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Abstract

This book is intended for undergraduate and graduate students studying water resources systems and network management, as well as water network managers who wish to understand the relevant theoretical background. The textbook covers the integrated management of urban water supply networks, starting with the identification of problems in networks through the diagnosis of their symptoms, the investigation of their causes, and a general assessment of their level of operation. Extensive reference is made to existing methodologies for assessing the level of network operation, specifically Non-Revenue Water, its basic characteristics, and the causes that give rise to it. The Water Balance and Evaluation Indicators found in the literature are presented, as well as the modifications developed by the authors. All techniques developed to reduce Non-Revenue Water, targeting

its individual components, namely apparent (or commercial/sales) and actual (or physical) losses, are also presented. Finally, all the computational tools used to evaluate urban water supply networks are presented, analyzed, and compared, along with examples of their application. Reference is made to legislation, specifically the Water Framework Directive (2000/60/EC). Finally, the integrated methodology for urban water supply network management is presented in the form of steps. For the most effective use of this book, examples and exercises are provided, as well as interactive material from presentations. The computational tools for assessing the level of operation of water supply networks and the decision support system developed within the WATERLOSS project to identify possible measures to reduce non-revenue water are presented and linked interactively.

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