

Chapter 4

Key Water Demand Management Measures



The guidebook contains a WDM typology that has been developed by the authors, following a systematic literature review of academic and non-academic literature sources.

The typology comprises 56 indicators, which are classified into four different categories of WDM applications, namely (1) water losses; (2) economic instruments; (3) non-price mechanisms; and (4) alternative water supply systems. Alternative water supply systems do not reduce water demand, and thus, they will not be discussed in detail. However, they alleviate the need for water abstraction and thus strengthen water security. Advances in treatment processes for different types of water supply systems have further expanded the range of alternative supply options for differentiated end uses; improve the effectiveness of systems to treat and reclaim water to attain or exceed public health and environmental standards; and reduce the economic cost of adoption. (Table 4.1).

Table 4.1 Water demand management indicators

WDM typology	WDM indicators
Water losses	Leakage/NRW reduction target and monitoring mechanism
	Leak detection—mains
	Leak detection—secondary network
	Leak detection—DMA creation
	Leak detection using water balance calculations
	Leak detection/commercial loss reduction using customers' input
	Leak detection by survey
	Raw water (quantity and quality)
	Regulations/policies relating to installation of master connections (to informal settlements/private developments)
	Pipe repair and replacement
	Pressure management
	Technology usage for leak detection and repairs
	Programmes to identify, remove, and replace illegal connections
	Leak detection/commercial loss reduction using customers' input
	Suspend supply for non-payment
	Legal/regulatory measures relating to non-payment
	Meter replacement and upgrading programmes
	Meter calibrations
	Meterisation
	By hiring more people in NRW team
	Increase access to meters
	Involvement of local police
	Programmes to reduce meter tampering (education, penalties)
	Customer information management (updating customer databases, bill accuracy, anomaly identification, and rectification)
	Individual household metering (policy)
	Individual household metering (programme, e.g. to replace building/block meters with household-level meters)
Support for households to reduce internal plumbing leakage	
Tariff reclassification	
Pilot for NRW reduction	
Pilot for NRW reduction (prepaid meters)	

(continued)

Table 4.1 (continued)

WDM typology	WDM indicators
Economic instruments	Tariff structure
	Rebates/incentive schemes for consumption reduction through water bill
	Fines for excessive use
Non-price mechanisms	Household water-use cap (e.g. seasonal)
	Cap/ban on water use for particular purposes (e.g. garden irrigation)
	Household consumption guidelines (per cap/household, unit of output, etc.)
	Benchmarking water efficiency of large users (non-residential/industry)
	Public education campaigns on saving water, sources of water, value, cost of water services, rate structure, customer's own water-use patterns, and simple water efficiency solutions
	School curriculum
	Water rationing drills
	Detailed billing information—households
	Detailed billing information—key accounts
	Water efficiency audits—households/offices
	Water efficiency audits—key accounts
	Key account servicing—households
	Key account servicing—key accounts
	Water efficiency labelling
	Water-efficient appliance market interventions
Competitions/targets (e.g. 10 litre consumption reduction challenge)	
Alternative water supply systems	Policies relating to facility/building/household level non-potable recycling—advisory
	Policies relating to facility/building/household level non-potable recycling—regulatory requirement
	Policies relating to facility/building/household level non-potable recycling—economic incentives
	Policies relating to facility/building/household level water harvesting (rainwater/stormwater/greywater)—advisory
	Policies relating to facility/building/household level water harvesting (rainwater/stormwater/greywater)—regulatory requirement
	Policies relating to facility/building/household level water harvesting (rainwater/stormwater/greywater)—economic incentives
	Incentives/regulatory requirement for dual piping in new developments

The following sections discuss the key WDM typology measures that are consistent with WDM practices recommended in most available international guidelines. These include those from international organisations such as the World Bank, Asian Development Bank (ADB), Organisation for Economic Co-operation and Development (OECD), European Union Regional Development Fund (EU ERDF), Environmental Protection Agency (EPA), and water associations such as the International Water Association (IWA).

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