



**Department of Water Affairs and Forestry**

**GUIDELINES FOR THE DETERMINATION  
OF  
BULK POTABLE WATER CHARGES**

**DRAFT**  
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## **PREFACE**

These guidelines have been developed by DWAF in close conjunction with SAAWU and the individual water boards.

DWAF is grateful for the invaluable technical, financial and planning contribution made by the members of the water boards who attended the Steering Committee meetings.

The water boards have voluntarily agreed to adhere to these guidelines from the beginning of the 2007/08 financial year.

Once these guidelines have been proven through use, they will be presented to the honourable Minister with a recommendation that she give consideration to promulgating them in the Government Gazette as norms and standards under S10 of the Water Services Act.

Director General  
Department of Water Affairs and Forestry

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## **Abbreviations**

BPWSP	Bulk Potable Water Services Provider
CMA	Catchment Management Agency
DWAF	Department of Water Affairs and Forestry
IFRS	International Financial Reporting Standards
VAT	Value Added Taxation
WSA	Water Services Act, Act 108 of 1997

# 1. Introduction and Purpose of these Guidelines

DWAF is responsible for the overall policy with regards to the pricing of water to the end consumer.

In this regard, DWAF has already developed a National Pricing Strategy for Raw Water Charges, Regulations under the Water Services Act for retail water pricing as well as a Policy for Free Basic Water.

These guidelines deal with the determination and appraisal of bulk potable water tariffs and supplement the strategy, regulations and policy mentioned above.

## 2. The Legislative Framework

### 2.1. Mandate of the Minister of Water Affairs

S10 of the Water Services Act, 1997 provides for the Minister of Water Affairs, with the concurrence of the Minister of Finance to prescribe norms and standards in respect of tariffs for water services.

These norms and standards may-differentiate on an equitable basis between-

- (i) different users of water services;
  - (ii) different types of water services; and
  - (iii) different geographic areas, taking into account, among other factors, the socio-economic and physical attributes of each area;
- (b) place limitations on surplus or profit;
- (c) place limitations on the use of income generated by the recovery of charges;
- and
- (d) provide for tariffs to be used to promote or achieve water conservation.

No water services institution may use a tariff that is substantially different from any prescribed norms and standards.

### 3. Norms for bulk potable water tariffs

The following norms apply:

1. Free basic water is only provided to households at the retail level. The subsidization or cross subsidization of free basic water is a Municipal concern and not within the capability of an unsubsidized regional Bulk Potable Water Services Provider (BPWSP). Accordingly bulk potable water tariffs should not be stepped tariffs.
2. A BPWSP may set a volume only bulk potable water charge or a fixed capital charge independent of consumption together with a volume charge.
3. A BPWSP may set a single tariff for its whole supply area or it may set a separate tariff for each scheme or each water treatment plant. Specific tariffs may be set for different customers when this can be motivated by differentials in the cost of supplying the different customers.
4. Bulk potable water tariffs must be determined using the methodology described in these Guidelines.
5. The projected revenue to be earned through the bulk potable water tariff must reflect the cost of purchasing the raw water, the cost of developing and financing the infrastructure, the cost of treating and supplying the water, institutional overheads plus a reasonable operating surplus.
6. Cost increases may be smoothed over time to take into account projected future infrastructure development costs.
7. Operating surpluses may be earned for future capital expansion, for refurbishment, for repaying debt and for reasonable contingencies. Excessive surpluses earned in one year must be returned to the consumer in the form of a rebate during the following year.

### 4. Tariff determination methodology

The following four-step process must be followed when determining tariffs.

1. Benchmark costs,
2. Compile Excel financial model,
3. Prepare pro-forma tariff table, and
4. Submit above to DWAF for approval and regulatory process.

Firstly, the BPWSP's costs must be **benchmarked** against industry standards. The purpose of this is to ensure that the water board costs are reasonable and that wasteful or ineffective expenditure is not passed on to the purchaser through the tariff.

Secondly, a long duration (10 to 15 year) **cash-flow projection model** must be compiled. This cash flow model should clearly show projected water sales, revenue,

costs, surpluses, outstanding debt and financial ratios. The first 5 years of the model should be based on programmed capital expenditure and refurbishment.

Thirdly, the cost components of the bulk potable water tariff must be reflected in a standardised **pro-forma tariff table** so that the components of a break-even tariff and the anticipated surplus are transparent and can be compared with the previous year's tariff and with those of other BPWSPs.

Fourthly, the proposed tariff must be processed through the **approval and regulatory processes** set out in these guidelines.

## 5. Benchmarking of unit costs

Benchmarking is the comparison of performance with other similar entities in order to determine relative efficiency. The format to be used for benchmarking costs is shown in the table below:

### Benchmarking of direct costs for the year ended 30 June 20XX

BWSP Name Scheme or Management Area Name	Budgeted water sales (Cubic meters per annum) Capacity of scheme (Cubic meters per annum) Percentage utilization.			
	Budgeted Expenditure  (R'000)	Cost/KI Budgeted Water Sales  (R/KI)	Industry norm Cost/KI for similar size schemes  (R/KI)	Percentage of industry norm
Raw water charge purchased		R/KI purchased		
Raw water charge equated to volume supplied (after losses)		R/KI sold		
Direct Scheme Costs:				
Direct staff and labour costs including				

their transport				
Direct electricity and energy costs				
Chemicals				
Maintenance costs				
Refurbishment				
Depreciation				
Overheads allocated				
Net finance charges				
<b>Total costs</b>				

Note: All costs exclusive of VAT.

A BPWSP may group small schemes geographically and benchmark them as a management unit against similar sized management supply areas or schemes.

## 5.1. Definition of benchmarked components

### 5.1.1. Budgeted water sales and capacity of scheme

The Budgeted water sales is the budgeted volume that the scheme is likely to supply to customers. It is equal to the volume on which the customers will be charged and is not equal to the volume including losses that is abstracted.

The capacity of the scheme is the maximum volume that the scheme can supply on a sustainable basis and is regulated primarily by the capacity of the treatment works.

### 5.1.2. Raw water charge (DWAF)

The raw water charge is the cost at which raw water is supplied to the BPWSP. If the raw water is supplied by DWAF then the cost to the BWSP would be DWAF's water management charge plus the volume charge plus the WRC levy.

DWAF's raw water unit charge (tariff) must be factored up to an equivalent R/Kl of water sold. This is because the BPWSP is charged the DWAF unit charge on water abstracted while the BPWSP must recover the charge from its customers on the volume of water supplied to its customers after losses.



### 5.1.3. Direct staff and labour costs including their transport

Direct staff and labour is the all-in-cost of staff directly responsible for the operation and maintenance of the scheme(s). This cost would include pension and medical aid contributions as well as any allowances paid either to these staff members or on their behalf.

The cost of transport including fuel used by the direct staff and labour is included in this item.

### 5.1.4. Direct electricity and energy

Direct electricity and energy is the Eskom charge, including both the capacity and usage charge, used for pumping or purification of water or for lighting etc at the plant.

### 5.1.5. Chemicals

Chemicals is the full cost of chemicals used for dozing the water.

### 5.1.6. Maintenance

Maintenance is the cost of routine maintenance of the plant and equipment.

### 5.1.7. Refurbishment

Refurbishment is the cost of substantial repair to or replacement of plant and equipment which is budgeted separately and is not included under routine maintenance costs.

### 5.1.8. Depreciation

Depreciation is defined in the International Financial Reporting Standards.

The following depreciation norms shall apply:

<b>Asset</b>	<b>Depreciable portion</b>	<b>Useful life</b>
Dams	10%	40 years
Civil works other than dams	100%	40 years
Mechanical and Electrical Plant and equipment	100%	30 years
Buildings	100%	40 years
Land	0%	Perpetuity
Laboratory and scientific equipment	100%	4 years

Computers (mainframe)	100%	5 Years (SARS guidelines)
Computer (personal) and software	100%	3 years (SARS guidelines)
Passenger cars	100%	5 years (SARS guidelines)
Delivery vehicles or equivalent	100%	4 years (SARS guidelines)
Furniture and fittings	100%	6 years (SARS guidelines)
Fax machines	100%	3 years (SARS guidelines)

### 5.1.9. Overhead allocation

Overhead allocation is the allocation to the benchmarked scheme of a portion of the head office and other off-scheme or indirect costs, including head office staff, accommodation and transport.

Depreciation of head office buildings, furniture and equipment and vehicles and other off-scheme related assets should be allocated to the scheme under this item for tariff calculation purposes.

### 5.1.10. Net finance charges

The interest payable on loans and other liabilities less the interest earned on investments and other assets should be allocated to the scheme under this item.

## 5.2. Industry norms

The industry norms will be based on the previous years tariff inputs made by BPWSP's to DWAF. These norms will be distributed annually to all BWSPs by DWAF together with CPIx projections.

## 6. Cash flow projection model

### 6.1. Format of the 10 to 15 year financial model

The core of the financial model is the cash flow model.

This cash flow model should clearly show projected water sales, revenue, costs, surpluses, capex, outstanding debt and financial ratios.

The first 5 years of the cash-flow model must be based on programmed or scheduled expenditure. The following 5 to 10 years can be extrapolations, but is useful for showing over what period the debt is repaid and what surpluses or deficits are likely to occur.

The minimum detail to be disclosed in the financial flow model is shown in the table below:

#### FINANCIAL MODEL

ITEM	Fy Year 1	Fy Year 2	Fy Year 20
<b>ASSUMPTIONS</b>			
CPIx			
Increase in water sales (percentage)			
Volume of water billed			
Proposed tariff increase			
<b>Proposed tariff</b>			
Volume raw water purchases			
Assumed raw water tariff			
<b>CASH-FLOW BUDGET</b>			
Revenue			
Less provision for non-payments			
Less Raw Water Cost			
Less Direct scheme costs			
Less Overheads			

<b>Sub-balance 1: Operating Cash flow surplus or loss before interest charges</b>			
Net interest charges			
<b>Sub-balance 2: Operating Cash flow surplus or loss after interest charges</b>			
Capital expenditure comprising capital expansion and refurbishment			
Changes in working capital			
Rebate to users			
<b>Loan repaid/loan raised</b>			
Depreciation			
<b>Sub-balance 3: Accounting surplus or loss</b>			
<b>RESULTING BALANCE SHEET ITEMS</b>			
Equity			
Reserves			
Outstanding long term loans end of period			
Fixed Assets			
Long term Investments at end of period			
Current Assets			
Current Liabilities			
<b>CRITICAL RATIOS</b>			
Debt/equity			
Assets/liabilities			
Current assets/current liabilities			
Debt service costs /operating cash flow surplus before interest charges			
<b>SURPLUS RATIOS</b>			
Accounting surplus/Fixed Assets			
Accounting surplus/Revenue			

Equity plus reserves/Fixed Assets			

## 6.2. Assumptions for the financial model

Volume of water sales should be conservatively based on an analysis of historic trends as well as new information regarding consumers.

CPIx projections will be provided annually by DWAF.

The relationship between variable direct scheme costs (eg raw water costs, energy and chemicals) and water sales should be recognised in the model.

Depreciation is not a cash flow item and is not used to calculate the cash flow surplus. Depreciation is however a cost and is used to calculate the accounting surplus and the Reserves.

## 6.3. Financial targets

The BPWSP should aim to meet the following financial targets in the Cash Flow Model:

1. Loans raised for funding Plant and Equipment should be repaid over a maximum period of 20 years.
2. Assets must at all times exceed liabilities.
3. Current assets must at all times exceed current liabilities.
4. The BPWSP should in all years make a positive accounting surplus (before rebates).
5. The BPWSP should in all years make a positive operating cash flow surplus after interest charges.
6. Treasury imposed borrowing limits not to be exceeded.
7. Surplus targets (after provisions for loan repayment, refurbishment and capex) not to be exceeded.

## 7. Surplus and Reserves

The purpose of a Water Boards is not to generate a profit. However, it is recognised that accounting surpluses need to be generated to redeem loans, to fund future capital expenditure and refurbishment and to make provision for contingencies.

The following guidelines should be followed in determining appropriate water board surpluses:

- The surplus accrued in any one year, over and above what is required for scheduled loan repayment, refurbishment or capital expansion, should not exceed the lesser of 10% of fixed Assets or 15% of revenue.
- 
- Accumulated equity and reserves should not exceed 115% of fixed assets.

In the absence of any water board taxation or dividend policy and in order to maintain the lowest possible price of water to municipalities, it is recommended that any reserves accumulated beyond the above limits in any financial year should be returned to shareholders through a rebate on the following financial year's calculated tariffs.

## 8. Compile a pro-forma tariff table

The water board must prepare a table, in the format shown below, of the proposed potable bulk water tariff for the following year and estimates of the potable bulk water tariff for the next 4 years (5 years in total):

YEAR	Proposed Tariff for year 20XX/20XY	Tariff anticipated in Year 2	Tariff anticipated in Year 3 etc for 5 years
	R/KI	R/KI	R/KI
DWAF/CMA charge			
Direct scheme operations costs			
Overheads			
Depreciation			
Income statement surplus			
<b>Sub-total</b>			
WRC charges			
VAT			
<b>Total tariff</b>			
<b>Projected water sales</b>	MI	MI	MI
<b>Projected revenue</b>	R	R	R
<b>Surplus utilization:</b>			
Loan redemption payments and	R/KI		

provisions made for future loan redemption			
Provision for reasonable refurbishment	R/KI		
Provision for specific capital expenditure.	R/KI		
General Reserves	R/KI		

## 9. Submissions to DWAF

The recommended approval timetable is as follows:

		<u>Final date</u>
DWAF provides water resources tariffs to municipalities/ water boards		August
<b>Water Board calculates tariff</b>		<b>September</b>
DWAF preliminary review		October
Submission to National Treasury and SALGA	40 Days for comments	November
Submission officially to DWAF and internal regulator		January
Tabling in Parliament		15 March
Implementation by municipality	106 Days	1 July

In accordance with the above timetable, the BPWSP shall submit the tariff calculations to DWAF for appraisal on the last day of September of the year before the tariff is to be implemented. The tariff calculations will comprise the following tables bound in a single report:

- Cost benchmarking table;
- Financial model (soft copy in Excel format and hard copy);
- Pro-forma tariff table;
- Any accompanying notes and explanations that the BPWSP wishes to bring to DWAF's attention, and
- A copy of the previous years audited annual financial statements.