



Setting up the Water MDG research agenda for the urban poor

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EU Water Sector



- European water sector has been leading in the development of innovative urban water solutions.
- Many of these solutions and system processes are transferable to developing countries.
- Opportunities for the European Water Sector to work in partnership with developing country businesses to develop and implement appropriate solutions.
- Once developed, these can be further implemented in partnerships more widely across the developing world (North-South-South partnerships).

Pilot Programme



Six **Pilots** identified

- Mitigation of water stress in coastal zones
- Sustainable water management inside and around large urban areas
- Sustainable water management for agriculture
- Sustainable water management for industry
- Reclamation of degraded water zones (surface water and groundwater)
- Proactive and corrective management of extreme hydro-climatic events

Pilot Programme



Six **Pilots** identified

- Mitigation of water stress in coastal zones
- **Sustainable water management inside and around large urban areas**
- Sustainable water management for agriculture

URBAN PILOT

SRA Research Urban Pilot



- 1. Urban Flooding**
- 2. Asset Management**
- 3. Supply/Demand Balance**
- 4. Sludge / Wastewater and Energy**
- 5. Sensors**
- 6. Drinking Water Treatment**
- 7. Pollution Control**

SRA Research Urban Pilot



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Proposed Research



1. Urban Flooding

2. Asset Management

3. Supply/Demand Balance

- **Tools & methodologies to manage risk associated to security of supply and level of services**
- **Improving customer perception**
- **Understanding demand and use**

Intermittent Water Supply



- **Realistic Objectives and Levels of Service**
 - Equity in supply; adequate pressure at water connections; and supply times that are convenient
 - Water 7 days a week for 2 hours between 6am - 8am (only 2 failures a year)
- **Impact of Pressure on Consumption**
 - Pressure dependent demand functions that relate flows from outlets to the driving pressure at the outlet
- **Risk Assessment Framework**
 - Operational responses can be generated at least cost, that maintain the acceptable levels of service

Intermittent Water Supply



- **Water Quality Risk Assessment Tool**
 - Should assist engineers in identifying the risks associated with contaminant intrusion into intermittent water distribution systems
 - Should provide understanding of the main factors that contribute to risk (location of polluted water; water supply pipe condition; degree of intermittency)
 - Should generate risk maps that show the risk of contaminant intrusion into various parts of the network
 - Should enable engineers to manage water quality more effectively by developing appropriate control measures to minimise the risks of contaminant intrusion.

Water Losses



- **Water Losses Decision Support System**
 - Data assessment tool designed for data deficient networks (to identify the most important data to design, target, and implement a water loss reduction strategy)
 - GIS based spatial analysis tool that generates strategies to decouple chaotic, highly interconnected networks, into more manageable zones (optimal district metering areas)
 - Optimization tool that identifies optimal location of flow monitoring devices to allow effective water auditing, and the minimum costs associated with their installation.

SRA Research Urban Pilot



1. Urban Flooding

2. Asset Management

- **Technologies for data acquisition, storage, access and exchange (Location and asset description data; Intervention Data; Condition assessment Data).**
- **Decision Methodologies & DSS components for Advanced Asset Management**

Asset Management



- **Location and Intervention Data**
 - Technologies are required that help identify most important & significant components of data required for asset management.
 - Investigate the potential to apply new technologies (3D GIS, GPS) to help them speed-up the data acquisition and database construction process, leap-forging several painful phases of the asset management process.
 - Best practice should be developed based on several case studies where limited but focused data collection activities provided a major impact on the understanding of the urban water assets .

Asset Management



- **Pipe Condition Assessment**

- Research is required that identifies the major factors responsible for pipe deterioration (minimum data sets)
- A framework is needed to couple the minimum historic data sets with expert knowledge to predict condition
- An intelligent pipe condition assessment model driven by limited data providing sufficient and valuable insights that can support prioritization of investments.
- SDSS is needed to help decision makers develop optimal investment strategies to maintain and improve levels of service

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SRA Research Urban Pilot



1. Urban Flooding

- **Solving Flooding and Water Quality Problems through Integrated approach and improved Decision Making Tools for Urban Water Management**
- **Sustainable Urban Drainage**

Urban Flooding



- **Baseline Data**
 - Need to investigate the potential for SUDS in developing countries
- **Adaptation to Change**
 - There is a need to develop hybrid and retrofit technologies
- **Decision Support System**
 - SDSS that allow the optimal location and specification of SUD measures to be identified
- **Storm water as a Source**
 - Research into potential of storm water as a resource

Issues for Discussion



How to proceed?

- **In relation to research topics:**
 - Process of consultation with stakeholders in WSSTP and those in developing countries (to firm-up research topics) – ***Stakeholder event***
 - Identify appropriate developing country partners and cities to twin with those proposed within pilots
 - Development of detailed proposals
- **What is the agreed timeline?**
- **Future funding?**

Issues for Discussion



To achieve this we might need a working group :

..... Developing country stakeholders, DGIS, DFID, SIDA, DANNIDA, World Bank, UNESCO.....

Finally.....WSSTP Vision



- The European water industry and water profession will have secured its position of leadership of the world market
- WSSTP will have made significant and measurable contributions to the Millennium Development Goals by the year 2030”.
- The European water sector will be regarded as the leading centre of expertise for providing safe, clean, affordable and sustainable water and sanitation”