

UNACCOUNTED FOR WATER WATER BALANCE

Connect determines how much water is “lost” as leakage from the network through a calculation called water balance. This calculation is based on measurements of net water supplied, water consumed and water lost. The water balance calculation provides a guide to estimate how much water is lost as a result of leakage from the network (‘real’ losses), and how much is due to commercial losses (‘apparent’ losses).

System Input Volume	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption Billed Un-metered Consumption	Revenue Water
		Unbilled Authorized Consumption		
	Water Losses (UFW)	Apparent Losses (Commercial Losses)	Unauthorized Consumption (e.g. theft, Meter tampering) Metering Inaccuracies	Non Revenue Water (NRW)
			Systematic Data Handling Errors	
		Real Losses (Physical Losses)	Leakage in Transmission and Distribution Mains Storage Leaks and overflows from Water Storage Tanks Service Connections Leaks up to the Meter	

Below are terms that are used in water balance calculations:

- **Authorised Consumption** – This is water that is used by known customers of the water system. It is the sum of billed authorised consumption and unbilled authorised consumption.
- **Unbilled Authorised Consumption** – This includes water used for activities such as firefighting, flushing of mains and sewers, cleaning of distribution storage tanks, filling of water tankers, public hydrants, etc. They may be metered or unmetered.
- **Water Losses** – As can be seen in table above, water loss constitute of apparent losses (commercial losses) and real losses (physical losses). It is important to differentiate between water loss and leakage, since not all “losses” are the result of leaking pipe and poor infrastructure.



- **Real Losses (Physical)** – These are actual losses of water from the system and consist of leakage from transmission and distribution mains, leakage and overflows from the water system’s storage tanks and leakage from service connections up to and including the meter.
- **Apparent Losses (Commercial)** – These occur when water that should be included as revenue generating water appears as a loss due to unauthorised actions, calculation and metering errors.
- **Non-Revenue Water** – Is the volume of water which enters the distribution system but does not give any revenue to the utility and includes not only the real losses and apparent losses, but also the unbilled authorised consumption.

Next week, we will explain the definition of Performance Indicators and the Infrastructure Leakage Index and describe how the two are connected.

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