

Towards Optimization, Efficiency and Sustainability in the Water Sector



by Fabian Papa

To any private business owner, one of the keys to building and maintaining a successful and sustainable enterprise is cost control. The same concept can – and should – be applied to the management of transmission and distribution of the water that we put a lot of resources in to produce.

However, what is striking in the water industry is how little meaningful effort is given to this topic in practice on a broad scale. Certainly there are municipalities and practitioners that lead the pack in this regard, and there are numerous conferences and specialist groups that deal with these matters, yet it is surprising how few owners of these systems apply a systematic approach to monitoring the fate of each drop of water they pay for. Perhaps this is due to the relative affordability of water which, in itself, is distorted by subsidies and often does not reflect the true cost of its factor inputs which include the capital expenditures on plant and equipment as well as the personnel, energy and chemicals for ongoing operations and maintenance.

Or perhaps it is due to the fact that the performances of many of our relatively new systems have not reached crisis levels yet. Whatever the case, it makes good sense to keep on top of our systems' performance on a continuous basis so that they can be compared with their peers (e.g. benchmarking) and observe when inefficiencies are occurring, and to what extent, to formulate and take action.

Water audit methodologies have been developed and harmonized between the International Water Association (IWA) and American Water Works Association (AWWA) and are increasingly being adopted to help water system owners and operators undertake a formal accounting of where the water they pay for goes. This is the first step in developing a true understanding of how the economics of a water utility function and, from there, assist in establishing and prioritizing actions to improve the same.

If there are lessons to be learned from other regions of the world, it is that physical water loss (i.e. leakage)

can be a major factor undermining these economics and, similar to debt, can spiral out of control if not checked early and regularly. (Fig. 1 “Vicious Cycle”) The estimates for the amount of water lost around the world, including North America, are truly staggering with losses in the range of 30 per cent being common and losses as high as 60 per cent or more not uncommon. (Imagine ordering – and paying for – a pint of beer, watching the bartender pour it into a glass only to dump half of it into the sink before you get your hands on it!)

One of the great features of applying intelligent management approaches to reducing water loss is that the effort

Figure 1



