Tackling non-revenue water with better pressure control

Non-revenue water has been a hot topic in the water industry for years. And for a good reason. In addition to the environmental consequences, non-revenue water has a major impact on the financial viability of water utilities due to water loss and unnecessarily high operating costs.

To bring down non-revenue levels, water utilities need to focus on ongoing monitoring and pressure management at every step of the distribution system.

Today, water utilities in countries all over the world are wasting water due to ineffective water distribution systems. In fact, the average level of non-revenue water is 25-30% – water that is lost or never invoiced for due to illegal connections, inaccurate billing systems, inaccurate metering, and leakage etc.

The problem with water loss is not only limited to developing countries – it is a global phenomenon. For instance, in the cities of Oslo and Chicago close to a fourth of the water distributed never reaches the customers’ water meters.
A growing need for an efficient and sustainable water supply

The need for a more efficient and sustainable water supply and handling is becoming increasingly urgent. In more and more places, the growing demand for fresh water simply exceeds the water supply. In fact, 60% of all European cities with more than 100,000 inhabitants do not have a sustainable water supply.

Water is a scarce resource and it is estimated that one third of the world’s population live in water-stressed areas in 2025. On a global scale, the United Nations estimates that water consumption will increase by up to 40% by 2030 – putting even more pressure on countries and cities already facing water stress.

Meeting an increasing demand for water by reducing water loss

Because of growth in the global population, urbanization, and the consumption pattern of an expanding middle class, in two decades the demands for water, energy and food will sharply increase. This will cause a 40% increase in the demand for fresh water. At the same time, the demand for energy and food will rise by 50% and 35% respectively.

The International Food Policy Research Institute estimates that the withdrawal of water for agricultural use accounts for approximately 70% of water consumption globally and according to WWF, irrigation-fed agriculture provides 45% of the world’s food supplies. By comparison, households only account for approximately 10%.

This heavy use in irrigation means that groundwater is used much faster than new water is generated in the most productive farm regions – such as California’s Central Valley, the North China Plain, Northern India and America’s Great Plains.

In California’s Central Valley – even in years with normal rainfall – more water is taken out than is replaced. Here alone, it will take at least 50 years for the aquifers to naturally refill – if the irrigation stops tomorrow. Thus, finding better ways to distribute and handle water is crucial to meet the increasing demand for water, food and energy.

Tackling non-revenue water with pressure management

More and more water utilities are looking into ways of reducing non-revenue water and energy loss by using better pressure control and by breaking the distribution system into smaller units or ‘district metering areas’. And through a holistic approach to pressure management at every step of water distribution, efficient non-revenue water reductions are achieved.

In the city of Aarhus in Denmark, the local water utility, Aarhus Vand is using pressure management and district metering to set new standards for an intelligent, sustainable, and efficient drinking water supply – and has achieved a water loss level of just 6%.