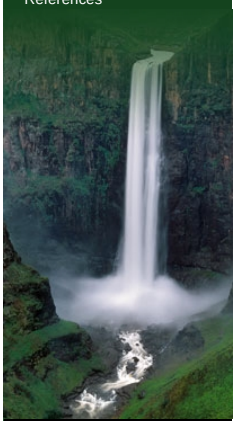
Resource Management



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Water Demand in the Basin:

Water Demand Management

Water Demand Management (WDM) is defined as "The adaptation and implementation of a strategy (policies and initiatives) by water management institutions to influence water demand and usage of water in order to meet any of the following objectives: economic efficiency, social development, social equity, environmental protection, sustainability of water supply and services, and political acceptability." (DWAF 1999).

Currently, no country in the Orange-Senqu River basin has a comprehensive and operational countrywide approach to Water Demand Management. While policy trends include Water Demand Management, legislation and implementation strategies lag at the country level (Table 1). Despite a lack of comprehensive Water Demand Management strategies and policies, the region has established some local-level experience with pilot projects – mainly in big cities.

Table 1: Status of Water Conservation/Water Demand Management planning and implementation in the Orange-Senqu River basin states.

Country	Policy	Legislation	Applied in Urban Sector	Applied in Agricultural Sector
Botswana	in development	No	Increasing block tariffs, leak detection	Extremely limited
Lesotho	Yes	in development	Increasing block tariffs only	Extremely limited
Namibia	Yes	in development	Comprehensive in Windhoek	Limited
South Africa	Yes	Yes	Limited in Durban, Johannesburg and Cape Town	Limited application. Research ongoing.

Source: Adapted from Rothert 2000

The success of Water Demand Management in individual countries can be crudely measured as the percentage of water unaccounted for, or lost to use or waste, between the inflow and outflow (Gumbo 2004). On this basis, success resulting from direct investment in certain WDM strategies is evidenced by advances in:

- Water awareness campaigns
- Customer education
- Water loss management projects
- Individual metering of consumers
- Water-efficient gardening
- Efficient and informative billing
- An appropriate management information system (Gumbo 2004)

Effective Water Demand Management is also linked to sound financial management, an equitable standard of water services (at least 90% of the population connected) and waste water recycling and re-use. A study of Water Demand Management strategies in cities across southern Africa (by Gumbo 2004) found that Windhoek has achieved considerable success.

Both Namibia and South Africa have decentralized water management and have shifted water management from the national level to the basin/community level. South Africa is in the process of implementing Catchment Management Agencies (CMAs) and Namibia is decentralizing rural water supply to Water Point Agencies (WPAs). In Botswana, decentralization of water management is occurring to the extent that District Councils are responsible for the operation and maintenance of water supplies; however there is limited community involvement (Sandstrom and Singh 2000). In Lesotho, water management is primarily the responsibility of the Ministry of Natural Resources; however Lesotho's National Environmental Policy states that "the involvement of stakeholders contributes to the efficiency, sustainability and success of water projects" (NeWater 2005).

Below is a comparison of Water Demand Management in three major cities in southern Africa, either in the Orange-Senqu River basin or supplied by water from it. Information for Gaborone, Botswana was not included source study (Gumbo 2004). "Level of Service" is defined as: (1) reticulated: household water, connections that can have taps within the house or within a private plot of land; or (2) stand posts and other:

Table 2: Comparison of Water Demand Management (WDM) in three major cities in southern Africa.

Indicator	Windhoek	Johannesburg	Maseru
Managing institution	Municipal	Private	Parastatal
Population served (1000s)	250	3 500	170
% urban population with formal status	95	75	80
Volume supplied (m^3/day)	48 000	1 100 000	29 000
Per capita gross figure (l/head/day)	190	310	140
Annual yield from sources (Mm^3)	22,2		1,8
Average rainfall (mm/annum)	360	710	780
Altitude (m)	1 600	1 200	1 700
Level of service % reticulated	97	90	79
% stand-posts and other	3	10	21
Number of connections	38 000	617 000	32 000
% of metered connections	88	70	70

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Length of distribution network (km)	1 300	9 500	480
WDM strategy	Yes (1994)	Yes (2001)	None
WDM policy	Yes	Yes	None
WDM legislation	None	Yes	None
WDM education and awareness programme	Yes	Yes	None
Major customer complaints	Bursts and Billing	Billing	Inadequate supply
Dedicated WDM section	Yes	Yes	None
Total number of employees in water section	70	3500	455
Number of employees/population served	1:3600	1:1000	1:400
Number of employees/1000 connections	2	6	14
Recycling, reclamation and reuse	Yes	Yes	No
% Level of UAW	18	30	31
% Domestic consumption	74	75	40
Block tariff system	Yes	Yes	Yes
Average cost of water (US$/$m^3$)	0,65	0,25	0,38
Is essential volume free or at reduced tariff?	Yes	Free	Yes
Revenue generated (millions per annum)	N$45	R2 000	M28
Financing at WDM as a % of water account	Yes (1%)	Yes	None

** UAW (unaccounted for water) is the difference between the total amount of water pumped into the water system from the source(s) and the amount of metered use by the customers of the water system expressed as a percentage of the total water pumped into the system. UAW generally includes system leakage and unmetered use such as fire fighting, line flushing, broken water mains, etc.. Data from various sources (see Gumbo 2004)*

Next: Water Demand Management at the Basin Level