

UNACCOUNTED FOR WATER PERFORMANCE INDICATORS

The key in developing a strategy for management of non-revenue water (NRW) is to gain a better understanding of the reasons for NRW and the factors which influence its components. The components of NRW can be determined by conducting a water balance analysis as explained last week. The International Water Association (IWA) provides a water balance calculation that gives guidance to estimate how much is lost as leakage from the network (physical losses), and how much is due to non-physical losses. In addition the IWA has also established the Infrastructure Leakage Index (ILI), a performance indicator for comparisons of leakage management in water supply systems. ILI is a more appropriate approach to use than the percentage of system input volume.

There are more performance indicators but within this article we will focus on two:

- i. There is the basic performance indicator which is the – NRW as a percentage of water supplied.
- ii. We have also started using a more detailed indicator – The Infrastructure Leakage Index (ILI) which is derived from the structural and operational characteristics of the network. ILI gives a relationship of losses to unavoidable losses.

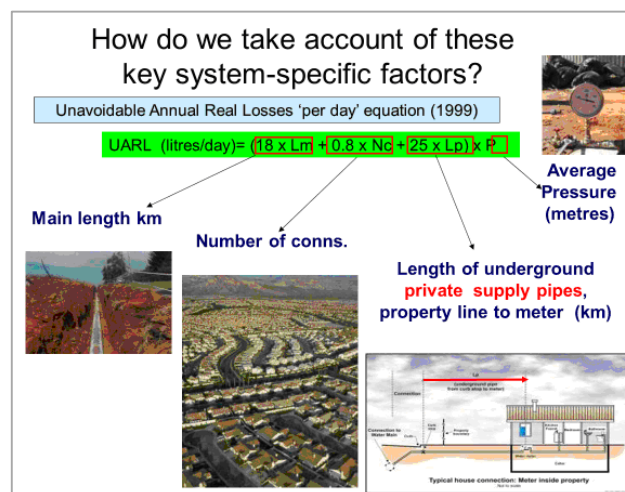
ILI is calculated as follows:

Infrastructure Leakage Index (ILI)

- Calculation for ILI is;

$$\frac{\text{CARL (Current Amount Real Loses)}}{\text{UARL (Un-Avoidable Real Loses)}}$$
- CARL = physical losses includes overflow, burst, and leaks
- $$\text{UARL} = (18 \times L_m + 0.8 \times N_c + 25 \times L_p) \times P_r$$

For every network there are unavoidable losses which are influenced by the factors in the following equation:



The NRW is a financial performance indicator that does not provide for the actual physical condition of the water network. However, Infrastructure Leakage Index (ILI) has proved to be an effective technical real loss performance indicator for well-planned and maintained water utilities in developed countries. With the work carried out to date, we are comparable to water companies in Europe and this will be in the article for next week.

