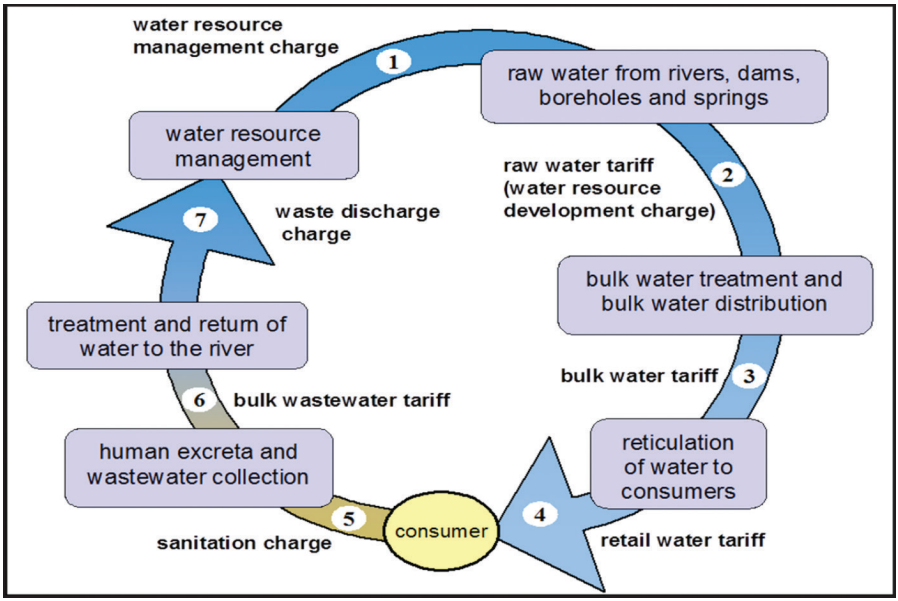
1.2 What are the objectives of the pricing strategy?

This strategy seeks to facilitate reform in the sector as well to provide transparency and predictability to water users on how water will be priced. It is intended to support the achievement of the goal, as articulated in the National Water Resources Strategy, that water is efficiently and effectively managed for equitable and sustainable growth and development. Within this context the primary objectives of this pricing strategy are to:

- Ensure that the costs of achieving and maintaining the Resource Quality Objectives are sufficiently recovered through the water use charges (or to ensure that there is adequate funding for the achievement and maintenance of the RQOs). 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
- Ensure that there is adequate funding for the effective operation, maintenance and development of waterworks by the Department and other water management institutions
- Provide an enabling framework for the provision of financial assistance and the use of water pricing to support the redress of racial and gender imbalances in access to water and to support the redistribution of water for transformation and equity purposes.
- Facilitate financial sustainability of water management
- Promote/facilitate water use efficiency. In the context of water scarcity, it is critical to ensure an efficient allocation, which requires that the price of water reflects its scarcity value, to ensure firstly that water is conserved and secondly that some water is redirected for optimal economic benefits while not harming social benefits.
- Establish a water resource pricing regime for the economic Principles of raw water Pricing.

The full water pricing value chain in the country has been depicted below. The Pricing Strategy for Raw water Use charges focuses on water resource management charges (1) that include waste discharge charges (7); and water resource development/infrastructure, raw water charge (2). In addition, the National Water Resource Pricing Strategy provides for non-consumptive use which includes impeding or diverting the flow in a watercourse; engaging in a controlled activity; altering the bed, banks, course or characteristics of a watercourse.

Figure 1: Water Value Chain



1.3 Pricing Strategy Principles

This pricing strategy is based on sound principles and aims to provide a greater degree of transparency on how raw water is priced in the country. It recognises the developmental context of the South African water sector and acknowledges that where, for social equity, environmental or affordability reasons, water management cannot be sustainably financed from specific water users, then that shortfall must be recovered transparently. The principles guiding water resource pricing are guided by the National Water Act:

Hybrid tariff approach: The pricing strategy provide for a combination of national and water management area specific charges to facilitate the development of affordable tariffs to all users; some elements of charges will be levied as a national charge; some at a water

management area level and some directly to users within a scheme based on registered and actual use

Users pay to recover costs: The intent of the pricing strategy is to provide for the full recovery of costs associated with the management, use, conservation and development of water resources and the associated administrative and institutional costs.

Polluters pays to recover costs: The cost of treating water discharge and pollution must be recovered from users who discharge and impact or threaten Resource Quality Objectives or Resource Water Quality Objectives. The waste discharge charge system provides the context for this principle to apply.

Ecological sustainability: The pricing strategy will facilitate funding to ensure the provision of water for the ecological reserve and the water sector's contribution to maintaining water ecosystems. In setting a pricing strategy for water use charges, the Minister must in terms of the NWA S56(6)(a) of the NWA consider the class and resource quality objectives for different water resources.

Differentiated charges: The strategy allows for differential charges to designated water use categories to support the achievement of key national objectives, such as food security, racial and gender equity, job creation and economic development.

Differential charges: In terms of the NWA S56(3) the pricing strategy may differentiate on an equitable basis between different:

- types of geographic areas;
- categories of water use; and
- water users.

Basis of water resources charges: The pricing strategy in terms of the NWA S(57)(1) provides for water resource charges to be applied nationally or regionally or for charges to be specific to a water management area, scheme or waterworks. In terms of S56(4) of the NWA the pricing strategy may differentiate under the NWA S56(3)(a) in respect of different geographic areas, based on:

- socio-economic aspects within the area in question;
- physical attributes of each area; and
- demographic attributes of each area.

Categories of water use: 1) Schedule 1 use for basic human needs; 2) abstraction use, 3) waste discharge use and 4) non-consumptive use.

Categories of water users: The pricing strategy will differentiate between 1) irrigation users; 2) municipalities; 3) industry and mining users; 4) power generation users, 5) stream flow reduction activities and 6) hydropower users.

In terms of S61 – 62 of the NWA the Minister may, subject to regulations on financial assistance to resource poor farmers, provide financial assistance to users.. The achievement of social equity is one of the considerations in setting differentiated charges. Such financial assistance must be funded from funds appropriated by Parliament. S57(5) of the NWA prohibits any charges that constitute the imposition of a tax, duty or levy.

Accountability and governance: Water management institutions must ensure funds are managed transparently and water resource services and development are undertaken in a cost effective and efficient manner to ensure affordable charges.

Multi-year tariffs: Provides for multi-year tariff determination to facilitate longer term planning and greater levels of certainty for water institutions and users.

1.4 Legal mandate of 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 through water use charges, (Section 56 (2) (a));
- funding water resource development and use of waterworks (Section 56 (2) (b));
- achieving the equitable and efficient allocation of water, (Section 56 (2) (c));
- providing for a differential rate for waste discharges, hereafter referred to as the WDCS, to enable the monitoring, control and treatment of pollution of water resources (Section 56 (5));
- enabling the provision of financial assistance and the use of water pricing to support the redress of racial and gender imbalances in access to water and to support the redistribution of water for transformation and equity purposes (section 61 and 62)

1.5 Water use not subject to pricing

- **Permissible water use as described under Schedule 1 of the NWA.** A person may use water in or from a water resource for purposes such as reasonable domestic use, subsistence farming, animal watering and fire-fighting as set out in Schedule 1 of the NWA. Schedule 1 use is exempted from water use charges determined in terms of this strategy.

- **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

1.6 Categories of water uses

Section 56 of the National Water Act instruct the Minister to establish a Pricing Strategy for charges for any water use described in Section 21. The pricing strategy prioritises uses of water stated below, and over time will charge for most defined water use after consultations with stakeholders. With the implementation of the waste discharge charge system, most of the below-mentioned use will be charged for.

Table 1 : Categories of water uses

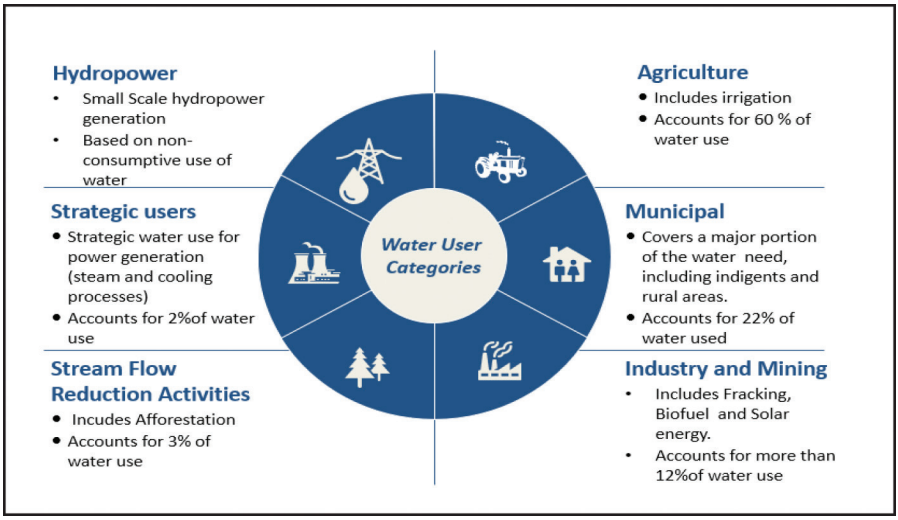
Three categories of water uses	Water use described in section 21(a) to (k)
Abstraction use	a) taking water from a water resource b) storing water c) engaging in a stream flow reduction activity (i.e. land-based activities which significantly reduce stream flow);
Waste discharge use	a) engaging in a controlled activity identified as such in section 37(1) or declared in section 38(c)(1) b) discharging waste or water containing waste into a water resource; c) disposing of waste in a manner which may detrimentally impact on a water resource; d) disposing of water which contains waste from any industrial or power generation process; e) removing, discharging or disposing of water found underground;
Non-consumptive	a) impeding or diverting the flow in a watercourse b) engaging in a controlled activity identified as such in section 37(1) or declared in section 38(c)(1) c) altering the bed, banks, course or characteristics of a watercourse; d) using water for recreational purposes.

2 WATER USER CATEGORIES

In terms of Section 56 (3) of the NWA, the pricing strategy may differentiate on an equitable basis, on the basis of geographic areas, and between different categories of water use; and different water users.

This pricing strategy provides for six water user categories, from the previous four, to better represent the water user groups and to allow for more clearly targeted charges.

Figure 2: Proposed water user categories for charging purposes



The main changes in these categories are the following:

The split of the formerly Domestic and Industrial category into two separate groups, Municipal (subdivided into Category A, B and C)[1] and Industrial/Mining

The addition of the Strategic user, representing users with an assurance of supply of 99.5%.

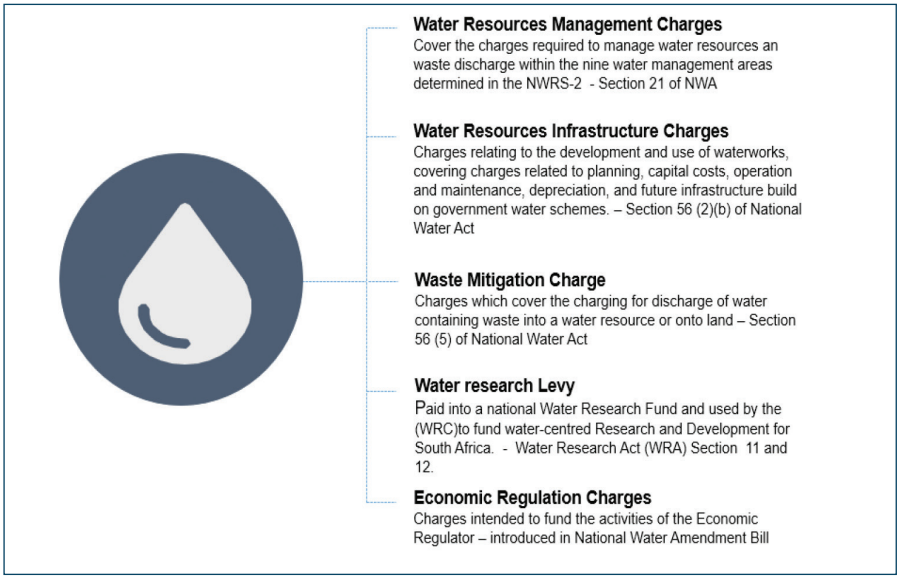
A category of Hydropower has also been introduced to be able to charge for water use by hydropower plants that are developed as part of the energy mix in the country.

[1] *Category A: Metropolitan Municipality, Category B: District Municipality, Category C: Local Municipality.*

3 CATEGORIES OF CHARGES

In terms of the Section 56(1) and (2) of the National Water Act, the pricing strategy may determine the methodology of setting water use charges.

Figure 3: Categories of Charges



3.1 Water Resources Management Charge

The Water Resources Management Charge (WRMC) funds water resource management activities in each of the WMAs. These activities relate to the protection, allocation, conservation, management and control of all of the nation's water resources. There are two components to WRMC, these being the abstraction water use charge and the waste discharge related water use charge. The activities that may be partially or completely funded from the WRMC are listed in Table 1 (Page 12).

These activities will be progressively undertaken by CMAs when they are established and fully capacitated but will be undertaken by or in conjunction with DWS National and Regional Offices in the interim. In WMAs where both the Department and CMAs are performing WRM functions, income will be shared pro-rata to input costs and this split will be reflected in all sectoral charges and WRMCs will be levied to all users.

Table 2: water resource managment activities

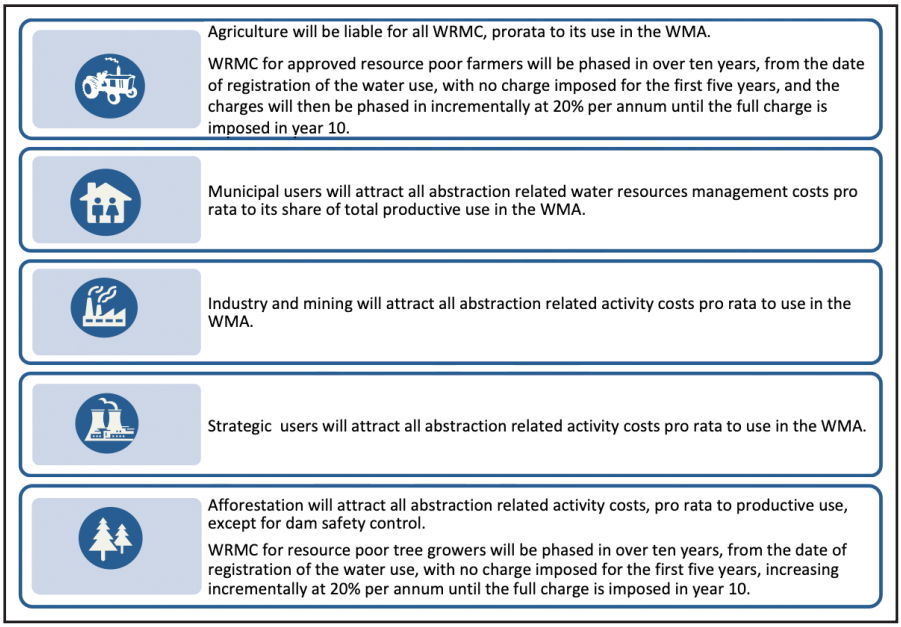
Function/Activities		Taking water (abstraction) activities	Waste discharge activities
1	Catchment management strategy and water resources planning	• Resource studies, investigations and integrated strategy development	
		• Allocation plans and administration	• Water quality management plan
2	Resource directed measures	• Implement programmes to monitor Resource Quality Objectives (RQOs) • Implement source-directed controls to achieve resource quality objectives • Report against the achievement of the Class and RQOs • Report on the water balance per catchment (i.e. water available for allocation after consideration of ecological requirements)	
3	Water use authorization	• Registration of water use	
		• Abstraction activities	• Waste discharge activities authorization
		• Maintenance of water management area register of water use	
		• Stream flow reduction activities authorization	
4	Compliance Monitoring and enforcement of water use	• Compliance monitoring and enforcement of water users per sector.	
		• To conduct investigations of water crimes in relation in accordance with the National Water Act and other relevant legislations.	
		• Abstraction activities • Dam safety control and classification of dams	• Waste discharge control • Compliance promotion and audit sampling (users discharge)
		• Compilation, Serve and implement administrative notices	
		• Stream flow reduction activities control	
5	Disaster management/ Pollution control and emergency incidents	• Planning and preventative management of disaster (administration) including risk monitoring (management).	• Pollution incident planning and response (management) (intervention)

Function/Activities		Taking water (abstraction) activities	Waste discharge activities
6	Water resources management programmes	• Integrated water resources programmes	
		• Implementing of water management strategies (e.g. water conservation and water demand management)	• Implementing of water management strategies (e.g. cleaner technology, dense settlements, waste discharge strategies)
7	Water related institutional development (Stakeholder Management empowerment)	• Stakeholder participation, empowerment, institutional development & coordination of activities • Establishment and regulation of water management institutions • Stakeholder consultations • Capacity and Empowerment of stakeholders	
8	River health (Water weed control)	• Aquatic weeds control	
9	Maintenance and Restoration of Ecosystems to improve water resources	• Planning and implementation of ecosystem maintenance and rehabilitation programs, required for water resource protection and achievement and maintenance of RQO's, e.g. sediment control, nutrient trapping, riparian and wetland rehabilitation • 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 of aquifers	
10	Geo-hydrology and hydrology	• Groundwater and surface water monitoring • Compiling of maps and yield information • Extending and maintaining the hydrological database & compilation of information	
	Administration & Overheads	• Administrative, institutional & overheads for regional office or CMA	

3.1.1 Taking water from a water resource

There are no concessions granted to any sector on the WRMC except for resource poor farmers and resource poor tree growers due to affordability and redress the imbalances in access to water and redistribution of water for transformation and equity. This charge will be WMA specific and will be based on the Department and CMAs' total costs of undertaking water resources management functions within a Water Management Area. It will apply as follows:

Figure 4: WRM charges for abstraction related water use



The allocation of functions, in terms of abstraction and waste discharge related users, will be in terms of Table 2. Integrated costs for abstraction and waste discharge activities will be split between the two charges, in relative proportion to the management effort. Where certain actions cannot be accurately costed at a national scale, a nominal, justifiable charge will be set by the Department.

The principles for determining the registered volumes for each sector, as well as the methodology for calculating the unit cost:

- In situations where there is an under recovery of costs, or where there is limited revenue opportunities in the WMA, to cover the costs of public interest functions, i.e.

activities that are in the interest of the broader society, the Department will provide fiscal support to the affected CMAs. The classification of the functions relating to those in the interest of the public is annexed to the strategy (Annexure 4).

- In WMAs where both the Department and CMAs are performing WRM functions, income will be shared pro-rata to input costs and this split will be reflected in all sectoral charges. These charges will need to be apportioned according to the collection/billing of the income within the different sectors, in cases where cross subsidisation is required the Minister needs to approve. WRMCs will be levied to all users: municipal, industrial and mining, agricultural, SFRA, strategic users and Hydropower.
- In the case of inter-basin transfers, the proportional water resources management costs of exported water will be raised in the receiving WMA and transferred to the transferring WMA. Wherever possible, interlinked catchments will be combined for WRM charge purposes and the funds will be allocated in proportion to the functions performed in each catchment. The activity input cost regarding an inter WMA transfer will be allocated only to those sectors that benefit directly from the transfer through water allocations in the receiver WMA. Where the quality of streamflow from an upstream WMA imposes a water quality management cost on the downstream WMA, this additional cost will be funded by WRMCs on waste dischargers in the upstream WMA.

3.1.2 WRMC for Waste Discharge related water use

This component of the WRMC relates to waste discharge related use, as defined in Section 21 (f) – (j) of the NWA. All water use sectors, including hydropower and stream flow reduction activities will be liable for these charges.

The calculation of charges will be based on the volume of wastewater discharged from a point source, and on the degree of management activity required for non-point source registered uses.

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.

S21 Waste Discharge related water use

- Engaging in a controlled activity (where the controlled activity relates to aste discharge activities)
- Discharging waste or water containing waste into a water resource
- Disposing of waste in a manner which may detrimentally impact on a water resource
- Disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process
- Altering the bed, banks, course or characteristics of a watercourse; (where such activities have impacts on the water quality of the water course)
- Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people

3.2 Water Resource Infrastructure Charges

While Section 56 2(b) of the NWA defines the costs related to the development and use of waterworks, including:

(i) the costs of investing and planning;

(ii) the costs of design and construction;

(iii) pre-financing of development;

(iv) the costs of operation and maintenance;

(v) a return on assets; and

(vi) the costs of water distribution

Section 111 mandates the Minister to finance the acquisition, construction, alteration, repair, operation and control of Government waterworks from funds appropriated by Parliament or obtained from any other source.

Need for water use charges

- If water use charges are too low, they will lead to underinvestment, lack of maintenance and unwarranted fiscal subsidies.
- There is a need to adjust to higher real charges over time to accommodate the cost of investing in supply capacity to meet rising demand and to maintain, rehabilitate and refurbish existing infrastructure.
- There is also a need to invest in economic regulation of infrastructure financing and management.

The water resources infrastructure charge provides for this development and use of Government waterworks and may include the related costs of investigation, planning, design and construction and pre-financing of water schemes, which constitute the capital cost of projects.

The pricing strategy considers the costs through the full lifecycle of the infrastructure and therefore makes provisions for four components to this charge; namely:

- Operations and Maintenance (O&M)
- Depreciation/Refurbishment
- Future Infrastructure Build Charge (FIBC), and
- Capital Unit Charge (CUC).

These charges will be based on annually updated capital and operational expenditure plans of institutions managing water resources infrastructure and will take into account parliamentary appropriations and other contributions. It will be a differentiated tariff for the water use categories, and all charges will be scheme specific with the exception of the FIBC, which will be determined on a national basis.

In terms of development of new infrastructure or the augmentation of existing infrastructure, Department 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 where the demand is not driven by specific commercial water users or sectors.

The funding of commercially viable new water infrastructure will be done by off-budget debt financing through institutional arrangements. The social component, associated with development and betterment, within commercially viable infrastructure projects will be funded by the State. Funding of water resources management infrastructure, such as gauging stations will be funded by the Department, if it supports the national monitoring network, and by users at a WMA or scheme level, if the monitoring infrastructure is needed for non-national purposes.

The application of the four components of the infrastructure charge will therefore vary, depending on the funding arrangements of the schemes.

Table 3: The applicability of the infrastructure charges on new and existing government water schemes, which are either commercially or government funded

	Existing Schemes			New Schemes	
Charge to be Levied	Commercial portion of schemes funded	Social portion of schemes funded by the Minister	Funded off-budget and debt has been repaid	Fully or partially funded by the Minister (social)	Off-budget funded portion of scheme
Operation and Maintenance (O&M)	Yes	Yes	Yes	Yes	Yes
Depreciation/ Refurbishment	Yes	Yes	Yes	Yes	Yes
Future Infrastructure Build Charge (FIBC)	Yes	Yes	Yes	Yes	Yes
Capital Unit Charge (CUC)	No	No	No	No	Yes

3.2.1 The Operations and Maintenance Charge (O&M)

The O&M charge will facilitate the recovery of the direct and indirect operations and maintenance costs on government water schemes to ensure that infrastructure is in an optimum condition and that there is continued security of supply.

The O&M charge is determined on a zero base budget for each year. It will be recovered on a scheme or system basis and can either be based on actual cost recovery or on a forecast of annual O&M costs and of water use. This charge is applicable to all sectors, except the irrigation sector for which it is capped.The direct operation and maintenance costs include fixed and variable costs, which can be attributed directly to administrating, operating and maintaining schemes (e.g. pumping cost, pump maintenance, flood gate maintenance) and distribution costs. Direct costs will be allocated directly to sectors where this is possible.

The indirect costs are the costs which cannot be directly attributed to a specific scheme, but which contribute towards the sustainable management of the water system. This includes the regional/ area office. Indirect operation and maintenance costs will be allocated to the different sectors in an equitable manner.

3.2.2 The Depreciation Charge

The depreciation charge provides for the loss in functional performance and real term value of existing water resource infrastructure that occurs due to wear and tear, decay, inadequacy and obsolescence. The depreciation charges will be used to refurbish existing assets on a prioritised basis, as and when required. 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. This charge is applicable to all sectors supplied from Government waterworks.

Standard performance and capital value can only be restored through refurbishment.

Examples are the replacement of pumps, sluice gates on dams, the concrete lining of a canal or a portion of a pipeline.

The depreciation charge will be scheme or system specific. Depreciation of the replacement cost of the assets is charged based on a straight-line basis over the estimated useful life of each component of an item of property, plant and equipment. Depreciation commences when the asset is available for its intended use by management. Land, artwork and assets under construction are not depreciated. All other property, plant and equipment, including capitalised leased assets, are depreciated on a straight-line basis over their estimated useful lives or the term of the lease, whichever is shorter.

A cost or a depreciated replacement cost model would apply to determine the annual depreciation cost. The estimated useful lives over which the assets will be depreciated are in accordance with the table below.[2]

Table 4: Estimated Useful Life of assets for depreciation

Component	Estimated Total Useful Life (years)
Water storage related infrastructure:	
• Dams & Weirs	40 - 100
• Canals	40 - 100
• Tunnels	40 - 100
• Reservoirs	80
Pump Stations:	
• Structures	10 - 80
• Components	3 - 50
Pipelines:	
• Syphons & Concrete pipelines	40 - 100
• Pipeline structures	25 - 75
• Pipeline components	20 - 75
Buildings:	
• Building structures	50 - 80
• Building components	10 - 20

If the initial (or historic) capital cost is available or known for an existing or new asset, this value will be used as replacement cost. The calculation formula for annual depreciation cost (ADC) is as follows:

$$ADC = \frac{(Replacement\ Cost)}{(Expected\ Useful\ Life)}$$

[2] *The ranges for the estimated total useful life can be narrowed down or a weighted average estimated useful life can be determined if the relevant data is available. However, the estimated total useful life for an asset class should be based on sound engineering principles and not merely be an accounting calculation.*

If the historical or initial capital cost is unknown, as is often the case with older schemes or assets, the depreciation replacement cost (DRC) approach would be followed. The DRC is equal to the cost to construct the asset in today's terms with the asset already depreciated since it became available for its intended use by management at the time when it was constructed. The DRC is calculated as follows:

$$DRC = \frac{([Estimated\ Total\ Usefull\ Life - Age\ of\ Asset] * Current\ Cost\ to\ Construct\ Asset)}{(Estimated\ Total\ Useful\ Life)}$$

The calculation formula for annual depreciation cost (ADC) is then as follows:

$$ADC = \frac{ADC = (Depreciated\ Replacement\ Cost\ (DRC))}{(Expected\ Useful\ Life)}$$

3.2.3 The Future Infrastructure Build Charge (FIBC)

The FIBC will contribute towards the funds for the development of social and economic development stimulus water resource infrastructure, including the costs of investigation planning, design, construction and pre-financing. The FIBC shall not be used to subsidise operations and maintenance expenditure.

The FIBC is only intended to finance these activities for social and economic development stimulus infrastructure which includes schemes where:

- there is supply to domestic users that is associated with basic water requirements, whether this is the entire scheme in a rural area or a portion of a municipal supply system, and
- infrastructure that will provide for future economic water use for which there are currently no/insufficient users or for which the existing users cannot afford the development of water infrastructure, but where the water supply is necessary to provide for future economic development.

The classification of a project (social or commercial) will be based on the approved feasibility study report. The quantum of the FIBC will be based on the annualised costs of the Department's 10-year infrastructure development plan as defined in the latest version of the National Water and Sanitation Masterplan, less any budgetary allocations towards the social development costs made by National Treasury. The excess FIBC funds accrued in any year shall be placed in the Reserve. The FIBC should be matched as closely as possible to the funding requirements of the next ten years social and economic development stimulus infrastructure so that excessive long terms reserves are not accumulated. The Reserve shall be audited annually and reported on in the annual financial statements of

the WTE or the NWRIA. The portion of the scheme that is social and commercial may be reclassified from time to time, as economic development and household incomes improve in a project supply area.

The FIBC will be calculated at a national level, such that all users (as listed in figure 2 on Page 13), pay the same charge per m3. It will be based on the annual costs for social infrastructure development/betterment and management costs (investigation, planning, design, pre-financing, overheads, etc.), as defined in the Department's 10 year infrastructure plan. The calculation is expressed below:

$$\text{FIBC} = \frac{\textit{(Infrastructure development:Betterment:management Costs)}}{\textit{(DWS National Volumes-subsidies volume)}}$$ [3]

3.2.4 Capital Unit Charge (CUC)

The current institutional framework empowers the Minister to direct the water management institutions to implement and fund government water schemes off-budget, are entitled to raise loans to finance the development of the new infrastructure, and to service these loans through cost recovery i.e. investment (loan), where such infrastructure is commercially viable.

The CUC will be determined for each scheme and will provide for the debt service requirements on these commercially viable projects, within a reasonable period of 20 years and taking cognisance of affordability, the economic life and the timing of potential future augmentation of the infrastructure. The CUC may however, be dealt with on a system or a national basis, should institutional reforms enable such change. It will be based on water used from the scheme and not necessarily on water provided into the scheme.

The CUC will be based on the financial models for the project and will be determined by negotiations with the relevant water users. It will be formalized through water supply agreements with either the Department or the WMI, depending on the implementation arrangements. The CUC may be subject to an annual review where increases are passed through automatically or under specific conditions negotiated between the parties. All water users supplied from the scheme, with the exception of the social component, will be liable for the CUC. Users of the social component of the scheme will be subject to tariffs applicable to state funded schemes.

[3] *Infrastructure development: Betterment: Management Costs after excluding budgetary allocation by National Treasury for social development costs*

The CUC will cease once the project debt has been repaid, the project will then attract all charges that are applicable to State funded schemes. Where the users of new infrastructure fund their portion of such infrastructure planning, design and construction through a lump sum contribution they will not be liable for paying the CUC of that scheme.

3.2.5 Assurance of Supply

Assurance of supply means the probability, expressed as a percentage, that a water user will obtain its water requirements or a portion thereof without water restrictions. It is thus the probability that water will be supplied without any curtailments.

Strategic water users have a high assurance of water supply that is equal to 99.5%. This means that they should, on average, get their full supply of water for all but one year out of two hundred. Municipal and Industrial/Mining users have a 97% assurance of supply, which is higher than the assurance of supply of 91% for Agricultural users. These different assurances of supply are reflected in the charges that the different sectors pay since the assurance of supply is built into the calculation of the charge.

Assurance of Supply methodology

- Total volume of water available from a scheme or system is allocated to different water use categories that receive water as per assurance of supply that applies to each category
- Average volume of water that each water user category will receive from a scheme or system is adjusted by the assurance of supply that applies to the respective categories
- A new assurance of supply adjusted total volume of water is determined for each category
- Percentage cost allocation for each water user category is them determined by dividing the new assurance of supply adjusted volume for each water use category by the new assurance of supply total volume of water

The assurance of supply results in users with a higher assurance of supply pay more for their water than those with a lower assurance of supply.

If a scheme has 100 million m^3 of available water per annum:

- If 22 million m^3 (22 %) is allocated to Municipal, at 97% assurance
- 12 million m^3 (2%) is allocated to Industry and mining, at 97% assurance
- 2 million m^3 (2%) is allocated to strategic use, at 99.5% assurance and
- 60 million m^3 (60%) is allocated to Agriculture at 91% assurance

The assurance of supply for each of these user categories changes the totals that each industry actually receive, such that the total guaranteed to each of these categories are as follows:

Municipal	22 million $m^3 \times 0.97$ =	21, 34 mill m^3
Industry and mining	12 mill $\times$ 0.97 =	11, 64 mill m^3
Agriculture	60 mill $\times$ 0.91 =	54, 6 mill m^3
Strategic use	2 mill $\times$ 0.995 =	1, 99 mill m^3
Total		89, 57 mill m^3

The new total becomes 89, 57 mill m^3. In order to allocate the expenses in a manner that reflects the assurance of supply, we divide the new strategic use by the new total in order to determine how much of the expenses should be allocated to the strategic users:

Strategic users share of cost will be 1,99 mill m^3/89, 57 mill m^3 = 22.2%

Assurance of supply applies to the following infrastructure related charges:[4]

- O&M
- Depreciation
- Capital Unit Charge

3.2.6 Hydropower

Hydropower is a critical renewable energy source. There is further potential to develop at least small hydropower plants with capacities ranging from 1 to 15 MW (megawatt),which generate approximately 446 000 MWh/annum.

Water used in hydropower generation is non-consumptive, apart from possible increase in evaporation, and it is therefore necessary that appropriate pricing mechanisms are applied to support viability of these schemes. This pricing strategy therefore proposed that charges for hydropower generation should be based on c/kWh (cent per kilowatt hour) of energy generated and a fixed charge based on kW installed, instead of the cent per cubic meter of water use charged for raw water abstraction, which is neither practical nor applicable.

Micro hydropower includes all applications with an installed capacity of less than 1 MW and is considered for self or own use only. These applications will be exempt with no charge applicable. Systems with a capacity between 1 MW and 20 MW are considered commercial applications and the charges below will apply:

Table 5: Commercial hydropower plant charges

	Scenario A	Scenario B
	Hydropower plant integrated within DWS's infrastructure at the dam	Hydropower plant developed downstream of DWS's infrastructure and downstream of the dam wall
Fixed charge	R10.00/kW per annum	R5.00/kW per annum
Variable charge	R0.01/kWh	R0.01/kWh

Costs would be increased annually by PPI.

[4] *Assurance of Supply does not apply to FIBC as this is only intended to finance activities of social and economic development stimulus infrastructure and will not benefit high assurance users.*

Table 6: Commercial hydropower plant charges

Calculation

The maximum installed capacity is estimated at 446 000 MWh/annum, and is converted as follows:

446 000 MWh = 446 000 000 kWh per annum (variable charge).

446 000 000 kWh/8760 (hours in a year) = 50 913 kW (fixed charge for installed capacity).

Based on a maximum installed capacity, DWS's potential income will be as follows:

Scenario A

Hydropower plant integrated within DWAF's infrastructure

Fixed charges	50 913 kW x R10/kW	=	R 509 130
Variable charges	446 000 000 x 1 cent	=	R 4 460 000
Annual income under scenario A		=	R 4 969 130

Scenario B

Fixed charges	50 913 kW x R5/kW	=	R 254 565
Variable charges	446 000 000 x 1 cent	=	R 4 460 000
Annual income under scenario B		=	R 4 714 565

It is most likely that a combination of scenario A and B will be applicable in practice, therefore the total income will probably be somewhere between A and B.

The total average unit charge based on kWh will be R0.0114 cent under scenario A and R0.0106 cent under scenario B. This compares favourably with the proposed water tariff of R0.0106 cent, proposed by NERSA (National Energy Regulator of South Africa), in their document titled South Africa Renewable Energy Feed-in Tariff (REFIT) – Regulatory Guidelines, 26 March 2009.

Large hydropower that have been installed on National Infrastructure form part of long term mutually beneficial agreements between DWS and the owner/operator of these schemes as these were mostly joint developments of the dams and associated infrastructure. These collaboration agreements spell out the rules to be applied, and will remain in place as is.

New large scale hydropower (i.e. >20 MW) may be negotiated between the Department and the owner/operator of such plant on a similar basis as the existing collaboration agreements, or in the absence of these, the small scale hydropower charges should apply.

In implementing the proposed charges for small scale hydropower generation, each hydropower operator will have to provide the Department with a copy of their annual returns to NERSA. This information will provide the basic input to charge a tariff to the power generators that will establish business within the next few years. This charge may be subject to an annual escalation equivalent to an appropriate basis for escalation.

The Pricing Strategy prohits the request by hydropower generation operator to release additional water from the dam for the purpose of generating power.

3.3 Waste Discharge Charge System

The WDCS is based on the polluter-pays principle and aims to promote the sustainable development and efficient use of water resources; internalise the environmental and social costs of using water; create financial incentives for water users to reduce waste and use water resources more optimally, and recover costs associated with impacts of waste discharges. The WDCS is therefore applicable to all dischargers but will only be implemented where identified interventions are to be affected.

The WDCS will be applied at a catchment level, 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 reservoirs and/or sub-catchments with insignificant contaminant loading. The potential impact of waste disposal on groundwater resources is recognised. The WDCS may be implemented in catchments for which Resource Quality Objectives (RQOs) are either exceeded or threatened but may also be implemented in areas where identified water quality challenges are prevalent and require redress. In the absence of a class and associated RQOs, Water Quality Planning Limits (WQPLs) (previously referred to as Resource Water Quality Objectives) are developed to guide the management water quality. The Waste Discharge Charge System will be implemented through the Waste Mitigation Charge.

3.3.1 Waste Mitigation Charge

The Waste Mitigation Charge is related to the recovery of costs associated with mitigation and abatement measures employed in the water resource to achieve RQOs or WQPLs. This user charge is established in terms of the Pricing Strategy under the NWA, and therefore it should be focused on the recovery and disbursement of quantifiable costs incurred in the mitigation of direct impacts of waste discharge. To be a user charge, it is important that all dischargers only pay according to their proportional contribution to the problem. Accordingly, while the Waste Mitigation Charge may influence dischargers to reduce their discharge loads, it must be defined around the cost of mitigation.

To set charges in accordance with the polluter pays principle in mind, there must be a direct correlation with actual costs associated with impact caused by the discharge/disposal of waste. In order to set appropriate charges, the following must be developed or identified:

- Key representative pollutants
- The direct impact costs of the discharge/ disposal of waste
- Abatement costs for categories of pollutants
- Costs for the administration and oversight of mitigation interventions; and
- Charge estimation and distribution models.

The following are four scenarios for which the Waste Mitigation Charge may be considered:

(i) Removal of load from the water resource: costs for developing and operating regional mitigation schemes, initiatives or projects for the reduction of water quality loads within the water resource.

(ii) Water resource system operation for water quality management: costs associated with reduced system yield associated with the management of river-reservoir systems to reduce the impact of water quality problems.

(iii) Treatment for downstream water users: costs incurred in developing and operating additional treatment requirements for downstream users, particularly where water quality does not meet specified resource quality objectives.

(iv) Treatment at source: costs of reducing waste load from a specific source, including regional schemes to collect and treat waste from a number of sources before it enters the water resource.

Waste Mitigation Charge (WMC)

- Facilitates the recovery of costs to mitigate the impacts of waste discharge on surface water resources.
- Charged to registered water users discharging waste in the impacted catchments.
- Dependent on net waste load (load in discharge, less load in intake) in the return flows.

The Waste Mitigation Charge will be charged on water quality variables that critically impact on the RQOs or WQPLs, which will be selected with due consideration to the type of waste discharge sources, the nature of the waste typically discharged, and the cost-effectiveness of monitoring different variables.

Table 7 waste mitigation charge rate formula

CMxik = RMxiy.[(Cdik . Vdk) - (Caik.Vak)]

CMxik = Waste Mitigation Charge for discharger k, mitigation measure x and water quality variable i

RMxiy = constant charge rate for mitigation measure x and variable i for a period y

Cdik = discharge concentration of variable i (registered) from discharger k

Caik = abstraction concentration of variable i (registered) for discharger k

Vdk = discharge volume (registered) from discharger k

Vak = abstraction volume (registered) for discharger k

The determination of the charge rate will be specific to the locality where it will be applied. Therefore, the charge rates will not be the same across the different catchments. The charge rates are also dependent on the water quality variable/s to be addressed.

The WMC will facilitate the recovery of the full costs to mitigate the impacts of waste discharge on surface water resources. It will be a charge to registered water users, discharging waste in the impacted catchments, and will be dependent on the net waste load (load in discharge, less load in intake) in the return flows and not on the concentration. The Department will be responsible for the costs associated with load that cannot be charged to registered water users (registered point source and registered discharge to land facilities).

- The WMC may be applied to all discharges contributing to the load in an upstream catchment where downstream resource quality objectives are threatened or exceeded, even where incremental upstream resource quality objectives are met.
- The mitigation measures and thus the associated waste discharge charges may be phased in to enable planning by dischargers and to allow adaptive setting of charges as conditions change.
- Minimum load thresholds for charging may be specified on the basis of administrative cost considerations.

3.4 Water Research Levy (WRL)

The WRL is used for the promotion of water research and development on behalf of the nation and is levied in terms of Section 11 of the Water Research Act (WRA). It empowers the Minister, with the concurrence of the Ministry of Finance, to set tariffs in respect of

water research charges levied on quantities of water supplied, or made available for use, for agricultural purposes, urban purposes, industrial purposes or any other purposes. While the Department will collect the WRL on behalf of the WRC, the WRL remains independent of changes in water use charges governed by the pricing strategy. The WRA allows for differentiated charges, based on geographic areas, categories of water use and water users.

The WRCC is payable by the municipal, industrial & mining, agriculture and strategic water use sectors.[5] Resource poor farmers will be exempt from paying the water research levy. The water research levy will be based on the projected annual research requirements for the sector, contained in Water Research Business Plan, and will be levied on registered volumes for abstractive uses in the applicable water use sectors. The levying of water research charges on registered volumes will be phased in over a 3 year period, from the current use of volume of water supplied.

Section 11 of the WRA also empowers the Minister to levy rates on land which may be irrigated by means of water supplied or made available by the State, an irrigation board or a water board. This version of the pricing strategy phases out the rates on irrigated land in lieu of a registered water volume charge.

Given the current challenges in the water sector, including increasing pressure on water resources, water quality challenges and challenges with water services delivery, the national policy requires an intensification of water research. Subsequent revisions of the pricing strategy will therefore introduce water research charges for additional water use categories, such as stream flow reduction activities and hydropower, and will introduce charges for waste discharge, as well.

3.5 Economic Regulator Charge (ERC)

The Economic Regulator Charge is proposed as a separate category and it is intended to fund the activities of the Economic Regulator. It should be noted that the activities of the Economic Regulator are not part of the costs to produce water, but that the Economic Regulator has a critical role to play in all aspects of the water value chain. The NWA does not currently provide for levying a charge for these activities, and the ERC will only be implemented once the necessary legislation provides for such charges.

The ERC will be based on the annual budget of the independent Economic Regulator and will be recovered on the total register volume of users liable for the charge. The ERC will be payable by all sectors. The scope of the economic regulatory activities and the basis for calculation of the charge is included in Appendix

[5] *DWS will review the policy position on the exclusion and/or exemption of other sectors from paying the WRCC.*

3.6 Application of Charges to Water User Categories

Table 8: Application of Charges to Water User Categories

WATER USER CATEGORY	WATER RESOURCE MANAGEMENT CHARGES	INFRASTRUCTURE RELATED CHARGES	WASTE MITIGATION CHARGE [6]	WATER RESEARCH LEVY
Municipal	WRM charges in place. Full cost recovery on abstraction and waste discharge related costs.	***On-budget GWS:*** Depreciation, FIBC, O&M including ER charge ***Off-budget GWS:*** CUC, Depreciation, O&M and FIBC	Full costs of mitigation charge.	Currently based on use of volume of water supplied. In future WRL will be based on registered volumes and phased in over a 3 year period.
Industrial/Mining	WRM charges in place. Full cost recovery on abstraction and waste discharge related costs.	On-budget GWS: Depreciation, FIBC, O&M including ER charge Off-budget GWS: CUC, Depreciation, O&M and FIBC	Full costs of mitigation charge.	Currently based on use of volume of water supplied. In future WRL will be based on registered volumes and phased in over a 3 year period.

[6] *DWS will review the policy position on the exclusion and/or exemption of other sectors from paying the WRCC.*

WATER USER CATEGORY	WATER RESOURCE MANAGEMENT CHARGES	INFRASTRUCTURE RELATED CHARGES	WASTE MITIGATION CHARGE [6]	WATER RESEARCH LEVY
Strategic Users	WRM charges in place. Full cost recovery on abstraction and waste discharge related costs.	On-budget GWS: Depreciation, FIBC, O&M including ER charge Off-budget GWS: CUC, Depreciation, O&M and FIBC (post payment of loans)	Full costs of mitigation charge.	Currently based on use of volume of water supplied. In future WRL will be based on registered volumes and phased in over a 3 year period.
Stream Flow Reduction Activities: Commercial growers	Cost recovery on abstraction related costs but excludes cost of Dam Safety Control and waste discharge related costs.	No charge would be applicable unless the sector willingly buys in on the construction of the dams to compensate from stream flow reduction effects.	No charge	Currently based on use of volume of water supplied. In future WRL will be based on registered volumes and phased in over a 3 year period.

WATER USER CATEGORY	WATER RESOURCE MANAGEMENT CHARGES	INFRASTRUCTURE RELATED CHARGES	WASTE MITIGATION CHARGE [6]	WATER RESEARCH LEVY
Stream Flow Reduction Activities: Resource poor tree growers	Cost recovery on abstraction related costs but excludes cost of Dam Safety Control and waste discharge related costs. WRM charge phased in over 10 years from the date of registration Waived for first 5 years after registration and phased in over 5 year period that follows Subsidy starts at 100% for 5 years, then reduces by 20% annually No WRM charge for forest plantations <10 ha.	No charge would be applicable unless the sector willingly buys in on the construction of the dams to compensate from stream flow reduction effects.	No charge	Currently based on use of volume of water supplied In future WRL will be based on registered volumes and phased in over a 3 year period.

WATER USER CATEGORY	WATER RESOURCE MANAGEMENT CHARGES	INFRASTRUCTURE RELATED CHARGES	WASTE MITIGATION CHARGE [6]	WATER RESEARCH LEVY
Irrigation: Commercial farmers	Full recovery of allocated costs.	Depreciation, O&M including ER charge on existing schemes, FIBC charged. Off-Budget: CUC, Depreciation, O&M and FIBC. Full financial cost recovery for new schemes.	Full costs of mitigation charge for commercial farmers who are discharging directly to the source.	Currently based on use of volume of water supplied In future WRL will be based on registered volumes and phased in over a 3 year period.

WATER USER CATEGORY	WATER RESOURCE MANAGEMENT CHARGES	INFRASTRUCTURE RELATED CHARGES	WASTE MITIGATION CHARGE [6]	WATER RESEARCH LEVY
Irrigation: Resource poor farmers	WRM charge phased in over 10 years from date of registration Waived for first 5 years after registration and phased in over 5 year period that follows Subsidy starts at 100% for 5 years, then reduces by 20% annually	Depreciation, O&M and FIBC charges waived for a 5 year period and phased in over 5 year period that follows on existing and new schemes. Subsidy starts at 100% for five years, then reduces by 20% annually Capital subsidies available under certain conditions Targeted subsidies to be provided by DWS for water resources infrastructure or purchase of water allocations	WMC charge phased in over 10 years from date of registration Waived for first 5 years after registration and phased in over 5 year period that follows Subsidy starts at 100% for 5 years, then reduces by 20% annually	Currently based on use of volume of water supplied In future WRL will be based on registered volumes and phased in over a 3 year period.

WATER USER CATEGORY	WATER RESOURCE MANAGEMENT CHARGES	INFRASTRUCTURE RELATED CHARGES	WASTE MITIGATION CHARGE [6]	WATER RESEARCH LEVY
Hydropower	Where, a hydropower operation requires water to be released from a dam to generate power at times that such water would not be used by other downstream water users, then abstraction related water resources management and infrastructure charges will apply to this volume water.	Fixed charge in installed capacity and variable charge per kilowatt hour. All charges immediate on registration or authorization of water use.	In the event of an incident, a full costs of mitigation charge.	Still to be determined.

3.6 Indexation of Charges

The pricing strategy must use the index that is linked the closest to the cost being inflated or compared.

The CPI (Consumer Price Index) is a benchmark for how consumers perceive tariff increases relative to a basket of other goods consumed. While the CPI is a good overall test, this index should be limited to the O&M components when calculating the various raw water use charges, with the exception of energy costs. For the latter, an 'energy index' based on the average price of electricity as calculated from Eskom's Annual Report should be used as it reflects the energy cost the closest.

The PPI (Production Price Index) is based on a completely different basket of items than the CPI. It reflects the cost of manufacturing goods and is the closest reflection of the cost of construction. The PPI should be applied when calculating infrastructure related charges.

3.7 Summary of Charges

A summary of the applicability of the charges to each sector is shown in the table below.

Table 9: Summary of Water Use Charges per Water Use Category

Sectors		Water Resources Management Charge	Water Resources Infrastructure Charge	Waste Discharge Mitigation Charge	WRC Charge	Economic Regulation Charge *(Future)*
	Municipal	*YES*	*YES*	*YES*	*YES*	*YES*
	Industry and Mining	*YES*	*YES*	*YES*	*YES*	*YES*
	High Assurance Use	*YES*	*YES*	*YES*	*YES*	*YES*
	Agriculture	*YES*	*YES (Capped)*	*YES*	*YES*	*YES*
	Stream Flow Reduction Activities	*YES*	✗	✗	✗	*YES*
	Hydropower	✗	*YES*	✗	✗	*YES*

APPENDIX 1: IMPLEMENTATION OF THE PRICING STRATEGY

1.1 Removal of pricing strategy cap

The price capping which were previously afforded to different user categories are removed, only Resource Poor Farmer and Resource Poor Forester subsidy will be retained. The charges will be phased in gradually to reach full cost over a period of between 5 to 10 years.

1.2 Measurement of Water Use

Water charges are currently based on registered water use, where water use is not measured or metered. Water for productive use is available or is abstracted at different assurances and this must be reflected in the annual payment for water resource management services and is taken into account in the registered volume. The intention is, however, to phase in the compulsory measurement of water abstraction so that water use charges relating to development and use of waterworks can be charged against actual abstraction rather than registered use. Water resources management charges will continue to be charged against registered use for stability of revenue and administrative ease.

1.3 TREATMENT OF RESERVE FUNDS FOR DEPRECIATION AND FIBC

The Department will manage the funds associated with depreciation and FIBC charges, within a dedicated reserve fund. When the above structures have been put in place the depreciation charge revenue may serve as a stabilization reserve for refurbishment whilst the FIBC income may serve as a provisioning reserve for betterment and development of social and economic stimulus development projects and could also be applied to dam safety betterments on existing social schemes. Use of depreciation funds will be prioritised in accordance with DWS integrated water resource risk management systems. The Department will continue to fund these projects, until such time that the reserve fund has been built up.

The depreciation and FIB charges will require reserve funds to be managed by the Department over time.

Use of depreciation funds will be prioritised in accordance with Department integrated water resource risk management systems.

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

(i) Planning and feasibility of future augmentation, (social or commercial projects),

(ii) Betterment and/or development of social or economic development stimulus projects.

(iii) Dam safety betterments on existing schemes (social).

Further costs such as those required for international obligations will be funded from the exchequer.

Prior to developing new water infrastructure projects, Department will assess the viability of undertaking water conservation and demand management, including alien vegetation clearing and rehabilitation or protection of natural infrastructure, as a cost effective alternative to developing new water infrastructure projects.

Application of the Pricing Strategy for 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.

1.5 Veld and forest fires and floods

In the event of veld and 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 affected users. The relief will in all cases be limited to the actual Water Resource Management charges, which could be fully or partially waived for a fixed period of time. The Minister will consider the extent of damage to crops and/or plantations in determining the relief to be granted. The pricing strategy does not provide for the provision of cash grants as a relief.

1.6 Droughts

During times of droughts when it is necessary to curtail entitlements, the following guidelines will apply when water restrictions are imposed by the Department on established and resource poor farmers on existing Government Water Schemes. In schemes where the actual available supply is:

- greater than or equal to 70% of the irrigation quota, full charges will apply,
- less than 70% and equal to or above 50% of the irrigation quota, charges will be limited to the WRM charges and the O&M and FIBC charges, while the Depreciation charges will be waived,

- less than 50% and equal to or above 30% of the irrigation quota, charges will be limited to the WRM charges and 30% of the O&M and FIBC charges, and the depreciation charges will be waived,
- less than 30% and equal to or above 0%, of the irrigation quota, charges will be limited to the WRM charges, implying that the depreciation, FIBC and O&M charges will not apply.

CMAs and WUAs (or RWUs once these have been established) must approach the Department with a motivation for the implementation of these drought measures when appropriate. When less than 50% of water is available, the Department will approach National Treasury for the shortfall in income to be recovered from the fiscus.

1.7 Purchase of "extra water"

The policy of allowing scheduled irrigators on Government water schemes to purchase "extra water" under certain conditions at heavily subsidized prices has been discontinued. Only under exceptional circumstance, such as an unexpected heat wave, may irrigators be allowed to purchase additional water over and above the quotas. The charge for such extra water will be the raw water charge for Industrial/Mining supply.

1.8 Multi-Year Charges

The Department and CMAs will introduce with the implementation of this Pricing Strategy, a system of multi-year charges. In terms of this principle, sectoral charges will be developed during the budgetary process for each water management area and charges will be set for a period of three years. 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 and in accordance with the multi-year charges process.

For the first three years, these charges will be reviewed annually on a rolling-three year basis to ensure that the mechanisms and tools work effectively. Thereafter, i.e. in year four after the implementation of this strategy, the charges will be set for three years, every three years. The implementation of the economic regulator for water will assist to ensure that these charges are appropriate.

The water use charges must be approved by the economic regulator on/ or before the 15th of September of every appropriate year, where after the charges must be provided to water services providers and bulk water services providers in order to enable them to calculate bulk water tariffs before 30th of September6. Until the economic regulator is established, the Minister must approve the charges.

It must be noted that if water use charges are too low they may 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 charges within a limited time period to accommodate the cost of effective and financially sustainable water management institutions, taking cognisance of affordability constraints within user sectors.

1.9 Approval of Water Use Charges

The Minister approves the water use charges for government waterworks and for water resource management. The Economic Regulator reviews and advises the Minister on aspects such as revenue, cost and tariff trends, substantive parameters such as the affordability of tariffs, collection ratios and efficiency, the impact of an adjustment of tariffs on sectors and/or on the revenue and sustainability of the WTE, as well as compliance with the pricing strategy and other regulatory guidelines and requirements.7 The Minister presents the charges to the Portfolio Committee to get their input, but the Minister remains ultimately responsible to approve the water use charges.

The annual raw water use charge budget planning and price setting process is depicted in the table in Appendix 2

1.10 Payment and Collection of Water Use Charges

The Minister may appoint any appropriate body as a billing agent, such as a water board, CMA, WUA or other external body. The proportion of the income collected by these agencies that may be retained by the agent must be contractually agreed with the Department. Unless other arrangements are approved by the Department or CMA, all water use categories, with the exception of the irrigation and stream flow reduction sectors, will be invoiced on a monthly basis. The irrigation and stream flow reduction sectors, will be invoiced on a six monthly basis.

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[6] Bulk water service providers must commence with their consultation with water services authorities in October of every appropriate year in order to comply with the Norms and Standards in respect of tariffs for bulk water services supplied by bulk water services providers or regional water utilities to other water services institutions.

[7] The Economic Regulator is not independent and reports to Minister; it is thus part of DWS and can currently only advice the Minister of the tariff determination process. Legislation amendments are required to provide the Economic Regulator with the necessary powers and mandate to approve water use charges.

Minimum cut-off values for annual payment can be laid down by CMAs where the cost of collection would exceed income. Reimbursements of inter-WMA transfer payments will be done on a monthly basis in equal instalments.

Arrear water charges will attract interest at rates determined by the Minister from time to time.

1.11 Implementation Date

This pricing strategy will be implemented as once it is approved at the start of any given financial year, following approval. The charges that will be implemented onwards will be guided by the provisions of this pricing strategy

ANNEXURE 4: PUBLIC INTEREST ACTIVITIES WEIGHTINGS

Table 10: Weighting of public interest activities

No	Function	Activities	Bene-ficiaries	Classifi-cation	Activity % public	Activity weight	Function % public
1	Catchment management strategy and Water Resources planning	Resource studies, investigations and integrated strategy development at catchment level	All	Even mix	50%	33%	67%
		Water allocation administration	All	Public	100%	33%	
		Water quality management plan	All	Even mix	50%	33%	
2	Water related institutional Development (Stakeholder Management empowerment)	Stakeholder participation, empowerment, institutional development & coordination of activities	All	Mostly private	30%	50%	20%
		Establishment and regulation of water management institutions (e.g. WUA's)	Customers	Private	0%	17%	
		Stakeholder consultations	Customers	Private	0%	17%	
		Capacity and Empowerment of stakeholders	All	Mostly private	30%	17%	
3	Disaster management/ Pollution control and emergency incidents	Planning and preventative management of disaster including risk monitoring (Management)	All	Mostly private	30%	50%	30%
		Pollution incident planning and response (management)	All	Mostly private	30%	50%	

No	Function	Activities	Bene-ficiaries	Classifi-cation	Activity % public	Activity weight	Function % public
4	River health (Water weed control and invasive alien plantRemoval)	Adopting of rivers by doing the following activities: Removal of solid waste in and around the river. Invasive plants removal on the river banks and within the river. Identify sources of pollution and other impacts to the river like soil erosion; develop interventions to curb further pollution and degradation of rivers. Monitoring (taking samples, in-situ monitoring of water quality, mini SASS, visual assessments) of the rivers. Stabilization and restoration of river banks by vegetating indigenous trees. Rehabilitation of the eroded river banks.	All	Mostly public	70%	100%	70%
5	Water use authorization	Water use authorization [Registration of water use (Include Validation and verification of registered water use)]	Customers	Private	0%	20%	0%
		Maintenance of water management area register of water use	Customers	Private	0%	20%	

No	Function	Activities	Bene-ficiaries	Classifi-cation	Activity % public	Activity weight	Function % public
		Revenue management with the following charges Set, consult and collect WRM charges in the water management area aligned to the pricing strategy	Customers	Private	0%	20%	
		Abstraction & stream flow reduction activities Authorization	Customers	Private	0%	20%	
		Waste discharge activities Authorization	Customers	Private	0%	20%	
6	Geo-hydrology and hydrology (including water quality)	Groundwater and surface water and eco system (quality) monitoring in respective catchment areas	Customers	Mostly private	30%	50%	30%
		Maintaining the geo-hydrological database & compilation of information in respective catchment areas	Customers	Mostly private	30%	50%	
7	Resource directed measures	Implement programmes to monitor resource Quality Objectives (RQOs)	Customers	Private	0%	25%	0%
		Implement source-directed controls to achieve resource quality objectives	Customers	Private	0%	25%	
		Report against the achievement of the Class and RQOs	Customers	Private	0%	25%	

No	Function	Activities	Bene-ficiaries	Classifi-cation	Activity % public	Activity weight	Function % public
		Report on the water balance per catchment (i.e. water available for allocation after consideration of ecological requirements)	Customers	Private	0%	25%	
8	Water resources management programmes	Integrated Water resources programmes	All	Public	100%	33%	53%
		Implementing of Water management strategies (e.g. Water conservation and demand management)	All	Mostly private	30%	33%	
		Implementing of Water management strategies (e.g. cleaner technology, dense settlements, waste discharge strategies)	All	Mostly private	30%	33%	
9	Compliance Monitoring, Control and enforcement of water use. (Effective enforcement of compliance with water legislation)	Compliance Promotion and audit sampling (users discharge)	Customers	Private	0%	11%	0%

No	Function	Activities	Bene-ficiaries	Classifi-cation	Activity % public	Activity weight	Function % public
		Monitoring of water users (per sector: public institutions, mining, industry, agriculture and dam owners)	Customers	Private	0%	11%	
		Enforcement of Water Use (e.g. enforcing meter installations, suspending entitlements, enforcing licence conditions)	Customers	Private	0%	11%	
		To conduct investigations of water crimes are conducted in relation in accordance with the National Water Act and other relevant legislations.	Customers	Private	0%	11%	
		Implementation of Strategies, SP's tools and guidelines	Customers	Private	0%	11%	
		Compilation, Serve and implement administrative notices	Customers	Private	0%	11%	
		Abstraction & stream flow reduction activities control	Customers	Private	0%	11%	
		Waste discharge control	Customers	Private	0%	11%	
		Classification of dams	Customers	Private	0%	11%	
10	International Relations	Operational issues related to international water users	Other parties	Public	100%	100%	100%
11	Administration & Overheads	Administration& overheads for regional office or CMA	All	Mostly private	30%	100%	30%

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