

## SEDNET E-NEWSLETTER – APRIL 2007

Website: [www.SedNet.org](http://www.SedNet.org)

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## 5th International SedNet Conference 27th-29th May 2008

hosted and co-organised by the Norwegian Geotechnical Institute, Oslo, Norway

### Urban Sediment Management and Port Redevelopment

In urbanised areas sediments in rivers, harbours and marine coastal zones are often historically contaminated as a result of industrial activities, dockyard and harbour operations as well as discharges of municipal wastewater and urban surface water run-off. These 'legacies of the past' complicate the redevelopment of harbour areas and the waterfront of cities for housing or commercial purposes. A proper sediment management strategy is required that takes into account environmental risks associated with the sediments as well as identifying appropriate remediation options for use in the urban environment. Furthermore, European legislation increasingly requires the involvement of stakeholders, who may have conflicting viewpoints and concerns. How to manage such complexity? What challenges with regard to the management of contaminated sediments have been met and what experiences gained in port redevelopment cases and urban areas?

This will be the topic for the 1st and 2nd day of the SedNet Conference.

### Sediment in River Basin Management Plans

The 3rd day of the SedNet Conference will be dedicated to the state-of-the-art on sediment management in river basin management planning. One of the main objectives here is to encourage presentations from ongoing, major EC projects such as AquaTerra, Modelkey, RISKBASE etc. Which sediment related results of these projects may (or should) find their way into river basin management plans or their future updates?

Also an update will be given of the 4th SedNet Conference on sediment management as essential element of River Basin Management Plans, which took place in Venice in 2006. What are recent developments in European River Basins, are sediments considered in management plans? What are experiences and challenges? Are there needs towards European policy?

### Call for Abstracts

We would be pleased to receive abstracts for oral and poster presentations in which case studies, especially from Scandinavia, will be explicitly welcomed. The SedNet steering group will select the most appropriate oral presentations that best address the aims of the conference. Furthermore, the SedNet steering group will invite some key note speakers.

Please see [www.sednet.org](http://www.sednet.org) for the template for submission of abstracts by e-mail to the SedNet secretariat: [marjan.euser@tno.nl](mailto:marjan.euser@tno.nl)

Abstracts should be submitted by October 29th, 2007.

## The Programme

Poster sessions will be held during all days. Oral presentations will be divided into 3 to 4 sessions each day. The social programme will include an Ice-Breaker at the Viking Ship museum in Oslo, an excursion to the Oslo Fjord and a Conference dinner. We anticipate the conference programme to be available by December.

## ICPDR joining SedNet

The ICPDR (International Commission for the Protection of the Danube River) is an international organization consisting of 13 cooperating states and the European Union. Since its establishment in 1998, it has grown into one of the largest and most active international bodies engaged in river basin management in Europe. Its activities relate not only to the Danube River, but also the tributaries and groundwater resources of the entire Danube River Basin. Recently ICPDR joined as member of the SedNet Steering Group.

The ultimate goal of the ICPDR is to implement the Danube River Protection Convention, and make it a "living" instrument. Its mission is to promote and coordinate sustainable and equitable water management, including conservation, and improvement and rational use of waters for the benefit of the Danube River Basin countries and their people. The ICPDR pursues its mission by making recommendations for the improvement of water quality, developing mechanisms for flood and accident control, agreeing on standards for emissions and by assuring that these measures are reflected in the Contracting Parties' national legislations and are applied in their policies.

Further to this the Contracting Parties to the ICPDR agreed that the International Commission should serve as a common platform for the implementation of the EU Water Framework Directive in the Danube River Basin. Current activities of the ICPDR focus on coordination to develop the Danube River Basin Management Plan (DRBMP).

Sediments are an integral part of river basins and play an important role within the river basin management in terms of their quantity and quality. That is why this issue got high on the agenda of the ICPDR, and a thorough analysis of the Danube sediment quantity and quality was agreed to be elaborated for the EU WFD Programme of Measures. In the Danube countries there is a long-term history of sediment research, however, for establishing a sound sediment management collection of experience from other river basins is very helpful. Therefore, joining the SedNet network will surely be very supportive to the Danube experts for accomplishing an ambitious task of a basin-wide sediment analysis. On the other hand, experience from such a complex river basin, as the Danube certainly is, may be valuable for sediment related activities throughout Europe. The cooperation with SedNet commenced in 2006 when ICPDR took part at the RoundTable discussion in Venice, Italy, entitled "[Sediment Management - an Essential Part of River Basin Management Plans](#)", where the Danube was presented as one of the four case-studies. At present, the collaboration of ICPDR, SedNet and UNESCO is focused on development of a sediment balance for the Danube River Basin.

ICPDR is represented in SedNet Steering Group by Dr. Igor Liska, Technical Expert for Water Quality and Water Management at the ICPDR Secretariat in Vienna.

## Joint Danube Survey 2

The Joint Danube Survey 2 is the world's biggest river research expedition in 2007. Its main goal is to produce highly comparable and reliable information on water quality and pollution for the entire Danube River and many of its tributaries. The Secretariat of the International Commission for the Protection of the Danube River (ICPDR) coordinates the implementation of JDS 2.

Launched on August 14, 2007 from Regensburg, Germany, the three boats of the JDS2 travel 2,375 km downstream the Danube River, through 10 countries, to the Danube Delta in Romania and Ukraine until late September. A thorough sediment analysis is part of the JDS2 activities. The news of the JDS 2 can be viewed on [www.icpdr.org/jds](http://www.icpdr.org/jds)

## SedNet Session at NATO Pilot Study Meeting

SEDNET representatives offered four technical presentations on the goals and objectives of the initiative and some of its technical projects at the fifth and final meeting of the NATO Science for Peace and Security Pilot Study meeting held in Ljubljana, Slovenia from June 18-22, 2007. This

meeting dealt with the sediment sites as well as some questions of contamination by persistent organic pollutants (POP's). Nineteen technical papers fell under the broad topics of sediment characterization and sediment remediation. 13 countries gave Tour de Table presentations—summaries of the state of the development of waste and contaminated land programs and/or related research in their respective countries. The United States is the lead country for the Pilot Study, and 16 other countries participated in the meeting.

The purpose of the pilot study (Prevention and Remediation of Contaminated Soil and Groundwater in Selected Industrial Sectors) was to explore techniques and technologies for preventing and avoiding discharges to soil and groundwater as well as measurement and remediation for a specific industry sector or site type. It sought to engage industry and other private sector organizations at the transnational level in sharing and evaluating technical information. In reviewing case studies as well as experience from the previous NATO pilot study on contaminated land and other sources, this pilot study strived to assess or benchmark "what is easy to clean," "what is difficult to clean," and "what is impossible, at reasonable cost, to clean." The unique contribution of the pilot study is measured by its ability to synthesize information regarding best practices, successes and failures, and uncertainties for the sectors of interest.

An agenda for the meeting and a report containing all abstracts from the meeting will be available on the NATO website at [www.nato.int/science](http://www.nato.int/science) under Nationally Funded Projects. In addition, a record of all the presentations from this meeting will be available later in 2007 at [www.cluin.org/ljubljana](http://www.cluin.org/ljubljana).

## **Pollution of Sediments of the SAVA River**

By Radmila Milačič, Janez Ščančar, Milena Horvat, Ester Heath, Simona Murko, David Kocman, Tea Zuliani

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<http://sarib.net/>

The Sava River (945 km) is the biggest tributary to the Danube River. The 95551 km<sup>2</sup> large catchment is extended over Slovenia, Croatia, Bosnia and Herzegovina and Serbia. In the development of the river basin management plan all countries are already collaborating under the International Commission for the Protection of the Danube River (ICPDR) guidance. Although the methodological bases for data collection have been reasonably unified, data on the ecological character of the river basin, inventory of pollution sources, dangerous substances, socio-economic parameters, cost and benefit implications have been lacking due to insufficient financing and recent warfare. Within the 6th FW EU project: Sava River Basin: Sustainable Use, Management and Protection of Resources (SARIB) specific tools based on combination of chemical analysis and biological effect methods have been developed and validated for the estimation of the pollution of sediments and impact on aquatic biota. Geographical distribution of pollution was identified and historical trends defined. Integrated prediction model about the behaviour of hazardous chemical substances was combined with the socio-economic prediction model to serve as a base for the elaboration of scenario, remediation measures and best practice techniques.

In order to assess the geographical distribution and historical trends in sediment contamination of the Sava River Basin, sediments were analysed in 20 selected sampling sites along the Sava River from its origin to its outfall into the Danube River. The extent of pollution was estimated by determination of the total element concentrations and by the identification of the most hazardous highly mobile element fractions and anthropogenic inputs of metals to sediments. For comparability of data to other river basins, the sediment fraction < 63 µm was analysed. To assess the mobile metal fraction extraction in 0.11 mol L<sup>-1</sup> acetic acid was performed, while anthropogenic inputs of elements were estimated on the basis of normalization data to aluminium concentration. According to the Water Framework Directive the following elements were investigated in sediments: mercury, cadmium, lead and nickel, as well as organotin compounds. Furthermore, copper, zinc, chromium, arsenic and phosphorous were also analysed.

In addition, selected persistent organic pollutants (e.g. polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), chlorinated pesticides) were also determined in sediments. The choice of pollutants followed the recommendations of the Water Framework Directive.

Among metals, mercury was found to be present in elevated concentrations in the sediments of the Sava River (concentrations in general ranged from 0.2 to 0.6 mg kg<sup>-1</sup>). Analysis of total mercury concentrations in sediments along the Sava River indicated that the concentrations are in general in most of sampling sites exceeded Interim Sediment Quality Guidelines (ISQG) values. (According to Canadian Sediment Quality Guidelines for the Protection of Aquatic Life, 1999, ISQG correspond

to the threshold level effects below which adverse biological effects are not expected). At sampling sites Košutarica and Gradiška (Croatia) and Šabac (Serbia) total mercury concentrations exceed even probable effect levels (PEL) values. (According to Canadian Sediment Quality Guidelines for the Protection of Aquatic Life, 1999, PEL characterize concentrations of pollutants that may affect the aquatic life).

Results also indicated that the Sava River is moderately polluted with chromium and nickel in sampling site HE Moste in Slovenia (basin of the hydroelectric power plant) (185 and 70 mg kg<sup>-1</sup>, respectively) and in sampling sites in Croatia, Bosnia and Herzegovina and Serbia from Srbac up till Šabac. In the latter locations the concentrations of total chromium ranged from 170 to 380 mg kg<sup>-1</sup>, and for nickel from 80 to 210 mg kg<sup>-1</sup>. Concentrations of chromium were higher than those of PEL values. Normalization data to aluminium indicated the anthropogenic inputs of chromium and nickel in sediments. The origin of pollution with metals is most probably related to industrial activities. However, the data of the extraction in 0.11 mol L<sup>-1</sup>

Phosphorous concentrations in the sediments along the Sava River tend to increase from origin toward the inflow to the Danube River. The highest concentrations was observed in the accumulation basin of the Hydropower plant Vrhovo, Slovenia (1200 mg kg<sup>-1</sup>) and in agricultural areas of Croatia, Bosnia and Herzegovina and Serbia (about 900 mg kg<sup>-1</sup>), most probably due to the use of phosphorous-containing manures in agriculture. High phosphorous concentrations (about 1000 mg kg<sup>-1</sup>) were found also in sampling sites Oborovo (influence of the municipal sewage system of the Zagreb city) and at sampling point in the center of Belgrade before Sava merge with Danube River.

Data of the analysis of organotin compounds (OTC) indicated that sediments of the Sava River are not polluted with butyltin, phenyltin or octyltin compounds.

PAHs increases downstream Sava River and peaks around Brčko. Exceeded concentrations of persistent pesticide p,p-DDT were found in two locations (Galdovo: 2,562 ng g<sup>-1</sup> and Košutarica (1,288 ng g<sup>-1</sup>). Besides this chlorinated pesticide, HCB was determined in augmented values in two locations: Šabac (1,101 ng g<sup>-1</sup>) and Beograd (90,823 ng g<sup>-1</sup>), the later one was present in extremely high concentration. Analyses of PCBs showed no contamination of the Sava River sediments with these compounds. acetic acid showed that the percentage of the easily soluble metal fraction of chromium and nickel were low (below 0.3 % of total chromium and below 16 % of total nickel, respectively). Analysis of the easily soluble concentrations of other elements were in general below 10 %. Exceptions were cadmium (30 – 50 %) and zinc (5 – 40 %). Despite high percentage of the easily soluble cadmium content, these concentrations do not represent environmental hazard, since the total cadmium concentrations were low.

## **Contaminated Dredged Marine Sediments: Developing a management framework**

In conjunction with The Crown Estate and Natural England, Defra (the UK Department for Environment, Food and Rural Affairs) is leading a 3-year initiative to provide a management framework to address contaminated marine sediments in the UK.

Years of historic industrialisation at the coast and within the ports of the UK have given rise to a legacy of pollution and contamination in the bottom sediments, and these pose both environmental and social risks. Increasingly these sediments need to be dredged in order to support ever increasing port developments and associated maritime trade.

The framework will provide stakeholders with guidelines for the management of contaminated marine sediments in UK waters and will:

- Promote objective, transparent assessment of all disposal options and Best Practice Environmental Option (BPEO) based on the principles of sustainable development (including the polluter pays principle and the precautionary principle) on a case by case basis.
- Act as a focus for existing work and good practice (not to duplicate work being done elsewhere e.g. The London and OSPAR Conventions, PIANC, CEDA etc.) including investigating the need to promote planning for treating and reusing contaminated dredged material.
- Define a simultaneous and inclusive consultation process rather than deciding on disposal solutions by approaching one regulator at a time, and to identify where regulations are preventing the BPEO being used and highlight examples where flexibility in regulations allows the common sense approach to prevail.

A Steering Group has been constituted to oversee the programme. The project is being co-ordinated on behalf of the sponsors and the Steering Group by Kevin Black of Partrac Ltd. The 6 Tasks, won in open competition, are being undertaken within the programme.

More information can be found at [www.defra.gov.uk/marine/sediment/index.htm](http://www.defra.gov.uk/marine/sediment/index.htm).

## 'Living with Sediments' project

Sediment management: challenges and solutions  
2nd International project meeting held on 10-11 May 2007 in the Netherlands

The Living with Sediments project started in 2006 and is sponsored by the research program on water issues, called 'Living with water'. Together with the consortium partners, TNO, the Netherlands Organisation for Applied Scientific Research, organises the project. The Living with Sediments project starts from the notion that sediment management has become a complex issue over the years. With this in mind the Living with Sediments project aims at approaching the sediment issue from the concept of sustainable development. The main pillars of the philosophy behind the project are:

- A system approach that takes the natural (water, soil, sediment and environmental) and social (regulations, stakeholders, institutions, etc.) system into account.
- Stakeholder participation; different stakeholder views on the sediment issue can be identified. These differences should be recognized and respected and can be used to create joint solutions.
- Collective knowledge gathering and development; gathering and developing knowledge based on questions from the stakeholders creates a shared knowledge base from which the problem can be both defined and addressed.

In the context of this project an international exchange of knowledge and experiences about sustainable sediment management, the system approach, including stakeholder involvement is organised. In two workshops people (researchers and practitioners) from national cases are involved and are brought in contact with international experts and practitioners from the SedNet Community and the USA. The project wants to facilitate the exchange of knowledge and experiences between researchers, between practitioners and between researchers and practitioners on an international level, in two workshops.

The first international workshop was held on 16-17 November 2006. This workshop focused on:

- Societal involvement: how to involve society (the larger citizenry?) in dealing with sediments (this also concerns stakeholder involvement) what (kind of) knowledge do they need/want and how do they perceive the sediment issue (this also concerns issues such as trusting government institutions);
- Regulation concerning sediment, in what way is regulation constructed? What is the approach towards dealing with sediments in different countries?

The second workshop was held on 10-11 May 2007. 22 people from 6 different countries participated in this workshop. The questions addressed and discussed were:

- what do the project leaders of sustainable sediment management projects need? (concerning information, science and skills)
- what are the obstacles in their projects?
- how can we help them?

For a full report and the presentations of both the first and the second workshop please visit [www.levenmetbagger.nl](http://www.levenmetbagger.nl)

## REUSED

On June 20-22, 2007, the REUSED 4th European Conference on Contaminated Sediments took place in Antwerp, Belgium.

The Proceedings from that Conference are now available for sale for Euro 265,- (incl. VAT). The Proceedings consist of 16 full written papers on 100 pages divided into subjects such as Politics, International Experience, Case Stories, Research and Surveying.

For ordering a copy of the proceedings see [www.reused.nl](http://www.reused.nl)

Several conclusions drawn after the REUSED Conference:

- Delegates at the 4th European Conference on Contaminated Sediments in Antwerp formulated some important conclusions at the end of the Conference.

- The theme of the Conference "Public-Private Cooperation in Sediment Remediation" was fully supported and led to the conclusion that Europe needs more Public-Private cooperation in tackling the Contaminated Sediments problem. Thereby only efficient assessment and effective management in a "public-private way" can lead to successful remediation of contaminated sediments.
- It was found that European legislation must be better defined where it concerns sediments. There is good legislation for waste, draft legislation for soil and for water, but where is the legislation for sediments, especially contaminated sediments? In such legislation transport of treated or even untreated sediments between European Countries must also be better arranged.
- Public-Private cooperation works in some European Countries, such as in the host country Belgium, but it takes too long and some other countries are not active enough to make use of this opportunity. Important issues in this respect are standardization of Quality and Quantity Assessment Methods and European Standards for Monitoring and Aftercare. They will give clarity when benchmarks are done between the European Countries.
- The 4th European Contaminated Sediments Conference was held at the Havenhuis of the Port of Antwerp, main sponsor of the conference and was organized by the REUSED Foundation of the Netherlands. The next REUSED conference will be held in Springtime 2008 in London and will focus on the Remediation of the Olympic Games 2012 Canal Development Area with support from British Waterways.

More info on: [www.reused.nl](http://www.reused.nl)

## New Publications from DGE (Dutch-German Exchange on Dredged Material)

Status of ecotoxicological assessment of sediment and dredged material in Germany and The Netherlands

Manz, W., Krebs, F., Schipper, C.A. and den Besten, P.J. (Hrsg.) (2007): DGE Report V. [Download report](#) (eng., pdf, 3 MB).

Status of ecological assessment of dredging and relocation sites in Germany and The Netherlands

Leuchs, H., Oosterbaan, J. and de Jonge, J. (Hrsg.) (2006): DGE Report IV.

[Download report](#) (eng., pdf, 1,41 MB).

## Calls for abstracts

5th International SedNet Conference 27th-29th May 2008

hosted and co-organised by the Norwegian Geotechnical Institute, Oslo, Norway

Themes: Urban Sediment Management and Port Redevelopment / Sediment in River Basin Management Plans

Abstracts for oral and poster presentations in which case studies, especially from Scandinavia, will be explicitly welcomed.

Please see [www.sednet.org](http://www.sednet.org) for the template for submission of abstracts by e-mail to the SedNet secretariat: [marjan.euser@tno.nl](mailto:marjan.euser@tno.nl)

Abstracts should be submitted by October 29th, 2007.

7th International Symposium on Sediment Quality Assessment (SQA7)

Harbour, Estuary, and Lake Assessment and Management, to be held on 28-30 November 2007 in Hong Kong.

Major scientific themes that will be addressed include: origin, transport and quantity of sediments; sediment management in lakes and rivers; estuary and harbour management; risk assessment of contaminated sediments; new methods and modelling of sediments in changing environment; sediment and water quality.

Abstracts are welcome – deadline for submission is September 30th, 2007.

Further info at [www.aehms.org](http://www.aehms.org).

CEDA Dredging Days 2008: Dredging Facing Sustainability, 1-3 October 2008, Antwerp, Belgium  
The conference, organised by the Belgian Section of CEDA aims to raise a wider awareness of the stakeholders to the efforts made by the dredging world – sponsors of dredging projects, dredging contractors, shipyards and consultants - to sustainable development. Papers are invited on the following subjects:

- How to tackle sea level rise – dredging for coastal flood protection;
- Dredging as a key player in the energy discussion;

- Creating estuarine wetlands – vital ecosystems for sustainable development;
- Dredging in sensitive areas
  - balancing between socio-economic development and nature conservation
  - improving technology to achieve “no impact”;
- Efforts to reduce emissions in the dredging industry.

The deadline for submitting abstracts is December 15th, 2007.

For detailed information please visit the CEDA Dredging Days website: [www.dredgingdays.org](http://www.dredgingdays.org)

## Upcomming events

### 2007:

**4-5 October 2007:** New Delta Conference – Striking a new balance between ports and nature, Brussels/Antwerp, Belgium  
More info at [www.newdelta.org](http://www.newdelta.org)

**11-12 October 2007:** RISKBASE WP5 – workshop on risk management of the soil-water-sediment system at river basin scale, preventive approaches and policies. Venue: Vienna, Austria. More info at [www.riskbase.info](http://www.riskbase.info)

**15-18 October 2007:** 23rd Annual International Conference on Soils, Sediments and Water Analysis, Site Assessment, Fate, Environmental and Human Risk Assessment, Remediation and Regulation, University of Massachusetts, Amherst, USA. More info at [www.UMassSoils.com](http://www.UMassSoils.com)

**23-24 October 2007:** Conference Contract Management for Land Reclamation, London, UK. Organised on behalf of the Central Dredging Association (CEDA) and the International Association of Dredging Companies (IADC). Further information at [www.dcm-conference.org](http://www.dcm-conference.org)

**7-9 November 2007:** CEDA Dredging Days, Conference and Exhibition “The day after we stop dredging - dredging for infrastructure and public welfare”; Ahoy! Rotterdam, the Netherlands. More information: [www.dredging.org](http://www.dredging.org)

**12-14 November 2007:** Risk Assessment in European River Basins – State of the Art and Future Challenges, Leipzig, Germany. More info at [www.ufz.de](http://www.ufz.de)

**28-30 November 2007:** SQA7 Conference: Harbour, Estuary, and Lake Assessment and Management, Hong Kong.  
Major scientific themes that will be addressed include: origin, transport and quantity of sediments; sediment management in lakes and rivers; estuary and harbour management; risk assessment of contaminated sediments; new methods and modelling of sediments in changing environment; sediment and water quality.  
Further info at [www.aehms.org](http://www.aehms.org).

### 2008:

**27-29 May 2008:** 5th International SedNet Conference, hosted and co-organised by the Norwegian Geotechnical Institute, Oslo, Norway.  
Urban Sediment Management and Port Redevelopment / Sediment in River Basin Management Plans. Call for Abstracts: see [www.sednet.org](http://www.sednet.org)

**16-21 June 2008:** 4th International Conference on River Restoration, Venice – Italy. Organised by the European Centre for River Restoration More info at <http://www.ecrr.org/conf08.htm>

**10-12 July 2008:** International Symposium on Sediment Management, Lille – France.  
More information can be found at [www.sednet.org](http://www.sednet.org).

**1-3 October 2008:** CEDA Dredging Days 2008: Dredging Facing Sustainability, Antwerp, Belgium.  
[www.dredgingdays.org](http://www.dredgingdays.org)

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