

Title: Water Demand Management in Practice

Note: The chapters in this document below are available in zipped and executable PDF format. Please click on the links below and the chapters will download on your hard disk. From there you can open them with Acrobat Reader.

Good Practice in Water Resources Management

[Foreward](#) [120 KB](#)

Part 1

Johannesburg - South Africa

[1,076 KB](#)

Water Demand Management in Practice

Introduction

Growth in consumption and estimated future requirements

Water Resources

Unaccounted-for-water in Gauteng

Motive for Water Demand Management (WDM)

WDM initiatives in Rand Water

The scope of leak fixing projects

The objectives of the projects

Terms of Reference of Projects

Deliverables of projects

Setting up of a typical project for retrofitting and leak fixing on-plot

Basic structure of a management system

Different approaches toward leak fixing projects

Community based approach

Managing Consultant Approach

Contractor Development Team Approach

Choose the best approach

Management Systems and procedures

Site establishment

Staff recruitment

Community involvement and communications

Material procurement

Production rates

Recipe for success

Appropriate project selection

Technical assessment

Social assessment

House-to-house assessment

Project scope definition

Complexity of projects

Pitfalls of projects

Cost of RW projects
Impact on consumption

Rand Water Projects – Detail

Sebokeng Retrofitting

Assessment
Repairs
Staff
Finance
Communication
Project effectiveness

Tembisa West leaks repair project

Assessment
Repairs
Staff
Finance
Communication
Project effectiveness

Kagiso water leaks repair project

Assessment
Repairs
Staff
Finance
Communication
Project effectiveness
Bulk Metering

Boksburg Schools Retrofitting project

Initiatives
Conclusion

REFERENCES

Figures

Figure 1	Rand Water Area of supply
Figure 2	Rand Water resources
Figure 3	Management System Structure
Figure 4	Community Based Approach
Figure 5	Managing Consultant approach
Figure 6	Contractor Development Team Approach

Tables

Table 1	Cost of Rand Water's Projects
Table 2	Project staff appointments – Sebokeng
Table 3	Project Staff Appointments – Tembisa West
Table 4	Project Staff Appointments- Kagiso
Table 5	Drop in water consumption over project duration

Graphs

Graph 1	Thokoza project monthly consumption
Graph 2	Soweto monthly consumption
Graph 3	Kagiso water consumption

Part 2

Windhoek – Namibia

2,340 KB

Water Demand Management In Practice

Introduction

- Available water resources to Windhoek
- Driving forces of Water demand Management

Summary Of Integrated Water Demand Management Policy In Windhoek

- Policy issues
- Public campaign
- Legislation
- Technical measures

Water Tariff guidelines in Windhoek (1999)

Tariffs for industrial effluent

Legislation

- Undue water consumption
- Water Efficient appliances
- Groundwater abstraction
- Individual metering in accommodation units
- Prevention of water pollution

Good operational practices by Water Supply Authorities

- Efficiency
- Water meter management
- User friendly water account
- Reduction of water use in municipality
- Reduction of unaccounted-for-water
- Artificial recharge of the Windhoek aquifer

Water efficiency

- Equipment
- Irrigation
- Gardening practice
- Evaporation loss reduction

Public Awareness

- Media Marketing
- Schools and community
- Consumer advisory service
- Community development

Water use from unconventional sources

- On-site reuse of water
- Reuse of effluent for irrigation
- Reclamation of wastewater for direct potable use

Expected savings from WDM

Financial aspects of WDM implementation

Cost to implement WDM and potential savings thereof

Total effect of WDM on water consumption in Windhoek

Constraints and opportunities of WDM

- Lack of cooperation by stakeholders
- Lack of manpower
- Interdepartmental communication
- Pollution control
- Replacement program for pipelines
- Water efficient fittings and appliances
- Lack of government cooperation

What has been learnt

Effectiveness of WDM

Conclusion

References

Tables

- Table 1 Policy measures
- Table 2 Public awareness and education campaign
- Table 3 Requirements of the Water Regulations
- Table 4 Technical measures
- Table 5 Unaccounted-for-water in Windhoek up to 1997
- Table 6 Windhoek Water Tariffs.
- Table 7 Cost of water from different sources
- Table 8 Comparison of the per capita daily consumption in Windhoek.

Graphs

- Graph 1 Water production in Windhoek from different source
- Graph 2 Anticipated and possible savings through integrated WDM policies

Figures

- Figure 1 NamWater Supply Scheme
- Figure 2 Windhoek water sources

624 KB

Part 3

64

Durban Metro Water – Water Resources Management

Introduction

Water Resources Management

- Technical measures
- Social Engineering
- Non-payment
- Financial matters
- Tariffs
- Provision of free water
- Block tariffs

Standpipes

Tank system

- Ground level tank
- Problems faced with ground tank system
- Roof tank

Results of water management

References

Graphs

Graph 1 Bulk water purchases of the Durban Metro from July 1995 to July 2000

Part 4

Greater Hermanus Water Conservation Programme

1,716 KB

A Model for Water Management

Development of the Model

Introduction

Background

Structure of the Water Conservation Programme

General

Communication

Education and water audits at schools

Water Loss Management

General

Network Management

Water meter management

Water balancing

Clearing of Invasive Alien Plants in the Catchment Area

Water Wise Gardening

Water Wise Food Production

Initiatives to Save Water in the Home (Retrofit)

Water Regulations

Escalating Block-Rate Tariff

Assurance of Supply Tariffs

Informative Billing

Security / Communication Meter

Overall Results Of The Water Programme

Consumer attitudes

Impact on revenue from water sales

Impact on consumption (the saving of water)

Benefits and avoided costs

A Sustainable Vision

General

Administration

Tariffs, Rates and Taxes

Continuation of the Programme

Conclusion

Tables

Table 1	Projected Yearly Consumption with 0% Saving
Table 2	Projected Consumption with 30% Saving
Table 3	Water tariffs for Greater Hermanus Oct 1996
Table 4	Results of the average daily water consumption from 1993 to 1999

Charts

Chart 1	Comparison of the water consumption of the tourist month to the normal month
Chart 2	Results of consumer's attitude survey

Graphs

Graph 1	Comparison of Water Saving Devices
Graph 2	Old step tariff vs New step tariff October 1996
Graph 3	Cost per kilolitre
Graph 4	Tariff (excluding assurance of supply)
Graph 5	Tariff comparison (0-60 kl/m)
Graph 6	Monthly cost comparison for R2, R10, R40 Including assurance of supply
Graph 7	Consumption of a high density holiday complex: 324 units
Graph 8	High density holiday complex : 324 units – Peak daily consumption
Graph 9	Consumer X : Monthly bill – Water vs electricity
Graph 10	Additional revenue 1996/97
Graph 11	Annual consumption 1990/91 – 1998/99
Graph 12	Rainfall for 11 Dec to 11 Jan 1995 – 1998
Graph 13	Peak day consumption : Dec 1997/Jan 1998

Part 5

Addendum

1,192 KB

User Friendly Water Account In Hermanus

A Water Demand Management Strategy For The Cape Metropolitan Council (CMC) And The Metropolitan Local Councils

Policy statement

Background

Introduction

The three tiers

The strategic plan for water demand management

Empowerment

Implementation

Strategic distribution system issues

Unaccounted-for-water (UAW)

Infrastructure development

Logging of meters

Correct sizing of the meter

Trends in consumption patterns

Impacts of interventions

Meter accuracy

Basic Flow Determinations

Water Balance Determinations

Meter Accuracy

Mechanical meters

Strategy:

CMC Bulk supply

MLC Local distribution systems

Meter reading technologies

Financial/budgetary considerations

Exemption status for WDM

Responsibilities of the bulk supplier

Input from Metropolitan Local Councils

CMC/MLC cooperation at highest level

Financial assistance

Plumbing Repair Projects
Automatic flushing urinals
Automatic sprinkler irrigation systems

Pressure
Water conservation, public awareness and schools awareness/education programmes
Alternative sources of water for irrigation
Building audits
Effluent reuse
Stepped tariffs
Procedures
Staffing scenarios

City of Tygerberg - Water Services Department

Water demand management strategy
Introduction
Revised Water Demand Management Plan
Water Conservation Policy

- Phase 1 Preparation
- Phase 2 Installation and monitoring
- Phase 3 Set target levels
- Phase 4 Water loss control
- Phase 5 Installation of consumer water meters
- Phase 6 Assessment
- Phase 7 Water audit
- Phase 8 Advanced technology

Leakage reduction through pressure management

Water conservation policy

Introduction

Water Conservation principles

Water use efficiency measures

Economic and financial measures

Communication and education measures

Progress of the implementation of the water demand strategy in Khayelitsha

Relevance of pressure management in the study area

Detail of pilot project

Water conservation plan

Reference

Terminology

228 KB