

Chapter 1

Introduction

Ageing infrastructure and declining water resources are major concerns with a growing global population. Controlling water loss has therefore become a priority for water utilities around the world. In order to improve their efficiencies, water utilities need to apply good practice in leak detection.

The reasons for controlling leaks and reducing Non-Revenue Water have been well documented. Through the Water Loss Specialist Group and its Working Groups, the IWA has established several relevant guidelines, including the IWA Standard Water Balance and the Basic Management Strategies for Reducing Leakage.

To deal with losses in an effective manner, particularly from networks in water scarce areas, water utility managers are increasingly turning to technology to reduce costs, increase efficiency and improve reliability. Companies that continuously invest in technology and innovation should see a positive return on investment in terms of improving daily operations and collection and analysis of network data for decision making and forward planning.

The purpose of this document is to assist water utilities with the development and implementation of leak detection programs. Leak detection and repair is one of the components of controlling water loss. In addition to the techniques discussed within this document, water utilities should consider the other related Good Practices established by the IWA Water Loss Specialist Group.

Methodologies for achieving the best results to reduce water losses are continuously evolving. Water companies and equipment manufacturers are increasingly working together in an effort to stretch the boundaries of current knowledge. This is leading to some innovative technologies and new product development to complement current methodologies. This document reflects the situation at the time of publication.

The second edition updates practices and technologies that have been introduced or further developed in recent years in leakage detection outlining recent advancements in technology used, such as satellite-aided methods in leak location, pipeline inspection with thermal diagnostics, inspection of pipelines by air using infra-red or thermal imaging cameras, drones for leak detection activities and even sniffing dogs. In addition, this second edition is enriched with new case studies which provide useful examples of practical applications of several leak-detection practices and technologies.

