

Paving the way for a sustainable asset management of urban water infrastructures: outcomes of the 5th World Water Forum

The Portuguese Pavilion at the World Water Forum dedicated the 17 March 2009 to water science and research. Because asset management of urban water infrastructures is a key research and development topic worldwide, and Portugal is not an exception, LNEC, the Portuguese national laboratory of civil engineering, and the Strategic Asset Management (SAM) Specialist Group of IWA jointly organised a panel discussion aiming at identifying research challenges and opportunities for a sustainable asset management of urban water infrastructures. The objective was to get a multi-stakeholder perspective. Contributors included the IWA President, the IWA SAM SG Chair, a senior officer of the European Investment Bank, utility CEOs, consultants, academics, researchers, and representatives of national professional associations, in order to try and identify the best paths to move forward.

Portugal has a word to say in terms of asset

management because the water sector has had a remarkable evolution in the past 15 years in terms of quality of the services provided, institutional and organisational framework, investments made in new infrastructures, regulatory environment, management skills and scientific developments. The organisation in Lisbon of LESAM 2007, the IWA Leading-Edge SAM Conference, and the on-going national project AWARE-P (advanced water asset rehabilitation in Portugal (www.aware-p.org)) are two examples of remarkable initiatives for paving the way for a sustainable management of urban water infrastructures. There is a need for joint initiatives, particularly in Europe, that create synergies, and allow for sharing and complementing competences and experiences. Research and development (R&D) has to be based on the joint work and cooperation between the key types of stakeholders, such as utilities, regulators, researchers, users, authorities and

financial agencies. This is fundamental to create stakeholder awareness, change the existing culture of taking the water services for granted, implement adequate financial mechanisms, create know-how and develop effective decision support tools.

Speakers were encouraged to identify the main SAM drivers, R&D gaps and priorities, and products needed. Discussion was rich and the contributions complemented each other, whilst demonstrating common views on the key aspects. Outcomes of the meeting are summarised in the table below.

Helena Alegre is Head of the Urban Water Division of LNEC and Chair of the IWA SAM Specialist Group. Email: halegre@lnec.pt

Rafaela Matos is Director of the Hydraulics and Environment Department of LNEC. Email: rmatos@lnec.pt

SAM drivers:

- Promote adequate levels of service and strengthen services reliability.
- Improve the sustainable use of water and energy while minimizing the carbon footprint.
- Plan and promote climate change adaptations in a phased way.
- Manage risk of service failure, taking into account users' needs and risk acceptability.
- Give preference to rehabilitation of existing assets instead of building new, when feasible.
- Promote investment and operational efficiency gains of water utilities.
- Make a clear and straight forward justification of investment priorities.

R&D gaps

- Innovative technologies for asset condition assessment (e.g., online monitoring) and better understanding of the relationship between asset condition and level of service.
- Information management improvements and understanding organizational constraints.
- Better understanding and incorporation in the SAM process of the stakeholders' needs and expectations.
- Managing interactions between urban infrastructures (drinking water and wastewater, urban water and other).
- Better understanding and improved control of asset deterioration processes.
- Economic assessment of indirect and external costs and benefits.
- Reliable, long lasting and low cost rehabilitation materials.
- Quantifying uncertainty in the different models.
- Water security innovation.

R&D priorities and products needed

- AM regional directives, international standards and guidelines (e.g. AM policy, AM methodologies and procedures, protocols for data collection and information management).
- Guidelines and communication materials to promote the change of culture of the organizations with a continuing effort to implement SAM.
- Comprehensive, user-friendly and flexible SAM computer-based systems that promote a step by step SAM implementation.
- Common framework and plug and play software systems, and models for SAM of small and medium size utilities and systems.
- Communication, training materials and guidelines expressly directed to the operational/field staff.
- Finance models.
- Reference methods for economic assessment.
- Enhanced construction and renewal materials and performance assessment of new materials.
- Standard risk management guidelines for urban water systems, including how to deal with risks associated to low probability hazards and catastrophic consequences.
- Effective international networks of SAM stakeholders, including service users.
- Processes for assessment of asset condition.
- New generation of information management systems for SAM that allow for integrating and incorporating different existing information systems.
- Best practice manuals and training materials (including for e-learning) addressed to the policy-makers, technical staff and operational staff and to utilities with different levels of complexity and development.
- Decision support tools to support water systems adaptation to climate change and efficient use of water and energy, assuring added flexibility and resilience.

Strategic Asset Management for Water and Wastewater Utilities

Invited papers from the IWA Leading Edge Conference on Strategic Asset Management (LESAM), Lisbon, October 2007
 Editor: H Alegre

Water and Wastewater companies operating all around the world have faced rising asset management and replacement costs, often to levels that are financially unsustainable.

Management of investment needs, while meeting regulatory and other goals, has required: A better understanding of what customers demand from the services they pay for, and the extent to which they are willing to pay for improvements or be compensated for a reduction in performance; Development of models to predict asset failure and to identify and concentrate investment on critical assets; Improved management systems; Improved accounting for costs and benefits and their incorporation within an appropriate cost-benefit framework; Incorporation of risk management techniques; Utilisation of advanced maintenance techniques including new rehabilitation failure detection technologies; Enhancements in pipeline materials, technologies and laying techniques.

These papers developed from LESAM 2007 for inclusion in Strategic Asset Management are focused on the techniques, technologies and management approaches aiming at optimising the investment in infrastructure while achieving demanded customer service standards, and they provide an opportunity to gain access to the latest discussion and developments at the leading-edge in this field. This book will be essential reading for utility operators and managers, regulators and consultants.

IWA Publishing, 15 July 2009

ISBN: 9781843391869

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Private Sector Participation in

Water Infrastructure

Author: Organisation for Economic Co-operation and Development (OECD)

Many countries have sought the involvement of the private sector to upgrade and develop their water and sanitation infrastructure and improve the efficiency of water systems. However, high capital intensity, large initial outlays, long pay-back periods, immobility of assets and low rates of return generate high risks. These factors, when combined with poor initial information and weak investment environment, limit the scale of private sector participation in water and sanitation infrastructure.

Recognising this, the OECD has developed practical guidance, building on the OECD Principles for Private Sector Participation in Infrastructure, to help governments and other stakeholders to assess and manage the implications of involving private actors in the financing, development and management of water and sanitation infrastructure. The resulting OECD Checklist for Public Action provides a coherent catalogue of policy directions for consideration by governments, including appropriate allocation of roles, risks and responsibilities, framework conditions and contractual arrangements necessary to make the best of private sector participation and harness more effectively the capacities of all stakeholders.

IWA Publishing, March 2009

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Field Computing Applications and Wireless Technologies for Water Utilities

Water Research Foundation Report 91224 + CD-ROM

Authors: C Stern, K Mallakis, M Hernandez, B Iadarola, U Srinivasan and S Sakpal

Water utility field service employees, in many cases representing more than 50 percent of a utility's workforce, provide mission-critical frontline services such as asset maintenance

and repair, emergency response, facility data collection, inspection, line locations, meter reading, record drawings, security, surveys, water quality sampling, and customer field services. Although the costs for field service employees account for a large and significant component of the industry's operating budget, relatively little has been accomplished in evaluating the ability of field computing applications and wireless technologies to measurably improve service and enhance operating efficiency.

The purpose of this project was to assess the current state and use of field computing technologies throughout the water industry, describe key work practices performed by mobile utility workforces and field service professionals, review existing and emerging field computing and wireless technologies, and quantify improvement opportunities and benefits.

The research approach included a literature review, an end-user survey, and case studies. Secondary research was conducted on current and emerging mobile technologies and on wireless data management systems/solutions. The researchers developed and implemented a discussion guide for the primary research interviews. Based on these discussions, the team developed and tested a web-based survey questionnaire. Five case studies, the core of this project, were developed to: illustrate existing field computing and wireless implementations; demonstrate associated operational and service improvements; identify areas where benefits could be gained from further use of field computing and wireless technologies; and conduct a Return on Investment (ROI) analysis on the field computing and Mobile Resource Management (MRM) related projects implemented by the utilities participating in the case study.

IWA Publishing, April 2009

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AM DIARY

A listing of upcoming asset management-related events and conferences. Send event details to WAMI for inclusion.

IWA Water Loss Task Force – WaterLossUK Seminar, Workshop and Exhibition
9-10 June 2009, NEC, Birmingham, UK
 Tel +44 191 3840993
Email: enquiries@waterlossuk.com
Web: www.waterlossuk.com

AWWA Annual Conference &

Exposition (ACE09)
14-18 June 2009, San Diego, USA
 Contact: Cilia Kohn/Tricia Loughead
Email: awwamktg@awwa.org
Web: www.awwa.org/ace09

Singapore International Water Week - Singapore
22-25 June 2009
Web: www.siww.com.sg

Asset Management of Medium and Small Wastewater Utilities

3-4 July 2009, Alexandroupolis, Greece
 Contact: Konstantinos P. Tsagarakis
 Tel: +30 28310 77433 or +306945706431
Email: iwa@econ.soc.uoc.gr
Web: <http://iwasm.env.duth.gr>

2nd International Conference on Water Economics, Statistics & Finance
3-5 July 2009, Alexandroupolis, Greece
 Contact: Konstantinos P. Tsagarakis
 Tel: +30 28310 77433

Email: iwa@econ.soc.uoc.gr
Web: www.soc.uoc.gr/iwa

5th IWA Specialist Conference on Efficient Use and Management of Urban Water Supply
19-21 October 2009, Sydney, Australia
Web: www.efficient2009.com

IWA World Water Congress
19-24 October 2010, Montreal, Canada
Web: www.iwa2010montreal.org