7.2 Schemes Owned by CMA's and WUA's

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

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

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

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

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

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

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

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

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

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

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

9 THE WASTE DISCHARGE CHARGE SYSTEM

9.1 The Basis for a Waste Discharge Charge System

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

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

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

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

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

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

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

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

The following considerations apply to implementation of the WDCS.

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

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

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

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

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

9.2 Incentive Charge

9.2.1 Introduction

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

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

9.2.2 Calculation of the Incentive Charge Rate

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

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

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

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

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

9.2.3 Implementation of the Incentive Charge

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

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

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

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

9.2.4 Disbursement of Funds

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

Funds will be used for four main purposes, namely:

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

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

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

9.3 Mitigation Charge

9.3.1 Introduction

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

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

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

9.3.2 Calculating the Mitigation Charge Rate

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

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

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

9.3.3 Implementation of the Mitigation Charge

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

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

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

9.3.4 Institutional Arrangements

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

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

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

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

9.4 Implementation of the WDCS

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

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

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

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

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

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

10.1 Impact of Raw Water Pricing Strategy on Different User Sectors

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

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

10.2 Natural Disasters

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

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

10.2.1 Forest fires and floods

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

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

10.2.2 Droughts

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

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

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

10.2.3 Purchase of "extra water"

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

11. TRANSPARENCY AND ACCOUNTABILITY

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

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

12. IMPLEMENTATION DATE

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