

AWARE-P: a system-based software for urban water IAM planning

S.T. Coelho^{*}, D. Vitorino^{**}, H. Alegre^{*}

^{*} LNEC – Laboratório Nacional de Engenharia Civil, Portugal. Av. Brasil, 101, 1700-066 Lisbon, Portugal (stcoelho@lneec.pt; halegre@lneec.pt)

^{**} Addition. R Borges Carneiro, 34 R/c, 1200-619 Lisbon, Portugal (diogo.vitorino@addition.pt)

Abstract

The AWARE-P IAM planning software offers a non-intrusive, web-based, collaborative integration environment for a wide variety of data and processes that may be relevant to the IAM decision-making process, including maps, GIS shapefiles and geodatabases; inventory records; work orders, maintenance, inspections/CCTV records; network models, performance indicators, asset valuation records, among others. The software provides an organized framework for evaluating and comparing planning alternatives or competing IAM solutions, through selected performance, risk and cost metrics. It comprises a portfolio of system metrics and network analysis tools that may also be used individually for diagnosis and sensitivity gain.

The public beta release in early 2012 garnered significant numbers of users worldwide, and subsequent versions and a growing number of utility deployments and pilots have been steadily confirming the potential of its system-based approach. It is based on the collaborative, web-based and highly modular Baseform platform (www.baseform.org), which runs wherever Java is supported, and materializes as an integrated and expandable suite of plug-in tools, taking advantage of the platform's user management, common data integration services and next-generation 2D/3D visualization capabilities with Google Earth[®] integration among other features. The paper describes the software's design and main features, and illustrates its main use cases.

Keywords

Urban water services; infrastructure asset management; software; collaborative; integrated; planning.

INTRODUCTION

A large proportion of the world's built urban water infrastructures have, over the past decades, accumulated alarming levels of deferred maintenance and rehabilitation. The combined replacement value of such infrastructures can be overwhelming, demanding efficient planning and the capability to pace spending and maximize its impact over the long-term (Alegre & Coelho, 2012).

From an infrastructure asset management (IAM) viewpoint, the notions of system design, preventive maintenance and system rehabilitation are all part of the same long-term, *balanced design* process. In mature networked infrastructures, all these stages co-exist — designing new or extending, maintaining or rehabilitating old are all part of the same process and pursue the same goals. Essentially, investing in a system over a period of time should always maximize its performance-risk-cost balance.