

## Editorial

# SedNet – An Evolving Network Aimed at Sustainable Sediment Management



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### The Intermediate SedNet Conference and JSS

This edition of JSS – J Soils & Sediments is devoted to the Intermediate SedNet Conference which will be held on 28–30 September 2003 and again be hosted by the SedNet homebase at San Servolo island in Venice, Italy. It is the Second International SedNet Conference after the First or Inaugural SedNet Conference on 22 and 23 April 2002, island of San Servolo in Venice, Italy<sup>1</sup>. The Third or Final SedNet Conference will be held in 2004.

The title of the Intermediate Conference is 'Sustainable Solutions for Sediment Management at River-basin Scale'; the importance of this issue is discussed in the following of this editorial.

This JSS edition is supported by SedNet and includes a special part of papers that present the essence of the work of SedNet in the first two years of its existence as long as it refers to the conference topic. The papers originate from discussions in the Working Groups 4 and 5 which can be seen as 'bouncing boards' for WG 1, 2, 3, and 6<sup>2</sup> (see the current discussion status of WG 5 [1] in this issue).

One of the aims of SedNet was to develop sediment management guidelines based on a multidisciplinary, coordinated and harmonized approach [2]. The papers of Köthe [3] and of Den Besten et al. [4] in this issue give an excellent overview of existing guidelines and legislation for sediment and of sediment quality guidelines, respectively. It is clear that there is a need to develop a harmonized European approach based on a risk-based assessment strategy, which is socially acceptable and economically affordable.

Risk management needs to be implemented in such a manner that the risk for the environment, and thus also for the human being, is reduced to an acceptable level, also taking into account the economical possibilities. Several articles in this issue show that there is a huge development in new risk-assessment techniques which will indicate whether sediment forms a risk for the environment or not. Prioritization of

remediation is a river-basin scale issue (see also Apitz & White [5] in this issue). Therefore, a clear link must be made to integral water management, and sediment management must be one of the issues in river-basin-management plans which have to be developed for the European Water Framework Directive – EWFd (see also Förstner 2002 [6]).

A practical result of the work of SedNet is the proposal of the establishment of a Spanish sediment network in this issue [7]. The 2002 SedNet Inaugural Conference at Venice has allowed to establish a first contact between different Spanish groups involved in sediments. The absence of coordination at Spanish level in this subject, and the recent accident of the tanker 'Prestige', point out the demand for a Spanish framework to coordinate information, priorities and approaches in RTD and management activities related to sediments. This situation has motivated the authors of this paper to set up this proposal of network to coordinate joint activities among the different research groups in Spain focussing on the research activities on sediments and its ecosystem, and to transfer results to potential end-users in an international context.

Beside the special-SedNet part in this JSS edition, a number of scientific articles present the state-of-the-art in sediment research.

In the following, the importance of sustainable sediment management (SSM) is discussed further. The text is extracted from 'The SedNet Strategy Paper. The opinion of SedNet on environmentally, socially and economically viable sediment management'. The full paper can be downloaded, free of charge, via the SedNet website: <http://www.SedNet.org>. The paper is based on input of several institutes involved in the SedNet management. The paper is seen as organic and evolving, and will take into account developing views and consensus. All who show interest in the issues raised are invited to comment and thus contribute to the evolution of this paper.

### SedNet and Sustainable Sediment Management

**The value of sediment.** Sediment has ecological, social and economic value. Sediment is one of the key components of the aquatic ecosystem: it supports life. Sediment is an important source of nutrients for organisms. Sediment dynamics (erosion and sedimentation) and gradients (high-low and wet-dry) form favourable conditions for a varied environment (biodiversity). Sediment is also a beneficial, socio-economic resource. For centuries mankind has recognised and utilised sediments in river systems as farmland and as a source of minerals and materials.

<sup>1</sup> The conference report of the Inaugural SedNet Conference can be downloaded at <http://www.sednet.org/inaugural.asp> (PDF-format).

<sup>2</sup> WG 1 (Site Investigation and Characterization), WG 2 (Contaminant Behavior and Fate), WG 3 (Sediment Treatment), WG 4 (Planning & Decision Making), WG 5 (Risk Management & Communication), WG 6 (Financial & Economic Aspects)

**Sediment management.** Sediment quantity has been managed for centuries, mostly by dredging. This was, and still is, very much needed to keep waterways, which tend to silt up, open to the flow of water. However, hydraulic constructions and changes in land cover and land use have resulted in the accumulation of sediment at unwanted places. The removal of these sediments is a high-capital cost for authorities and agencies responsible for sediment maintenance and water quality. Since the beginning of the Industrial revolution, anthropogenic emissions of chemicals to waters have caused a rapid deterioration of sediment quality. This introduced the need for a new type of management: sediment quality management.

**Legislation.** In many European countries, the policy governing the natural environment is arranged in sectors – soil, water, air and waste – and each of these is managed by different regulations. Quality and quantity issues are often tackled separately. A complicating factor when dealing with sediment is that sediment issues occur on a number of temporal and spatial scales and do not pay attention to political or administrative boundaries. At the level of the EU, the sediment issue is fragmentary addressed and – only for very specific issues – covered by EU policies and directives. EU policies and directives with the most direct link to sediment to date seem to be the European Water Framework Directive and the European Soil Strategy.

**Changing perspectives on sediment management.** Stimulated by the EU-policy development, the view on sediment is changing from seeing sediment as a waste to the recognition of the key role that sediment plays naturally in the functioning of river systems. Sediment management should fit in the holistic view on the role of sediment in river-basin systems. This is similar to the policy development for contaminated soil. There, development also started with the perception that soil, like sediment, is a vital part of our environment which deserves protection by a proper management. The big difference, however, is that contaminated soil is a site-specific issue, while the mobility of contaminated sediment makes it a river-basin issue and thus in many cases a trans-boundary issue. Hence, trans-boundary management is needed for river systems that cross national borders. EU-policy development, therefore, represents an enormous opportunity and stimulus to come up with guidance for sustainable sediment management (SSM).

**SedNet.** In the next few decades, Europe faces the large-scale remediation of historically contaminated areas of sedimentation in many river basins (legacy of the past). One of the increasingly important challenges in European river-basin management is the need to develop environmentally and socio-economically viable strategies and solutions for this environmental legacy. Another challenge is to further reduce water, and thus sediment, contamination from point sources and especially from diffuse sources. The European Sediment Research Network (SedNet) was established in order to help structure and facilitate a harmonized European approach on these issues.

The SedNet objective is to form, on a European scale, interdisciplinary links and trans-disciplinary bridges between scientists, engineers, sediment managers and those responsible for

developing and implementing sediment-related policy. It is clear that all sediment issues cannot be solved at once. The initial focus of SedNet is to understand how contaminated sediment influences river system functioning and, from there, how contaminated sediment and dredged material can be managed.

The SedNet activities are financially supported, for three years, by the European Commission (EC) under the FP5 Energy, Environment and Sustainable Development program and within area 1.4.1 on 'Abatement of water pollution from contaminated land, landfills and sediments' (Thematic Network project, EC contract No. EVK1-CT-2001-20002, starting date: 1 January 2002). The main deliverable of this project will be a publication of guidance on sustainable sediment management (SSM), from local to river-basin scale.

**Sustainable Sediment Management (SSM) according to SedNet.** SedNet aspires to the following strategic principles to guide SSM approaches:

- 1) SedNet builds on the integrated viewing of sediment issues: from the environmental, social and economic perspective.
- 2) Interventions should not result in unwanted impacts elsewhere in the river basin (up- or downstream) and/or should not have an adverse impact tomorrow.
- 3) Solutions should be found in the context of the whole river system and in close interaction with the stakeholders.
- 4) Integrated solutions are needed.
- 5) Solutions need to respect natural processes and functioning.

**SedNet activities and participants.** The main activities in order to stimulate and maintain networking and to achieve the products aimed for are the organization of specific workshops and of annual conferences. River-basin cases (are going to) play an important role in both events. The SedNet findings and products are mainly disseminated via the SedNet website (<http://www.SedNet.org>), via the preparation and spreading of newsletters, and by contributing to the SedNet associated 'Journal of Soil and Sediments'. SedNet participants, i.e. all persons who show interest in SedNet, represent a variety of research and stakeholder groups and countries. To date 56 countries, more than 500 organizations, and nearly 800 persons are involved, of which some 10% pro-active.

A regular update of upcoming SedNet workshops (titles, goals, dates, locations etc.) can be found at the SedNet website: <http://www.sednet.org/agenda.asp>

## References

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