

Water Demand Management **INTRODUCTION**



IUCN
The World Conservation Union

 **Sida**

VERSION 1.1

IDRC  **CRDI**
International Development Research Centre Centre de recherches pour le développement international

Guideline Training Material

A m e n d m e n t r e c o r d

When the last revision of this document (as shown below by the revision number and date) has been authorised and distributed, all previous issues are to be disposed of or returned to TIDASA for safekeeping or disposal.

REVISION NUMBER	PAGE NUMBERS AMENDED	DATE	AUTHOR	FILE NAME

c o p y r i g h t

Copyright © IUCN 2004

The graphic design and layout style of this document is reserved for the IUCN and may not be utilised except with the prior written permission of the Director.

All rights reserved

No part of this document may be transmitted, reproduced, stored in a retrieval system, translated into any language (human or computer), in any form or by any means (electronic, mechanical, optical, magnetic, chemical, or manual) without prior written permission from the copyright owner.

This document is the property of the IUCN. It has been issued for the information of persons who need to know its contents in the course of their official duties. Any person finding this document should return it to the nearest office of the IUCN or send it to:



The Director

IUCN-SA

PO Box 11536

HATFIELD

0028

Tel: +27 (0)12 342 8304

Fax: +27 (0)12 342 8289

f o r e w o r d t o t h e I U C N W D M G T M f o r M W S A s

Saliem Fakir, Director, IUCN-SA

Water is as precious as gold-as it becomes scarcer the greater its value will increase. The more people compete to control it, and use it for themselves, the greater is the potential for conflict. It could easily in the future become a commodity equivalent to oil in today's global economy. For this reason, dealing with present and future water challenges requires vision and leadership.

Integrated Water Resources Management (IWRM) is regarded by many as the best way to take a co-ordinated approach to the planning, development and management of our water, land and related resources to ensure the maximum benefit for the ever-growing human population, as well as the sustainability of vital ecosystems. This is especially important in the southern African context, where water is a scarce and unevenly distributed resource.

In response to the challenge of meeting rising water demands from manufacturers, mines, agriculture, forestry, and domestic users, most southern African Municipal Water Supply Agencies (MWSAs) have focused on developing new sources of supply, often without exploring ways of maximising usage from existing sources and systems.

Investments are readily made in widening the search for new water sources, without proportional commitment to rectifying problems such as high levels of unaccounted-for water, inadequate metering, low rates of revenue collection, lack of consumer awareness and faulty consumer appliances. The consequences of this approach have been the over-use, wastage and pollution of water resources, as well as unnecessary capitalisation in new schemes, when cheaper and more long-term solutions could be on offer.

It is imperative that water resource management policies foreground opportunities for integrating or even lowering water demand in a socially beneficial manner. Water Demand Management (WDM) is one approach towards doing this, through the formulation of policies and the implementation of economic, technical and awareness-raising measures aimed at improving efficiency of supply, and diminishing wastage at all stages in the water supply chain.

IUCN - The World Conservation Union, funded by the Swedish International Development Agency and the International Development Research Centre, has supported and co-ordinated the development of this first Guideline Training Module, as part of Phase II of the Regional WDM Project. It is one small but significant way of empowering individuals, organisations and governments to manage their water

resources better by providing relevant WDM information, examples and case-studies in a user-friendly format. WDM for MWSAs was prioritised by representatives of the water sector as being a vital area where an impact can be made through such capacity-building and awareness-raising. We hope that you find the Guidelines Training Manual enlightening, and further advance the implementation of WDM in southern Africa.



Saliem Fakir
Country Programme Co-ordinator
IUCN South Africa Country Office

c o u r s e m a p

Unit 1: WDM in context

Unit 2: Municipal WDM

Unit 3: WDM options and benefits

Unit 4: WDM plan

c o n t r i b u t o r s

The following people contributed to the concept and content of this module

IUCN PROJECT TEAM

Saliem Fakir	Project manager
Michael Raimondo	Project co-ordinator

TIDASA PROJECT TEAM

Nicky Kruger	Project manager
Laura Forster	Project co-ordinator
Elaine Cosser	Learning material developer
Dorothy Snyman	Learning material developer
Bekithemba Gumbo	Learning material developer
Cathy Oroni	Designer
Sharon Farrell	Editor
Andrew McAllister	Editor
Prudence Dziba	Administrator

CENTRE FOR APPLIED RESEARCH (CAR) PROJECT TEAM

Jaap Arntzen	Subject matter expert
Latifa Amusa	Research assistant
Unopa Sikuku	Research assistant

REVIEW TEAM

Graham Jewitt	Technical review
Wayne Schafer	Technical review

a b o u t t h i s m o d u l e

Welcome to the Water Demand Management Guideline Training Module for Municipal Water Supply Agencies (WDM GTM for MWSAs).

Recent studies have found a number of underlying constraints that inhibit the adoption and implementation of WDM. Perhaps the greatest constraint is that the economic, social, and environmental benefits of WDM are not appreciated. Other constraints that need to be tackled include:

- 💧 a lack of awareness of water scarcity;
- 💧 a lack of political will;
- 💧 no specific mention of WDM in policies and legislation;
- 💧 a lack of institutional capacity;
- 💧 ill-defined institutional roles;
- 💧 supply-side bias;
- 💧 lack of specific training, and
- 💧 no clear procedures or guidelines for WDM.

This module aims to empower you to address these constraints by providing you with accessible and practical information about the successful implementation of WDM in the sphere of municipal water supply, policymaking and regulation.

This outcomes-based, learner-friendly module is based primarily on *Building Awareness and Overcoming Obstacles to Water Demand Management: Guideline for Municipal Water Supply Agencies*, which was developed as part of Phase II of the IUCN Regional WDM Project. It also draws on the findings of the country studies, research studies, analytical papers, and the Postgraduate Training Module that were products of this IUCN initiative.

One of the main objectives of the module is to guide YOU towards formulating a WDM plan for an MWSA. The module is targeted, though not exclusively, at MWSA employees with relevant working knowledge of municipal water supply systems. The module content is set for tertiary level education, and for a range of disciplines.

WDM in the context of Integrated Water Resources Management (IWRM) entails training targeted at various professional disciplines within the water management chain. This module is designed in such a way that middle and top managers in MWSAs will be able to grasp WDM concepts, and be motivated to implement WDM within their agencies.

We hope that by working through this module you will consolidate your understanding of the need for WDM, the constraints and incentives affecting WDM, and the benefits of WDM to MWSAs. Most importantly, we hope to empower YOU, as a vital link in the WDM chain, to envision and implement WDM strategies in your country and your MWSA.

Remember that your input and commitment are vital to the sustainable development of your country's water resources, and that WDM is a powerful tool in your hands.

t h e W D M g u i d e l i n e t r a i n i n g m o d u l e s

This is one of a series of Guideline Training Modules that will cover WDM across all stakeholder areas. Based on the WDM Guidelines produced during Phase II of the IUCN Regional WDM Project, the series consists of a foundational unit, and groups of Guideline area-specific units, as depicted in the diagram below. These units will be organised into modules by water user sectors such as Large-scale Irrigators, Industrial Users and Rural Water Users.

CORE MUNICIPAL WATER SUPPLY, POLICY AND BULK TREATED WATER	Country specific Portfolio	CORE LARGE-SCALE IRRIGATORS	Portfolio	CORE INDUSTRIAL USERS	Portfolio
	Country specific Portfolio		Portfolio		Portfolio
	Country specific Portfolio		Portfolio		Portfolio
	Country specific Portfolio		Portfolio		Portfolio
FOUNDATIONAL UNIT					

Each learner-friendly outcomes-based module will be structured around the development of a WDM implementation plan for that stakeholder area. The learning experience will be made relevant to the participant group through the use of country-specific portfolios of information, case-studies and examples, linked to the learning material through facilitated work sessions and site visits.

The emphasis throughout the modules is to consolidate participants' knowledge and experience of WDM. Through practical exercises and contact with experts and officials from their stakeholder area, the modules aim to promote the adoption of a positive and committed attitude towards sustainable development through the implementation of WDM as a component of integrated water resource management.

l i s t o f i c o n s

example

This icon gives you practical examples to clarify the text.

outcomes

This icon indicates the outcomes that should be achieved by working through the module. Outcomes include the knowledge, skills and attitudes necessary for WDM.

remember

This icon alerts you to information you must remember.

tip

This icon advises you how to perform a task effectively.

watch out!

This icon is a reminder that you may face potential problems.

activity

This icon offers some practical and creative thinking exercises.

a b b r e v i a t i o n s

AIDS	Acquired Immune Deficiency Syndrome
AWUM	Agricultural Water Use and Management
AWWA	American Water Works Association
BAT	Best Available Technology
CBA	Cost-Benefit Analysis
CBO	Community Based Organisation
DRC	Democratic Republic of the Congo
DWAF	Department of Water Affairs and Forestry (South Africa)
DWA	Department of Water Affairs (Botswana)
EIA	Environmental Impact Assessment
EIMS	Engineering Infrastructure Management System
FBW	Free Basic Water
GDP	Gross Domestic Product
GTM	Guideline Training Module (for WDM)
HIV	Human Immunodeficiency Virus
ICOLD	International Commission on Large Dams
IDRC	International Development Research Centre
IHE	Infrastructure Hydraulics Environment
ILCP	Integrated Least Cost Planning
IMT	Irrigation Management Transfer
IRR	Internal Rate of Return
IUCN	The World Conservation Union
IWA	International Water Association
IWRM	Integrated Water Resource Management
KPI	Key Performance Indicator
LA	Local Authority
LRMC	Long-Run Marginal Cost
M	Million
M&E	Monitoring and Evaluation
MAWAC	Managing Water for African Cities
MCA	Multi-Criteria Analysis
MIS	Management Information System

MNF	Minimum Night Flow
MOC	Marginal Opportunity Cost
MWSA	Municipal Water Supply Agency
NGO	Non-Governmental Organisation
NPV	Net Present Value
NRW	Non-Revenue Water
NWASCO	National Water Supply and Sanitation Council (Zambia)
NWMP	National Water Master Plan
PRV	Pressure Reducing Valve
RDM	Resource-Directed Measures
RSAP	Regional Strategy and Action Plan
SADC	Southern African Development Community
Sida	Swedish International Development Agency
UAW	Unaccounted for Water
UIM	Urban Industrial Mining
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNESCO-IHE	Institute for Water Education
UWC	University of the Western Cape
VAT	Value Added Tax
WARFSA	Water Research Fund for Southern Africa
WC	Water Conservation
WCD	World Commission on Dams
WCED	World Commission on Environment and Development
WDM GTM	Water Demand Management Guideline Training Module
WDM	Water Demand Management
WSA	Water Services Act (South Africa)
WSCU	Water Sector Co-ordinating Unit
WSP	Water Services Provider
WSSD	World Summit on Sustainable Development
WUA	Water Users Association
ZISCO	Zimbabwe Iron and Steel Company

