

Rehabilitation in Oeiras&Amadora: a practical approach

MJ Marques*, AP Saramago*, MH Silva*, C Paiva*, S Coelho*, A Pina*, SC Oliveira*, JP Teixeira*, PC Camacho*, JP Leitão**, ST Coelho**

** SMAS de Oeiras e Amadora, Av. Dr. Francisco Sá Carneiro, 19, 2784 – 541 Oeiras, PORTUGAL, mjmarques@smas-oeiras-amadora.pt

** Laboratório Nacional de Engenharia Civil (LNEC), Av. do Brasil, 101, 1700 Lisboa, PORTUGAL, stcoelho@lnec.pt

Abstract

Urban water systems are essential to modern societies; managing them strategically is a challenge as they require continuous and costly capital maintenance to assure the service sustainability. Therefore, wise rehabilitation and maintenance planning are essential. This paper presents an application of an innovative urban water infrastructure asset management (IAM) methodology, the AWARE-P approach, to the case of the Oeiras and Amadora water utility (SMAS O&A). This IAM approach considers three levels of planning: strategic, tactical and operational, corresponding to long-, medium- and short-term horizons. One of the main advances of the AWARE-P approach is considering assessment dimensions other than cost, namely performance and risk. The entire utility was considered at the strategic level and at a first stage of the tactical level. One District Metering Area of the water network was used as pilot for testing the AWARE-P procedure at the more detailed level of tactical planning. Five IAM alternatives were devised; a traditional *like-for-like* pipe replacement alternative was considered among other optimal design alternatives that take into account energy efficiency and system's resilience. The alternatives were assessed and compared and, finally, the best alternative was selected using a simple multi-criteria decision method. The application of the AWARE-P approach by SMAS O&A contributed to a shift of paradigm within the organisation with regard to rehabilitation.

Keywords: Rehabilitation, Strategies, Assessment, Sustainability