App note #27

Leakage detection in water distribution networks

Up to 50% of the input flow to a network can become Non-Revenue Water.

An unadequate pressure set up policy can unnecessarily lead to trigger water losses.

The absence of Performance Indicators prevents the system's efficiency from being optimised.

ISURKI's solution provides an unbeatable tool to collect the necessary information according to the International Water Association's recommendations

✉ Gabiria 2, 1-L E-20.305 Irun SPAIN ☎(34)943-635437 irisboxpc@isurki.com
https://isurki.com/indexE.html

APPLICATION NOTE #27		
Sector	**Related products**	**Water distributions networks**
ENVIRONMENT METERING	**ISURLOG NB/LoRa**	**Spanish municipalities of:** • **Errenteria** • **Olaberria** • **Oiartzun**

Previous existing **problems** 	• In some cases, up to 50% of the input flow to a water distribution network become Non Revenue Water (NRW). • Although an ideal efficiency of 100% is unachievable in the practice, a big rate of the NRW is due to leakages within the distribution infrastructure, i.e., physical losses. Another part of the NRW is caused by other factors such as counters inaccuracy, illegal connections, unaccounted consumptions… • This situation causes not only significant economic damage to the management facilities but a big environmental impact since millions of cubic metres of drinkable water are lost worthless.

ISURKI's **solution** 	• A set of **ISURLOG** autonomous outstations deployed all over the infrastructure at the previously selected strategic locations.
	• A combination of autonomous battery-powered flowmeters and pressure sensors wired to the related **ISURLOG** outstation.
	• Every single acquisition point does not require either external power supply or even LTE coverage, since each ISURLOG unit features:
	  ○ **Self-recharging (energy harvesting) battery power supply**.
	  ○ **LoRa (licence free radio) communications**.
	  ○ Power supply to sensors and flowmeters.

Current **goals** achieved with ISURKI's solution 	• **reliable communications** all over the network, **even in wide areas with an absence of LTE coverage**. • Raw data to calculate the Performance Indicators (PIs) that define the technical efficiency of the infrastructure. • Real-time **alarm messaging** in case of remarkable leakage detection (user configurable threshold). • **On the cloud available logged data** in spreadsheet format to historically analyse the evolution of the water pressure and consumptions. • **Online real-time readings** of the distributed flow and pressure sensors. • **Link to water distributions modelling software**.

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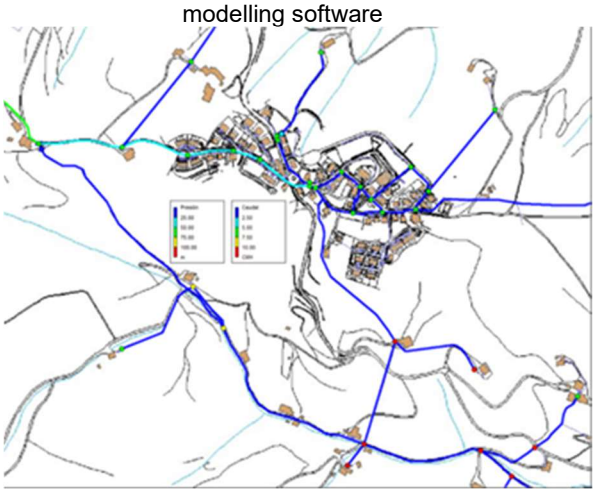
SUCCESS CASE: DETERMINATION OF THE EFFICIENCY OF A WATER DISTRIBUTION NETWORK ACCORDING TO IWA'S RECOMMENDATIONS (OLABERRIA, SPAIN)

⇧ Battery powered flowmeter

⇧ ISURLOG outstation in a double cabinet mounted waterproof execution.

⇩ IRIS ECOSYSTEM link to the water network modelling software



⇩ ISURLOG outstation at a network pressure monitoring & logging point

Customer's opinion	
	"*The implementation of this telecontrol system based on ISURKI's IRIS ECOSYSTEM solution has been a crucial tool in the development of the in-depth study of the level of efficiency of the water network.*" Technical department of the water service of the municipality of Olaberria, Basque Country, Spain.

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