

# Revised Water Pricing Strategy for Raw Water III Draft for comment

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**water affairs**

Department:

Water Affairs

**REPUBLIC OF SOUTH AFRICA**

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## List of Acronyms

ADC	–	Annual Depreciation Cost
BWC	–	Basic Human Needs Water Resources Charge
CMA	–	Catchment Management Agency
CMS	–	Catchment Management Strategy
CUC	–	Capital Unit Charge
D&I	–	Domestic and Industrial
FIBC	–	Future Infrastructure Build Charge
HDI	–	Historically Disadvantaged Individuals
MIG	–	Municipal Infrastructure Grant
NWA	–	National Water Act
NWRS	–	National Water Resource Strategy
O&M	–	Operations and Maintenance
RoA	–	Return on Assets
RPF	–	Resource Poor Farmers
SFRA	–	Stream-Flow Reduction Activities
Stats SA	–	Statistics South Africa
TCTA	–	Trans-Caledon Tunnel Authority
WDCS	–	Waste Discharge Charge System
WD Levy	–	Waste Discharge Levy
WHO	–	World Health Organization
WMA	–	Water Management Area
WMC	–	Waste Mitigation Charge
WRMC	–	Water Resources Management Charge
WUA	–	Water User Association

# 1 Introduction

The National Water Act (NWA), 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 revision of the pricing strategy is also mandated by the NWA. This was put in place to ensure the constant refinement of water pricing practices to match the needs of the country.

The current pricing strategy was published in March 2007. Since then a number of challenges have been identified that need to be addressed and corrected. Some of the challenges include the following:

- The current pricing strategy is structured in such a way that it gives a blanket subsidy to some water use groups
- As a result of these blanket subsidies, DWA is making subsidy decisions that ought to be made by other government departments given that the subsidised activities of the beneficiaries are the responsibility and fall under the oversight of those departments, particularly the Department of Agriculture, Forestry and Fisheries;
- The current pricing strategy does not provide sufficient protection for the poor against rising water prices resulting from infrastructure development
- The current pricing strategy does not provide a robust enough method of generating revenue for the development of infrastructure intended for social or economic stimulus purposes – in areas where the user base will only be able to afford the charges after the infrastructure has been developed
- The current pricing strategy also does not make it possible for DWA to set charges that reflect the full cost of delivering water, resulting in insufficient revenue for water resource management and sustainable infrastructure asset management.

This draft revised pricing strategy seeks to correct these and other challenges. The draft pricing strategy, in addition to the above, also considers the financing of the nine Catchment Management Agencies (CMAs) that are in the process of being established, which will have a significant bearing on the way water resources are managed and protected.

This draft revised Pricing Strategy is being published for comment in terms of the National Water Act. It must be noted that this strategy, as per the Act, 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 and/or supplied from government waterworks and the discharge of water into a water resource or onto land. 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 DWA as well as by water management institutions as defined in the NWA.

It does not deal with charges and tariffs for second and third tier water, i.e. water supplied in bulk (often by water boards) and water distributed to households or other water users (usually via a water services authority), except for water supplied from government water schemes.

## 2 Legal mandate

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 DWA and water management institutions, through water use charges, (Section 56 (2) (a));
- funding water resource development and use of waterworks by DWA and water management institutions, (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 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.

This document sets out the revised water resources pricing strategy, based on the elements outlined above.

## 3 Principles Underpinning the Pricing Strategy

The following principles underpin the revised pricing strategy:

- Economic Development

The Pricing Strategy recognises the centrality of water in the process of economic development. The consistent and sustainable availability of water is a key catalyst of economic development. The pricing strategy seeks to ensure that water is consistently and sustainably made available to all South Africans for both personal and commercial usage.

- Enabling equitable economic development

The Pricing Strategy will support the pricing of water in a manner that enables the provision of water to stimulate and support new economic development in identified nodes, within the national aims of enabling equitable economic development, job creation and sustainable economic growth.

- Social equity

The 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 through municipalities and water boards and direct access to raw water for resource poor farmers and tree growers.

- Ecological sustainability

In terms of Chapter 3 of the NWA, the water needs for the effective functioning of aquatic ecosystems must be protected. This acknowledges the indivisibility of water as a natural resource, the role of ecosystems as the base from which the resource is derived, and the importance of healthy ecosystems in sustainable water use. The management activities required to ensure the provision of sufficient water for the ecological reserve and the water sector's contribution to maintaining water ecosystems must be paid for by all registered and billable users in terms of Section 56(2)(a)(iv) of the NWA as part of the water resources management charge. Infrastructure design requirements to enable the achievement of Resource Quality Objectives (including the Ecological Reserve) will be included in infrastructure charges. To promote the preservation of resource quality, the polluter pays principle is adopted in this pricing strategy.

- Financial sustainability

In order to ensure financial sustainability adequate revenue must be generated to fund the annual costs related to:

- the management of the country's water resources.
- the operations, maintenance, refurbishment and betterment of existing Government water schemes and waterworks owned by water management institutions.
- the development of new user-funded schemes.

Water pricing must be based on sound business principles, recognising that where, for social equity, environmental or affordability reasons, water management cannot be sustainably financed from specific water users, the shortfall must be recovered from the fiscus or through cross-subsidisation.

The pricing strategy makes accommodation for significant financial contribution from user charges to CMAs but recognises the need for fiscal support in the establishment of these institutions, and for core national and public interest functions to be performed by these bodies. In some water management areas the full financial cost of water resource management cannot be recovered solely from water users, and ongoing fiscal support, as is currently provided to DWA, will be needed for CMAs to ensure their financial viability.

- 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. 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.



In implementing water resources management and infrastructure development, operation and maintenance, 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 three-year sectoral charges that are developed during the budgetary process for each water management area will be discussed 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 and in accordance with the multi-year charges process outlined in this strategy.

- Polluter pays and user pays

This principle sets out that polluters and users must pay for the costs of their water use in this regard, taking into account the need for targeted subsidies where, due to socio-economic conditions, users or polluters are not able to afford the costs resulting from full application of these principles.

- Equity and affordability

The water use charges under this pricing strategy take into account the principles of equity and affordability in access to water for poor, marginalised and historically disadvantaged communities.

According to the National Water Resource Strategy II (NWRS-2), of the three principles underpinning the NWA (sustainability, equity and efficiency), the one that has not received its due attention is equity. This, according to the NWRS-2, has resulted in the perpetuation of inequitable water allocation. Given that equitable access to water, or at the very least the benefits of using water “is critical to transformation in the water sector, contributing to eradicating poverty, and promoting equitable sustainable economic growth<sup>1</sup>”, it is important that the pricing strategy give effect to the principle of equity envisioned in the NWA.

### 3.1. Benefits of the revised pricing strategy

This draft pricing strategy has two sets of benefits: improved equity and improved business benefits for the water sector. The benefits are outlined in Table 1 below:

**Table 1: New Pricing Strategy Benefits**

User Group	Improvements to the previous strategy	
	Equity	Application of Business Principles
<b>High Assurance Users</b>	Ensures that those users who get the highest assurance of supply pay for that privilege	
<b>Industrial Users</b>	Ensures that users who use water for commercial purposes pay the full cost of water	

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<sup>1</sup>Department of Water Affairs. 2013. National Water Resource Strategy: Second Edition.

<b>Municipal Users</b>	Subsidises the water resources related costs of providing a basic water supply, which are not covered in the equitable share.	Ensures the costs of providing water to the municipality above 50 l pp/d for the indigent population are fully covered by water use charges
<b>Agriculture Users</b>	Phases in water charges for resource poor farmers over ten years to enable them to establish themselves effectively before having to pay the full costs. Phases in the future infrastructure build charge to commercial farmers over ten years to enable them to adjust to the increase in tariffs.	Ensures that commercial agriculture users pay the full cost of water with transparent and targeted subsidies determined by DAFF and Treasury in relation to national agricultural objectives.

## 4 Water Use Categories

While revising the pricing strategy it was recognised that the water use categories needed to be changed in order to better represent the water user groups and allow for more clearly targeted charges. The proposed new categories are as follows:

- Stream-flow Reduction Activities
- Agriculture
- Municipal (subdivided into three categories of metros, small towns and poor rural municipalities)
- Industrial/Mining
- High Assurance Use, and
- Hydropower

The main changes in these categories are the split of the formerly Domestic and Industrial category into two separate groups, Municipal and Industrial/Mining, as well as the addition of the High Assurance Use, 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 small scale hydropower plants that are due to be developed as part of the energy mix in the country.

Agriculture uses the bulk of water (62% of the total) in the country and it can be safely assumed that the bulk of this water is used for commercial purposes. This is not in any way to disregard the importance of the agricultural sector for food security and rural development. Agriculture water use

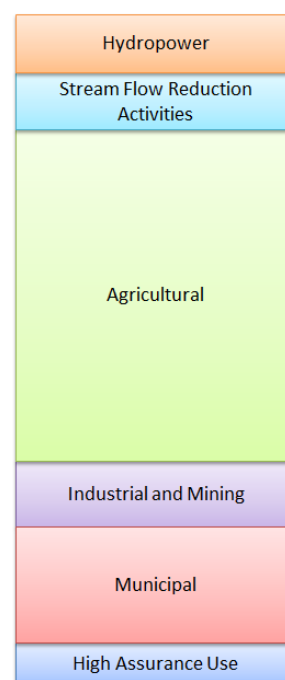


Figure 1: Proposed water use categories for charging purposes

is also an important aspect in that it is directly linked to the land reform initiatives in South Africa. The water use pattern in agriculture mirrors the land ownership pattern in the country.

Municipal water use is the second biggest water use category (24% of the total). What makes this category important is that it is the water use category which covers a major portion of the water need of South Africa's poor. This category needs to be targeted to reduce the burden of water costs on municipalities in relation to water provision to the poor. Currently, as has been mentioned, the equitable share and the municipal infrastructure grant only cover the water services portion of the infrastructure required to provide water to the poor. There is a need to provide financial relief in relation to the water resources infrastructure costs for the provision of basic water requirements. The approach recommended in this document will, in particular, relieve the financial burden on municipalities that have a high level of poor consumers and limited opportunity for cross-subsidisation from wealthier users. However, this is dependent to some extent on keeping the per capita water use by poor users within limits.

The industrial and high assurance categories combined only use 8% of the total water use in the country. This water use category is the engine of the economy and derives the most economic value from its water use. It is also the most efficient water user in terms of the level of water losses resulting from poor infrastructure and wastage in the country.

## **5 Categories of charges**

The revised pricing strategy makes provision for a number of charges. These charges can be divided into three main categories:

- Water Resources Management Charges, which cover the charges required to manage water resources within the nine water management areas determined in the NWRS-2;
- Charges relating to the development and use of waterworks, which cover the charges related to planning, capital costs, operation and maintenance, depreciation, and future infrastructure build on government water schemes and
- Waste Discharge Mitigation Charges which cover the charging for discharge of water containing waste into a water resource or onto land.

In addition, the issue of payment for catchment and natural infrastructure rehabilitation, and issues of payment during drought periods or in the face of natural disasters are dealt with.

The Waste Management Levy is not dealt with in this strategy but will be determined through a Money Bill that will be tabled in Parliament.

## **6 Water Resources Management Charges**

The purpose of the Water Resources Management Charge (WRMC) is to fund a portion of the water resources management activities across the country. Water resource management activities are those that are required to protect, allocate, conserve, manage and control the nation's water resources. These activities do not relate only to water subject to pricing, but to the management of

all water within a water management area. The activities that may be partially or completely funded from the WRMC are listed in section 6.2.

Water resource management remains the task of DWA in those water management areas that do not yet have a CMA in place. However, the intention is for the nine CMAs outlined in the NWRS-2 to be established within the next three years. DWA will delegate or assign significant water resource management functions to these CMAs. The activities of the CMAs will be funded largely from water resource management charges. Regional offices will continue to undertake some WRM functions in WMAs where not all functions have been delegated to CMAs due to a lack of capacity. In WMAs where both DWA 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.

It is clear from the analysis of the financial viability of CMAs that there will be a need for funding from the fiscus to support the establishment of the CMAs, and for ongoing support for certain functions and in certain areas. In addition, there is significant under-recovery of the WRMC across the country, and a period will be needed to allow DWA and CMAs to improve these recovery rates. Until improved rates have been achieved, CMAs (and proto-CMAs) will need fiscal support to cover the under-recovery.

In addition to this, fiscal contributions will be required to support the public interest functions to be performed by CMAs i.e. activities that are in the interest of society as a whole, not just the water users in the catchment. Fiscal contributions may also be required to ensure affordability of charges, and financial viability of CMAs, particularly in under-developed water management areas where not all of the available water is being used.

It must be recognized that some WRMC charges may go to DWA in perpetuity e.g. if the hydrometry function stays with DWA rather than moving to CMAs.

### **6.1. Budgeting of activity costs**

DWA/CMAs will budget annually for the estimated costs of activities to be performed by them or their agents in each WMA (or defined sub-area of a WMA) over a three year period. 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<sup>2</sup>. The water resource management charge for abstraction related water uses will be based on the budget for abstraction activities and a portion of the integrated functions. The cost of waste discharge activities and a portion of the 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

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<sup>2</sup> It should be noted that this part of the WRMC only relates to the activities of managing and controlling waste discharge. The mitigation and incentive charges are separate from this.

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.

Where certain actions cannot be accurately costed at a national scale, a nominal, justifiable charge will be set by DWA. These activities include, for example, investment in ecosystem rehabilitation and maintenance to support water use.

Differential charges may be put in place within the WMA, based on defined geographical areas, or pertaining to specific water use categories.

An inter-basin transfer scheme refers to infrastructure constructed to transfer water between river systems located in different WMAs, in order to augment the allocable yield of water stressed catchments. Examples are the Riviersonderend – Berg River, Tugela – Vaal, Orange – Fish, Tugela – Mhlathuze and Usutu – Vaal transfer schemes, constructed by DWA.

Water 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 in the donor WMA at 98% assurance of supply, in accordance with the NWRS.

If the receiver WMA is still managed by DWA and the donor WMA is taken over by a CMA, then DWA needs to pay the CMA. If both the receiver and the donor WMA are still managed by DWA, then DWA 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 under the WRMC

The water resource management activities for which the WRMC may be charged are listed in table 2 below.

Table 2: Water resources management activities that may be included in WRM charges

Function / Activities	Trading Account	
	Abstraction activities	Waste discharge activities
1. Catchment management strategy and Water resources planning	• Resource studies, investigations and integrated strategy development	
	• Allocation plans	• Water quality management plan
2. Resource directed measures	<ul style="list-style-type: none"> <li>• Implement programmes to monitor Resource Quality Objectives (RQOs);</li> <li>• Implement source-directed controls to achieve resource quality objectives</li> <li>• Report against the achievement of the Class and RQOs;</li> <li>• Report on the water balance per catchment (i.e. water available for allocation after consideration of ecological requirements)</li> </ul>	
3. Water use authorization	• Registration of water use	
	• Abstraction & stream flow reduction activities Authorization	• Waste discharge activities Authorization
4. Control and enforcement of water use	• Control Monitoring and enforcement of Water Use	
	• Abstraction & stream flow reduction activities control Dam safety control (private dams)	• Waste discharge control
5. Disaster management	• Planning and management of disaster (Administration)	• Pollution incident planning and response (management)
6. Water resources management programmes	• Integrated Water resources programmes	
	• Implementing of Water management strategies (e.g. Water conservation and demand management)	• Implementing of Water management strategies (e.g. cleaner technology, dense settlements, waste discharge strategies)
7. Water related institutional	• Stakeholder participation, empowerment, institutional development & coordination	

Development (Stakeholder Management empowerment)	of activities <ul style="list-style-type: none"> <li>○ Establishment and regulation of water management institutions (e.g. WUA's)</li> <li>○ Stakeholder consultations</li> <li>○ Capacity and Empowerment of stakeholders</li> </ul>
8. Water weed control	<ul style="list-style-type: none"> <li>● Aquatic Weeds Control</li> </ul>
9. Terrestrial Invasive Alien Plant (AIP)	<ul style="list-style-type: none"> <li>● Planning and 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.</li> </ul>
10. Geo-hydrology and hydrology	<ul style="list-style-type: none"> <li>● Groundwater and Surface water Monitorings</li> <li>● compiling of maps and yield information</li> <li>● Extending and maintaining the hydrological database &amp; compilation of information</li> </ul>
11. Administration & Overheads	<ul style="list-style-type: none"> <li>● Admin &amp; overheads for regional office or CMA</li> </ul>

The main charge for geohydrology and hydrology 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 for national water resource planning purposes. This function should be covered by funding from the fiscus. However, data and information gained at existing and new sites may be of direct benefit to a specific scheme or water management area for purposes that are not national in nature. In these cases it is reasonable to charge a specific WMA or water scheme a reasonable portion of the monitoring costs excluding the infrastructure costs.
- **Reserve 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 monitoring will be funded from the water resources management charge.

## 6.3. Determination of water resource management charges for abstraction related water uses

### 6.3.1 Water use categories

The water use categories for which water resource management charges will be imposed are:

- Municipal
- Industry/mining
- Agriculture
- Stream flow reduction activities, and
- High assurance use

### 6.3.2 Determination of annual sectoral use volumes per WMA for pricing purposes

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

Section 21 (a) use

- **Municipal, Industry/Mining and High Assurance Use** Water allocations as reflected on a lawful permit, general authorisation or licence or which constitute an existing lawful use in terms of section 32 of the NWA, and amended for assurance of supply.
- **Agriculture** The existing lawful water use related to agriculture or allocated through new licences, and amended for assurance of supply. The SAPWAT programme developed by the Water Research Commission or other methods as approved by the Department will be used to determine average annual volumetric use. Irrigation quotas, amended for assurance of supply, will be registered in former water control areas and on waterworks owned by water management institutions.

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 Hallows and AMM Gorgens] or other methods as approved by DWA or a CMA where the function has been delegated will be used to determine average annual use of existing lawful plantations and for new licences.

The total volume of registered water use per WMA as captured by WARMS must be compared with the total yield of current resources at 98% assurance within the WMA, which can be allocated for productive purposes, in terms of the NWRS or the most recent determination. This allocable volume must exclude the quantities set aside for the Reserve, international obligations and transferred to other WMAs.

Where water in a WMA is fully utilised or over-allocated (registered use exceeds allocable yield) the total volume of registered sectoral water uses will determine charges. In an under-utilised WMA the volume of allocable water will determine volumetric unit 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. The funding gap between the revenue from WRMC and the costs of water resources management in an under-allocated catchment will be covered by Parliamentary appropriation.

### 6.3.3 Cost Allocations to Sectors: Abstraction charges

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. 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:-

- **Municipal** – This sector will attract all abstraction related water resources management costs pro rata to its share of total productive use in the water management area.
- **Industrial/Mining, High Assurance Use, Agriculture** – These sectors will attract all abstraction related activity costs pro rata to use. The WRMC for resource poor farmers will be phased in over ten years, from the date of registration of the water use, with no charge imposed for the first five years, and the charges then increasing incrementally at 20% per annum until the full charge is imposed in year 10.
- **Stream flow reduction activities** – Afforestation will attract all abstraction related activity costs, pro rata to productive use, except for dam safety control. The WRMC for resource poor tree growers will be phased in over ten years, from the date of registration of the water use, with no charge imposed for the first five years, and the charges then increasing incrementally at 20% per annum until the full charge is imposed in year 10.

A portion of certain charges (e.g. Ecosystem Rehabilitation and Maintenance programme charges) may be rebated to Agricultural and SFRA users provided they can prove compliance with those provisions of natural resource management laws and regulations that protect water resources and natural infrastructure in the public good. The laws and regulations are:

- the General Authorisations regarding water uses under Section 21 (a, c, d, e, f, g and i) of the National Water Act, especially those granted under GN1199 of 2009;
- the Control Measures 2, 3, 7, 8, 13 and 14 published under the Conservation of Agricultural Resources Act (Act 43 of 1983 as amended); and
- the Listed Activities under the National Environmental Management Act (Act 107 of 1998) pertaining to protecting water ecosystems, curtailing waste disposal, and agro-industrial development that would impact on water resources.

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.

### 6.3.4 Calculation of Water Resource Management Charges

Water use category water resource management charges for each WMA will be calculated as follows:

- Total budget cost of each activity will be divided by the registered volumes to arrive at a unit charge per activity.

- The budgeted activity cost will be applied only to those sectors attracting such cost (e.g. the forestry sector will be excluded from charges relating to dam safety control).
- Where the activity cannot be accurately costed on a national level, a nominal, justifiable cost will be allocated to that activity.
- The unit charge for all relevant WRM activities will then be applied to each user's registered volumes to arrive at a WRM charge per user.

Unless other arrangements are approved by the DWA/CMA the charges will result in a 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.

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.

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. There is also a need for fiscal support for the activities of CMAs.

### **6.3.5 SFRA Charges and Subsidies for Commercial Growers**

WRM charges to the forestry sector have historically been capped at R10 per hectare plus Producer Price Index (PPI) rate (%) at April of each year with 2002-03 financial year as the base year. This cap has resulted in significant under-recovery of actual costs, and is to be removed, over a five year period, decreasing at 20% per annum, with targeted subsidies from the fiscus provided instead as determined by DAFF and National Treasury. Such subsidies will be determined in line with national economic development objectives, and with transformation objectives relating to race and gender and to the reduction of inequality in South Africa. These subsidies will be payable directly to DWA.

Resource poor foresters and non-irrigation growers with land equal to or less than ten hectares under cultivation will be excluded from this charge.

### **6.3.6 Irrigation Charges and Subsidies for Commercial Farmers**

Historically, water resource management charges to the irrigation sector have been capped at 1.5 cent per m<sup>3</sup> plus the PPI rate (%) at April of each year with 2007-08 as base year. This capping has resulted in significant under-recovery of costs.

This capping is to be removed over a five year period, decreasing at 20% per annum, and the full WRM charge is to be applied after those five years to the irrigation sector with targeted subsidies to be applied as determined by DWA in consultation with DAFF and National Treasury and as supported by fiscal subsidies. Such subsidies will be determined in line with national development objectives, and with transformation objectives relating to race and gender and to the reduction of inequality in South Africa. These subsidies will be paid directly to DWA.

### **6.3.7 Phasing in of WRM charges for Resource Poor Farmers and Tree Growers**

The WRMC for resource poor farmers and tree growers will be phased in over ten years, from the date of registration of the water use, with no charge imposed for the first five years, and the charges then imposed increasingly incrementally at 20% per annum until the full charge is imposed by year ten.

### **6.3.8 WRM functions undertaken by Water Boards, CMAs and WUAs on behalf of DWA**

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

### **6.3.9 CMA as a DWA agent for National Functions**

A CMA may be contracted or delegated by DWA to perform certain national functions, which are exclusively funded through parliamentary appropriation. A service or management fee will be payable by DWA 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)
- DWA water resource management programmes or projects, where the CMA acts as an implementing agent on behalf of DWA, possibly including compulsory licensing and classification.
- National developmental and/or empowerment programmes and projects where the CMA acts as an implementing agent for DWA.

## **6.4. 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 – A CMA may become responsible for implementing, administering recreational concessions on or around state dams, in terms of an agreement with DWA.
- Licence application fees – The CMA should receive a pro rata 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.
- 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, and that such functions are set out in its annual corporate plan.

- 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.

## 6.5. Determination of water resource management charges for waste discharge related water use

### 6.5.1 Water use categories

The water use categories for which waste discharge related water resource management charges will be calculated are similar to the sectors for the abstraction related charges, namely municipal, industrial/mining, high assurance use 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)

The water resource management charges for waste discharge related use will be made against the following water uses as defined in section 21 of the National Water Act:

- (e) engaging in a controlled activity identified as such in section 37 (1) or declared under section 38 (1); (where to controlled activity relates to waste discharge activities)
- (f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;
- (g) disposing of waste in a manner which may detrimentally impact on a water resource;
- (h) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process;
- (i) altering the bed, banks, course or characteristics of a watercourse; (where such activities have impacts on the water quality of the water course)
- (j) removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people;

### 6.5.2 Determination of 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 as listed above.

### 6.5.3 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 waterweed control.
- **Waste disposal to facilities / land** - Management effort for waste disposal to land, attracting all waste discharge related activity costs.
- **Irrigation of land with water containing waste** - Management effort for irrigated effluent, attracting all waste discharge related activity costs.

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

## 7 Water resources infrastructure charges

Water resource development and use of waterworks refer to the planning, design, construction, operation, maintenance, refurbishment and betterment (improvement) of Government water schemes. If water use charges are too low, they will lead to underinvestment, lack of maintenance and unwarranted fiscal subsidies. There is therefore 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 and refurbish existing infrastructure. There is also a need to invest in economic regulation of infrastructure financing and management.

### 7.1. Government Waterworks

In terms of section 56(2)(b) of the National Water Act, 1998, water resource development costs may include the related costs of investigation, planning, design and construction of water schemes, **which constitute the capital cost of projects**. This pricing strategy utilises a capex planning approach based on a combination of funding through **depreciation, future infrastructure build charges, the fiscus and off-budget funding** for funding the capital cost in respect of development, refurbishment and betterment of government water schemes. This requires that DWA, TCTA and any other bodies involved in the development, operation, maintenance, refurbishment or betterment of national water resources infrastructure must develop a capital and operational expenditure plan covering a minimum of ten years to be updated annually and reviewed in detail every five years at least. Allocation of costs in relation to user costs and parliamentary appropriations must be done against this plan, in consultation with National Treasury and after consultation with stakeholders.

The mechanism of off budget funding of commercially viable new water infrastructure through the TCTA has become accepted policy. 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 the 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 promotion of equitable access to water, meeting current and future international obligations and dam safety betterments on State owned dams will qualify for State funding.

New infrastructure development or betterment 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.

In addition, there may be instances when the state will develop water infrastructure in the expectation of promoting future economic development. In these instances social users will be charged in terms of the policy for on-budget governmental funding, while a rate equivalent for off-budget funding will be negotiated with economic users. In due course, if the economic development takes place, some users may move from being classified as social users to being classified as economic users with the concomitant change in charges. The classification of a project (social or commercial) will be at the sole discretion of the Minister of Water Affairs.

The construction cost of gauging stations for the national monitoring network will be funded from the fiscus. However, where new monitoring infrastructure is needed for non-national purposes it should be paid for by the users at the WMA or scheme level.

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 users if the monitoring is specific to a particular water management area or a specific water scheme.

Table 3 below shows the charges that will apply for infrastructure funded under different scenarios.

**Table 3: Infrastructure related charges applicable under different scenarios**

Charge to be Levied	Existing Schemes			New Projects	
	Commercial portion of schemes funded from exchequer	Social portion of schemes funded from exchequer	Funded off-budget and debt has been repaid	Fully or partially funded by Government (social)	Off-budget funded portion of scheme
Operation and Maintenance	✓	✓	✓	✓	✓
Depreciation/ Refurbishment	✓	✓	✓	✓	✓

Future Infrastructure Build Charge	✓	X	✓	X	X
Basic Human Needs Water Resources Charge	X	✓	X	X	X
Capital Unit Charge	X	X	X	X	✓

### 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 (e.g. pumping cost, water weed control, pump maintenance, flood gate maintenance, etc.)
- Distribution costs

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 sustainable management of the water schemes of the entire area, and comprise of:

- Allocated regional office/utility cost
- Allocated area office cost
- Allocated economic regulation costs

Indirect operation and maintenance costs will be allocated to the different sectors in an equitable manner.

Operation and Maintenance charges will be recovered on a scheme or system basis or on a national basis for the BWC. These charges (which include direct and indirect costs) can be recovered either on an actual cost recovery basis or through an Operations and Maintenance Charge that is based on the forecast of annual O&M costs and of water use.

### 7.1.2 Depreciation/Refurbishment

Depreciation is defined as 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, and which is not restored by regular maintenance. This 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.



For charge 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 the most recent revaluation. Full technical revaluation will be carried out at least every 10 years. In intervening years, the PPI of April 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 the depreciation charges will be used to refurbish existing assets on a prioritised basis, as and when required. Thus, the depreciation portion of the revenue will be used for the refurbishment of infrastructure assets from a dedicated refurbishment fund.

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):

$$\text{ADC} = \frac{\text{Replacement value} \times \text{Depreciable portion \%}}{\text{Expected useful life}}$$

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



## 7.2. Return on Assets (RoA)

The RoA charge in the 2007 pricing strategy “reflects payment towards the development and betterment capital value of waterworks on government water schemes”. It is a charge intended to raise financing for future infrastructure development and the betterment of existing infrastructure. The term RoA has private sector connotations that do not apply in the public sector which tends to confuse its purpose. Section 56(2) (b) (v) of the NWA makes provision for the use of a RoA charge “for funding water resources development”. Though its purpose remains important and relevant, its name is unfortunate in a public sector context.

In addition the calculation of the RoA was based on 4% of asset value, rather than on actual costs of the development and betterment of waterworks.

The RoA charged has therefore been removed from this revised pricing strategy, to be replaced by the Future Infrastructure Build charge (FIBC) which is discussed below.

## 7.3. Future Infrastructure Build Charge (FIBC)

### 7.3.1 Purpose of the Charge

The FIBC is intended to fund the activities listed under section 56(2)(b)(i, ii and iii) of the National Water Act. These are the costs of investigation, planning, design, construction and pre-financing of new infrastructure and the betterment of already existing infrastructure.

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 users or for which the existing users cannot afford the water supply (such as Historically Disadvantaged Individuals (HDI) farmers), but where the water supply is necessary to provide for future economic development.

### 7.3.2 Calculating the Charge

The components of the FIBC have been outlined above and are presented diagrammatically in Figure 2. It will be calculated on the basis of a ten year infrastructure plan developed by DWA. All the social infrastructure development and betterment costs will be summed for a ten year period, and the first five of the ten year period will then be used to calculate the annual requirement (simply by dividing by the number of years – five) that needs to be raised. This will be divided by the water use volumes of all the included categories of water use. These categories are expanded on in the next subsection.



Figure 2: Elements of the FIBC

The FIBC will be calculated at a national level, such that all users paying the FIBC pay the same charge per m<sup>3</sup>.

Table 4 below gives an example of the calculation of the potential FIBC. It must be noted that this is an estimation and that the actual costs will be calculated in the implementation of this strategy and may differ slightly from the figures given here. This calculation is based on charging the FIBC to the municipal, industrial/mining and high assurance use categories only. This is because the FIBC will be phased in for agriculture over a period of ten years. As the charge is phased in for agriculture, in increments of 10% per annum, the unit cost will reduce annually for other water users proportional to the amount paid by the agriculture sector.

The Future Infrastructure Build Costs used were sourced from DWA's national water resources planning directorate. They are derived from their projections of the costs of the development of national water resources infrastructure for social and economic development stimulus purposes over the ten year period between 2014 and 2024. This includes both development and management costs.

**Table 4: Estimated calculation of the FIBC**

Social Infrastructure Cost (over 10 years)	R 3 930 782 000
Infrastructure Management Cost (over 10 years)	R 288 000 000
Total FIB Costs (over ten years)	R 4 218 782 000
Annual FIB Requirements	R 421 878 200
DWA Registered Volumes (m <sup>3</sup> /annum)	3 792 503 968
Estimated FIB Charge (cents/m <sup>3</sup> )	11.12

It is worth noting that the current average RoA charge for D&I water users is 31.04 cents/m<sup>3</sup>.

### **7.3.3 Payment of the Charge**

Water that has the BWC (see section 7.4 below) levied on it will not have the FIBC levied on it. Any water use above the BWC volume for municipalities, and all registered water use by non-natural persons and other enterprises will have to pay the FIBC, excluding hydropower.

The FIBC levied on agriculture will be phased in over ten years to reach the same level as the other sectors, to give agriculture time to adjust to the considerable change in the cost of water. The calculation of the FIBC charge will be based on the municipal, industrial and strategic water use volumes until the FIBC levied on the agriculture use category is equal to that of all the other water use categories. When that happens, the charge will then be calculated on the basis of the volumes of all water use categories.

## 7.4. Basic Human Needs Water Resources Charge (BWC)

### 7.4.1 Purpose of the Charge

The BWC is intended to cover a portion of the water resources related depreciation and O&M costs of ensuring the provision of water for basic human needs for those identified as indigent households by Statistics South Africa (Stats SA). The proportion of the unit costs to be covered by the BWC is yet to be determined, but it will be partly based on the ability of National Treasury to supplement the shortfall, while taking into consideration the affordability of the charge for poor municipalities in particular.

### 7.4.2 Structure of the Charge

The BWC will be calculated on a national basis. It will be calculated on the basis of the water resources related O&M and depreciation costs of delivering municipal water, as well as the volume of this water provided. The unit cost will be calculated by dividing the total national cost by the total national municipal volumes.

The BWC will be charged on the volume of water required in a municipality to provide 50 litres per person per day for the indigent population as per the Stats SA figures.

The BWC will be calculated as a percentage of the unit cost per m<sup>3</sup> described above. The division of the municipal water use sector into three sub-categories will enable differential tariffs to be determined for each category in order to provide increased support to the poorest municipalities in particular. It is recommended that this percentage will be 75% for metros, 50% for small towns, and 25% for rural municipalities.

The funding gap between the BWC and the full cost of providing the water will be subsidised by parliamentary appropriation.

All water use above the basic water use level will pay the full depreciation and O&M charges calculated at a scheme or system level.

### 7.4.3 Payment of the Charge

The BWC will be paid by municipalities or water boards who take water from DWA-owned infrastructure, and provide part or all of that water for household/domestic water use to indigent households. It will be paid on 50 litres per person per day for the indigent population of the municipality according to the figures of Stats SA.

## 7.5. Assurance of Supply

High assurance water users have an assurance of water supply which is equal to 99.5%, meaning that they should get their full supply of water for all but one year out of two hundred. Municipal and Industrial/Mining users also have a higher assurance of supply than Agricultural users. These different assurances of supply will be reflected in the charges that the different sectors pay.

### 7.5.1 Structure of the Charge

The assurance of supply is reflected through the calculation approach set out below, which shows how users with a higher assurance of supply pay more for their water than those with a lower assurance of supply.

For example:

If there is a scheme with 100m<sup>3</sup> of water allocated (along with their assurances of supply) by sector in the following manner:

High assurance	30 million m <sup>3</sup> per annum at 99.5% assurance of supply
Municipal or Industry/Mining	30 million m <sup>3</sup> per annum at 97% assurance of supply
Agriculture	40 million m <sup>3</sup> per annum at 70% assurance of supply

The assurance of supply of each of these user categories changes the average volume of water that each water use category is likely to get over a number of years, as follows:

High assurance	$30 \text{ million} * 0.995 = 29.850 \text{ million m}^3$
Municipal or Industry/Mining	$30 \text{ million} * 0.970 = 29.100 \text{ million m}^3$
Agriculture	$40 \text{ million} * 0.700 = 28.000 \text{ million m}^3$

The new total becomes 85.100 million m<sup>3</sup>. In order to allocate the expenses in a manner that reflects the assurance of supply, we divide, for example, the new high assurance total by the new total in order to determine how much of the expenses should be allocated to the high assurance users:

High Assurance Share of Costs	$29.850 / 85.100 = 35.08\%$
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The result is that the high assurance users would get 30% of the total available water (with 29.85% of the water assured to get to them), but pay for 35.08% of the costs.

The same applies with the other user groups.

### 7.6. Capital Unit Charge (CUC)

Water management institutions such as the TCTA, which are directed by the Minister of Water and Environmental Affairs to implement and fund government water schemes off-budget, are entitled to raise loans to finance the development of new water resource infrastructure, and to service these loans through cost recovery.

The TCTA or any future body responsible for off-budget national water resources infrastructure will determine the extent of charges as determined by the proposed financial modelling. The primary charge will be the Capital Unit Charge (CUC). These charges must be developed after consultation with relevant water users. The charges may be developed on a project by project basis. However, if the institutional arrangements change to enable it, such charges may be dealt with on a scheme, system based or national approach as appropriate.

The TCTA may enter into an implementation agreement with the Department of Water Affairs (“DWA”) and DWA 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 TCTA will levy the CUC onto DWA and DWA 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 TCTA.

When the project debt has been repaid, the project will attract all charges that are applicable to State funded schemes.

#### **Guidelines for the CUC as a project based charge**

- A charge 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:
  - The debt profile and acceptable growth and level of debt of the project;
  - 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
  - The anticipated future funding requirements of the augmentation of the project.
- A charge 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 charge may be phased-in during the construction period.
- Parties should endeavour not to capitalize interest after completion of construction. The terms by which interest will be capitalized will be included in the terms of the original binding contract, or alternatively a supplementary agreement, agreed to by all signatories to the original contract.
- The charge will be based on water used from a scheme or system and not necessarily water provided into a scheme or system, which will enable water demand management, water restrictions etc.
- Phasing-in and step down of the charge can be allowed for if it still facilitates end user affordability, provision for future augmentation will also be considered.
- Demand projections are used to determine a charge which is set for a three year period taking account of changes in:
  - Water demand projections;
  - Real interest rate projections;
  - Inflation projections and/or
  - 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.

### **7.6.1 Lump sum user contribution**

Where the users or a portion of 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. They will, however, be responsible for paying the FIBC once any loan has been paid off, or after an equivalent time period if there is no loan.

### **7.6.2 BWC on off-budget schemes**

The current pricing strategy makes provision for charging a CUC for the development and betterment of off-budget scheme. The CUC is intended to fund the cost of loan funding raised for the development of these off-budget schemes. The extent of the charge is currently determined on a project-by-project basis in consultation with stakeholders, as per the proposed financial modelling. As it currently stands, there is an implicit assumption that users who benefit from schemes which have a CUC levied on them are commercial users. This is not quite the case.

Recent off-budget projects have shown themselves to benefit poor users as well. These poor users will be exempted from paying the CUC. In order for this to happen, the proportion of the development cost associated with social or economic development stimulus use will be funded by either the fiscus or the collected FIBC revenue. This can be paid up-front or over time. All social users on schemes with CUC levied on will be exempt from paying CUC because it will be subsidised. This will be on all future schemes yet to be developed.

## **7.7. Schemes Owned by CMAs and WUAs**

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:

- recovery of overheads/management, operations and maintenance costs;
- 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);
- reasonable provision for the depreciation of assets, which can be placed in a reserve fund for utilisation at the appropriate time for refurbishment;
- other charges levied by law on the institution and in terms of this pricing strategy; and

- 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.

## **7.8. Investment in the rehabilitation and maintenance of water-related natural infrastructure**

Engineering options to address water management issues are limited in many catchments. Investing in rehabilitating and maintaining ecosystems can be a cost effective means to augment engineering options, water supply or address water quality and flow concerns. These ecosystem improvements can be seen as natural equivalents of built infrastructure for water resource development. "Infrastructure" should thus include natural infrastructure refurbishment and 'betterment' where this is the a cost effective option

An appropriate component of the costs of rehabilitating and maintaining relevant natural infrastructure, with the aim of securing and enhancing the water-related ecosystem services provided by this infrastructure, may be charged to water users in the catchment. Water-related natural infrastructure refers to functioning ecosystems that produce and deliver water-related services that are of value to society, such as water quality enhancement, flood attenuation, reduction of sedimentation of dams and streamflow regulation.

In this regard DWA or the CMA will investigate and quantify the costs and benefits of appropriate rehabilitation and maintenance activities to be undertaken in a particular catchment. Costs associated with specific activities may be supplemented by government-funded programmes where available and appropriate.

Rehabilitation and maintenance activities for water-related ecological infrastructure include, but are not limited to:

- Rehabilitation and maintenance of wetlands, riparian zones and watersheds: Typical activities include erosion control, sediment stabilisation, re-saturation of drained areas and re-vegetation, in order to improve capacity for services such as water quality enhancement, dry season flows and flood attenuation ;
- Fire management: Fires need to be controlled and addressed to prevent inappropriate fire frequencies that can result in high soil loss and damage to soil structure, with accelerated run-off, erosion and reduced infiltration;
- Control of invasive alien plants: Initial clearing and subsequent ongoing maintenance activities, targeting species that have the largest impacts on water quantity and quality;
- Monitoring and evaluation: The ongoing monitoring and evaluation of the impact of catchment management activities on water resources.

The cost of such activities will be allocated to all water use sectors in proportion to their registered abstraction related or measured water use, or in accordance to the water-related ecosystem



services received from the specified intervention, whichever is the most applicable and appropriate. All interventions and plans will be incorporated into the appropriate CMS.

## 7.9. Subsidies

### 7.9.1 Targeted subsidies

In order to avoid the disbursement of subsidies broadly without a clear mandate or purpose for them, the subsidies that are disbursed must be clearly targeted. The subsidies must serve a specific purpose and not be in place in perpetuity unnecessarily. The outcomes must be measurable.

In the current pricing strategy various water use sectors receive blanket subsidization because there are sector wide caps put on various charges. The irrigation sector alone receives a subsidy of almost R1.5 billion because of these caps (see Table 5 below) and if the RoA is included. If the RoA is excluded, the agricultural sector is still subsidised by around R300 million per annum (see Table 5 below). The purpose of such a large subsidy has not been made clear and as a result its level of success or failure in achieving its objective cannot be measured. Moreover, the subsidy as it stands is provided by DWA. Instead, in future, subsidies to agriculture should be provided by the Department of Agriculture, Forestry and Fisheries, and the decision on who to subsidize within that sector and why should be made by the same department in line with national economic and development policy and in consultation with National Treasury. It is for this reason that the draft pricing strategy recommends the use of targeted subsidies where subsidies are applied, with clear justification for those subsidies and measurable goals associated with them.

Table 5: Current Irrigation Subsidy through Caps

	FULL COST			
	RoA	Depreciation	O&M	TOTAL
Central Operation	R 315 732 257	R 37 860 820	R 53 542 457	R 407 135 534
Northern Operation	R 416 985 818	R 131 035 751	R 273 793 468	R 821 815 037
Eastern Operation	R 41 423 000	R 4 088 620	R 41 084 865	R 86 596 485
Southern Operation	R 408 420 063	R 32 750 506	R 61 178 804	R 502 349 374
<b>TOTAL</b>	<b>R 1 182 561 138</b>	<b>R 205 735 697</b>	<b>R 429 599 595</b>	<b>R 1 817 896 429</b>

	ESTIMATED REVENUE (CAPPED)			
	RoA	Depreciation	O&M	TOTAL
Central Operation	R 0	R 21 139 640	R 47 652 183	R 68 791 823
Northern Operation	R 0	R 55 715 657	R 123 004 185	R 178 719 842
Eastern Operation	R 0	R 3 637 144	R 30 817 899	R 34 455 043
Southern Operation	R 0	R 17 525 225	R 47 175 530	R 64 700 754



<b>TOTAL</b>	R 0	R 98 017 666	R 248 649 797	R 346 667 462
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	REVENUE LOSS DUE TO CAPPING			
	RoA	Depreciation	O&M	TOTAL
Central Operation	R 315 732 257	R 16 721 180	R 5 890 274	R 338 343 710
Northern Operation	R 416 985 818	R 75 320 093	R 150 789 284	R 643 095 195
Eastern Operation	R 41 423 000	R 451 476	R 10 266 966	R 52 141 442
Southern Operation	R 408 420 063	R 15 225 282	R 14 003 275	R 437 648 620
<b>TOTAL</b>	R 1 182 561 138	R 107 718 031	R 180 949 798	R 1 471 228 967

### 7.9.2 Phased-in charges for resource poor farmers

Subsidies will be put in place for Resource Poor Farmers (RPFs) through phased introduction of charges. The RPFs will pay no charges for the first five years from the water use registration date, after which the charges will be phased over the following five years. The manner in which the charges will be phased in as follows:

- Year 6 – RPF charge will be equal to 20% of full cost charge
- Year 7 – RPF charge will be equal to 40% of full cost charge
- Year 8 – RPF charge will be equal to 60% of full cost charge
- Year 9 – RPF charge will be equal to 80% of full cost charge
- Year 10 – RPF charge will be equal to 100% of full cost charge

### 7.9.3 Targeted subsidies for commercial farmers

A subsidy formula will be determined by government, led by the Department of Agriculture, Forestry and Fisheries, in line with national economic and development objectives in terms of possible targeted subsidies to commercial farmers to replace the hidden subsidies that have been provided by DWA over previous decades. Such subsidies should be paid from the fiscus and should be specifically targeted to agricultural sectors that require such subsidies.

### 7.9.4 Fiscal Support for BWC shortfall

The full cost of the water resources related depreciation and O&M costs of providing 50 litres per person per day is just over R202.6 million per annum. If the average BWC is 50% of this cost, a parliamentary appropriation of around R100 million per annum will be required to cover the shortfall in cost recovery resulting from the introduction of the BWC.

### 7.9.5 Refurbishment Backlog

The water resources infrastructure refurbishment backlog needs R1 billion per annum over the next 15 years to be cleared. It is unaffordable and inappropriate to charge this to water users, and this will be funded from the exchequer, not from water user charges.

## 7.10. Hydropower

In addition to existing hydropower plants in South Africa, there is further potential to develop at least twelve small hydropower plants with capacities ranging from 1 MW (megawatt) to 15 MW, generating approximately 446 000 MWh/annum. However, there has not been, to date, a methodology to charge for small scale hydropower use of water resources.

The water use by hydropower is essentially non-consumptive, apart from the possibility of increased evaporation arising from the hydropower generation process. To this end, it does not make sense to charge the charges outlined in this pricing strategy on the basis of volume used. Imposition of these charges on a non-consumptive use like hydropower would not only be inappropriate but would result in unaffordable costs to the hydropower generators.

For example, if the consumptive charges are applied, the volume used for the calculation would have to be the full river flow for a run-of river scheme. As an example, this averages 24 m<sup>3</sup>/s on the Ash River which amounts to 1 560 million m<sup>3</sup> of non-consumptive water use per annum. At the current Water Resource Management charge, the water cost for the project would amount to well over R25 million per annum, which would account for more than half the income of the proposed project. Such levels of tariffs would render all such projects unviable.

Instead, it is 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.

Hydropower operators are required to provide NERSA (National Energy Regulator of South Africa) with an annual reconciliation of power generated and sold which will make calculations of the water tariff based on the power generated simple to implement.

If, however, a hydropower generation operator 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, resulting in a loss of water stored in a dam, the abstraction related water resources management and infrastructure charges should apply to this volume of water. In such instances the hydropower generator would need to acquire a water use license for the taking of water which qualifies as a section 21 (a) water use in terms of the NWA.

Small hydropower plants with a capacity of less than 20 MW capacity should be charged as follows:

	<b>Hydropower plant integrated within DWAF's infrastructure at the dam (scenario A)</b>	<b>Hydropower plant developed downstream of DWAF's infrastructure and downstream of the dam wall (scenario B)</b>
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.

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, DWAF'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	=	<u>R 4 460 000</u>
Annual income under scenario A		=	<u>R 4 969 130</u>

### Scenario B

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

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.

In implementing the proposed charges for small scale power generation, each hydropower operator will have to provide DWA with a copy of their annual returns to NERSA. This information will provide DWA to the basic input to charge a tariff to the twelve odd power generators that will establish business within the next few years.

## 8 Waste Discharge Charges

### 8.1. The Basis for a Waste Discharge Charge System

Section 56 (5) of the National Water Act (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,

- create financial incentives for waste dischargers to reduce waste and use water resources in a more optimal manner,
- recover costs associated with mitigating resource quality impacts of waste discharge.

The WDCS charges are distinct from the Water Resource Management (WRM) charges on waste discharge as defined in section 7.4 of this document. The WDCS provides an economic instrument to support the management of water quality, where problems have been identified.

The WDCS will be implemented in a catchment as part of a water resources management planning process that includes regulatory, economic and other instruments. By so doing, the waste discharge charges are one element of an integrated approach to managing the resource quality problems in that catchment. Where the processes of classifying the water resource [in terms of Section 13 of the NWA] or developing a Catchment Management Strategy (CMS) [in terms of Section 8 of the NWA] have been conducted, the setting of waste discharge charges will support the associated objectives.

The WDCS as an economic incentive mechanism is therefore most appropriate for water quality problems for which the primary:

- impact is associated with the cumulative impacts from a number of dischargers in a catchment, rather than localised impacts from a single discharger (which is better managed through regulatory directives under Section 19 of the NWA), and
- sources are authorised water users, which require authorisation or registration, rather than diffuse sources that are not defined as water users (in terms of Section 21 of the NWA).

The WDCS will be applied at a catchment level, not necessarily at a Water Management Area (WMA) scale. 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, but the WDCS will only be applied to groundwater resources in a future edition of the pricing strategy.

The WDCS may be implemented in catchments for which Resource Quality Objectives (RQOs) are either exceeded or threatened. In the absence of a class and associated resources quality objectives (RQO), Resource Water Quality Objective (RWQO) will be refined and set as part of the WDCS implementation in that catchment. The setting of RWQO must be through a process of consensus-seeking amongst waste dischargers, water users and other relevant stakeholders, with the public trust placing the responsibility on Government to make sure that environmental interests are represented.

The WDCS provides an economic instrument to assist other regulatory tools in moving towards (or maintaining) the desired state represented by these objectives, over a pre-defined time period. In this situation, adaptive management (monitoring and review) of the waste discharges, charges and targets (interim objectives) will be conducted, in order to achieve the RQOs or RWQOs.

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
- *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 RWQO and a catchment assessment. Selection and definition 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 WDCS consists of two distinct water use charges, either or both of which may be applied in a specific catchment:

- Charges to cover the quantifiable costs of administratively implemented measures for the mitigation of waste discharge related impacts (Waste Mitigation Charge)
- 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 (Waste Discharge Levy)

The Waste Mitigation Charge is expanded below. The Waste Discharge Levy charge must be promulgated through Parliamentary Money Bill tabled by the Minister of Finance.

## 8.2. Principles for the Waste Mitigation Charge

The Waste 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 surface water resources. It is intended for application where mitigation measures provide an economically efficient approach to support the achievement of resource (water) quality objectives in a catchment, in comparison to the costs of waste discharge reduction at source. It must be planned, developed and implemented in terms of a water resources management (and rehabilitation) plan developed to address a water quality problem in a catchment.

The following principles apply to implementation of the Waste Mitigation Charge in terms of the WDCS.

- The Waste Mitigation Charge will be based on load discharge as it avoids the dilution of effluent to avoid cost reduction.
- A constant charge rate will be applied to the waste discharge load, and will not vary against concentration.
- Only registered waste discharge related water use in terms of Sections 21 (e), (f), (g), and (h) of the NWA will be liable for waste mitigation charges.
- Government will be responsible for the costs associated with load that cannot be charged to registered water users.
- The load or concentration associated with the intake of water supplied to the discharger may be deducted from the waste discharge charge.
- The WDCS 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.

There are four situations for which the Mitigation Charge may be considered:

1. *Removal of load from the water resource*: enables the recovery of costs for developing and operating regional mitigation schemes, initiatives or projects for the reduction of water quality loads within the water resource.
2. *Water resource system operation for water quality management*: enables the recovery of costs associated with reduced system yield associated with the management of river-reservoir systems to reduce the impact of water quality problems.
3. *Treatment for downstream 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 objectives.
4. *Treatment at source*: enables a group of dischargers to contribute directly to the 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.

### 8.3. Calculating the Mitigation Charge Rate

The aim of the WDCS is to reduce the total pollution load in a catchment by an amount necessary to achieve the resource (water) quality objectives. Feasible mitigation measures are designed to reduce or compensate for the impact of the load at key points in the catchment, either alone or in combination with the source load reduction achieved through application of the Waste Discharge Levy. The Waste Mitigation Charge is set to recover the full financial costs of these measures in a catchment.

The Waste Mitigation Charge rate is calculated as the total annual cost of mitigation divided by the total annual waste discharge load in that catchment. The total cost will be estimated as the equivalent annual operational cost (operations and maintenance), together with any amortised capital cost over the design life of the measure (capital, interest and depreciation).

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.

The Waste Mitigation Charge for:

- Registered point source dischargers will be calculated as the product of the Waste Mitigation Charge rate and the monitored (or registered) waste load from that point source.
- Registered discharge or disposal to land or facilities (representing non-point sources) will be calculated as the product of the charge rate and a proportion of the monitored (or estimated) waste discharge or disposal – related to the source management system.

- The (DWA) government contribution related to other non-registered nonpoint sources will be the product of the charge rate and the total remaining nonpoint sources load in the catchment.

Within the catchment, DWA together with other stakeholders are also obliged to implement regulatory and/or non-regulatory approaches to reduce the load from these nonpoint sources areas in terms of the Water Resources Management Plan.

#### **8.4. Institutional Arrangements for the WDCS**

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 Waste Mitigation Charges are the responsibility of the catchment management agency (CMA) in terms of the WDCS business plan developed in consultation with stakeholders. The DWA acts as the CMA in water management areas in which the CMA is not yet established and functional. This must comply with the requirements of the Public Finance Management Act and this Pricing Strategy, and should align with the Catchment Management Strategy, where this has been established.

The CMA will not necessarily directly implement the measures, which may be done by service providers, infrastructure operators or an independent implementing agent. The CMA will clarify (and establish) the institutional responsibilities through the business plan, in consultation with the waste dischargers. In some cases, an agreement may 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 consulted with all dischargers who may be liable for charges.

#### **8.5. Implementation of the WDCS**

The Waste Mitigation Charge will be implemented in the 2015/16 financial year, after testing the system during the 2014/15 financial year. The WDCS will be applied in selected priority catchments throughout South Africa, where resource water quality objective are not being met or are threatened.

### **9 Additional matters**

#### **9.1. Registered water use / measurement of water use**

Water charges where water use is not measured or metered are made against registered water use. 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. Assurance of availability is taken into account by registering the estimated



long-term average annual volumetric use of the various users. This determination takes 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 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.

## **9.2. Billing Agents**

DWA 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 DWA.

## **9.3. Treatment of Reserve Funds**

The depreciation and FIB charges will require reserve funds to be managed by DWA over time. DWA 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 and economic development stimulus projects and betterment of existing projects from the FIBC revenue base once a dedicated reserve fund has been put in place, from which capital expenditure can be made in a controlled manner. Some years will be required to build up this fund. Until such time, fiscal support will be required for social and economic development stimulus projects.

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 DWA 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, DWA 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.



## 9.4. Water Supply Agreements

DWA/TCTA shall enter into water supply agreements with major bulk raw water users and also with water boards, which have to enter into long-term water supply agreements with municipalities.

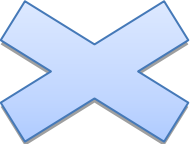




## 10 Application of Pricing Strategy to Different Categories of Water Use




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)**).

The table below provides a summary of the different charges to be applied to the different water use categories.

Table 6: Summary of Water Use Charges per Water Use Category

WATER USE CATEGORY	WATER RESOURCE MANAGEMENT CHARGES	INFRASTRUCTURE RELATED CHARGES	WASTE DISCHARGE CHARGES	PHASING IN OF CHARGES
<b>Municipal and Industrial</b>	Full cost recovery on abstraction and waste discharge related costs	On-budget GWS: Depreciation; FIBC, O&M Off-budget GWS: CUC, Refurbishment, and O&M; and FIBC post payment of loans;	Full costs of mitigation charge	WRM charges in place Waste discharge charges to be implemented after registration of waste users as per catchment specific plans
<b>High Assurance Use</b>	Full cost recovery on abstraction and waste discharge related costs	On-budget GWS: Depreciation; FIBC, O&M Off-budget GWS: CUC, Refurbishment, and O&M; and FIBC post payment of loans;	Full costs of mitigation charge.	WRM charges in place Waste discharge charges to be implemented after registration of waste users as per catchment specific plans
<b>Stream Flow Reduction Activities: Commercial growers</b>	Excludes cost of Dam Safety Control and waste discharge management			
<b>Stream Flow Reduction Activities: Resource poor growers</b>	Excludes cost of Dam Safety Control and waste discharge management; Waived for first 5 years after registration and phased in over the five year period that follows. Subsidy starts at 100% for five years, then reduces by 20% annually.			No charge for forest plantations ≤ 10 hectares. WRMC Phased in over ten years

<b>Irrigation: Commercial farmers</b>	Full recovery of allocated costs	GWS: Full recovery of Depreciation plus O&M on existing schemes. FIBC phased in over 5 years. Full financial cost recovery for new schemes. Targeted subsidies to be provided as determined by DAFF and National Treasury		FIBC to be phased in over 10 years
<b>Irrigation: Resource poor farmers</b>	Waived for first 5 years after registration and phased in over the five year period that follows. Subsidy starts at 100% for five years, then reduces by 20% annually.	GWS: FIBC, O&M and Depreciation charges waived for a 5 year period and phased in over the 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 DWA for water resources infrastructure or purchase of water allocations.		Consumptive charges Subsidised for 10 years from date of registration. Subsidy starts at 100% for five years, then reduces by 20% annually. WRMC: Phased in over 10 years
<b>Hydropower</b>		Fixed charge in installed capacity and variable charge per kilowatt hour		All charges immediate on registration or authorization of water use

## 11 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.

### 11.1. 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 affected users and will consider and may apply all or some of the following in determining support:-

- The extent of damage to crops and/or plantations
- 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 waived will be for a fixed period of time.
- **Under no circumstances will** cash grants be provided as relief.

### 11.2. Droughts

During times of droughts when it is necessary to curtail entitlements, the following rules 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 must approach DWA with a motivation for the implementation of these drought measures when appropriate.

When less than 50% of water is available, DWA will approach National Treasury for the shortfall in income to be recovered from the fiscus.

### **11.3. 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.

### **11.4. Interest on arrear water charges**

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

## **12 Multi-year charges**

The Department of Water Affairs and CMAs will introduce with the implementation of this Pricing Strategy a system of multi-year charges. Charges will be set for a period of three years.

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.

These charges must be approved by the economic regulator by the 30<sup>th</sup> of August of every appropriate year. Before the economic regulator is established, the Director-General of the Department of Water Affairs must approve the charges.

## **13 Implementation Date**

This pricing strategy will be implemented as from 1 April 2015. The charges that will be implemented for the financial year 2015/2016 onwards will be guided by the provisions of the Pricing Strategy III.

## 14 Annexure A: 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 that 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/Forest growers:** Entry-level water users who are citizens of South Africa and who are members of the historically disadvantaged population groups.

**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.