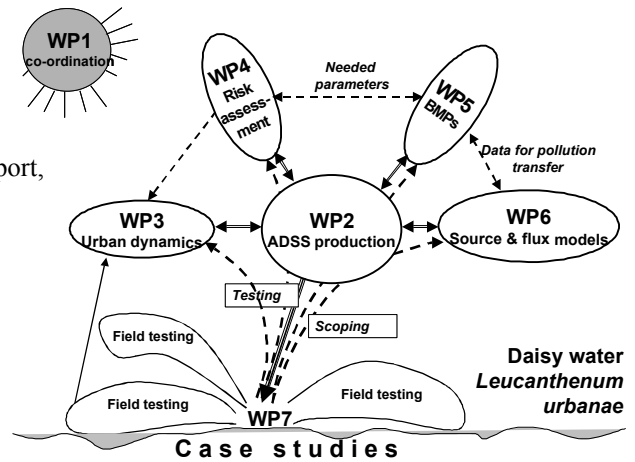


Develop an adaptative decision support system (ADSS) for the integration of stormwater source control into sustainable urban water management strategies (at different spatial levels within Europe)

Call: EESD-ESD-3, Theme 1.3.1, 15 October 2001

Partnership

- * ENPC, Cereve, France
- * TAUW, Netherlands
- * Chalmers University of Technology, Water Environment Transport, Sweden
- * Technical University of Denmark, Urban Water Engineering, Environment & Resources
- * Middlesex University, Urban Pollution Research Centre, United Kingdom
- * National Technical University Athens, Greece
- * DHI Hydroinform a.s., Prague, Czech Republic
- * Ingenieurgesellschaft Prof. F. Sieker mbH, Berlin, Germany
- * LCPC, Division Eau, France
- * Lulea University of Technology, Division of Sanitary Engineering, Sweden



Abstract

The project aims at developing an adaptative decision support (ADSS) for use by stakeholders involved in urban water management. The ADSS is a combination of simulation models, assessment tools, databases, guidance documents, road maps, etc.. presented and operating together on a web site or CD-ROM. Starting from an analysis of end-user's experience on decision making in stormwater source control, the research will focus on the functional behaviour of structural and non structural best management practices (BMPs). Models will be developed for simulating pollution fluxes and assessing their possible control and fate within BMPs, and for assessing risks and impacts related to urban stormwater. The project is carried out by a multi-disciplinary research team and includes 14 end-users corresponding to European cities presenting various climates and organisation, where ADSS will be developed and tested.

Objectives

The objective of this proposal is to develop an adaptative decision support system (ADSS) for use by stakeholders involved in urban stormwater management (USWM). The ADSS is a combination of components such as simulation models, assessment tools, databases, guidance documents, leaflets etc... organised along road maps well adapted to the way decisions are made and further applied in European urban areas, according to the catchment size, the organisation framework, the main existing urban issues etc... Components in the DayWater ADSS will help the end-users to characterise the processes where decisions are made, and provide guidance to organise efficiently the decision making process. They will provide technical information and assessment tools for structural and non-structural best management practices for USWM, methodologies for a comprehensive assessment of hydrological risks including surface water and groundwater, models for assessing pollution source flux, risks and impacts.

Description of the work

Partners and End Users will work closely to maximise the future utility of the ADSS. Work will be structured around the basic idea that end-users have a most important role to play in defining terms of reference (ToR) and testing the outputs of the project. The project is organised along several loops where components will be identified by end-users, realised by partners and assessed by end-users. A final test of the complete ADSS prototype will be also performed. Two specific work packages are devoted to the production and test of the ADSS and its components. They will define production and assessment standards, validated by end-users, and applicable to all components. The other work packages will develop specific methodologies or transfer knowledge to the USWM problem. A methodology will be developed for making the uncertainties visible and understandable to stakeholders. The theory of "self-organised criticality" will be transferred to urban environments to assess the possible interventions in complex and dynamic situations. Methodologies for the comprehensive assessment of hydrological risks, including surface and groundwater, will be proposed, independently of existing models, and further applied and validated in case-studies. Environmental risks due to urban stormwater discharge will be carefully assessed; using principles derived from both environmental chemistry and eco-toxicology, comprehensive pollutant databases will be constituted. All existing and projected Best Management Practices (BMPs) for USWM will be carefully assessed using a multi-criteria and multi-objectives methodology previously developed and validated in the first stages of the project development, and sub-models for pollutants transfer in BMPs will be proposed. A Source and Flux Model framework, including the effect of available BMPs, will be developed in order to assess loads of pollutants discharged by urban stormwater to receiving water and to assess environmental risks and impacts.