

An introduction to SedNet

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Member SedNet daily management (2005 – present)

www.SedNet.org



Netherlands Organisation for Applied Scientific Research



Outline

- SedNet
- Sediment
- Sediment threats and their impacts
- Sediment management and European policies
- Changing perspective on sediment management
- Ongoing, recent and planned SedNet activities



SedNet

Mission:

To be a European network aimed at incorporating sediment issues and knowledge into European strategies to support the achievement of a good environmental status and to develop new tools for sediment management.

Identity:

- network of sediment professionals
- independent platform to expert advice
- positioned between science and stakeholders
- window on sediment issues to EC DG Environment

Focus:

- sediment quality AND quantity issues
- river basin scale
- including: marine/estuarine sediments, soil erosion and re-erosion

SedNet

Website: www.SedNet.org

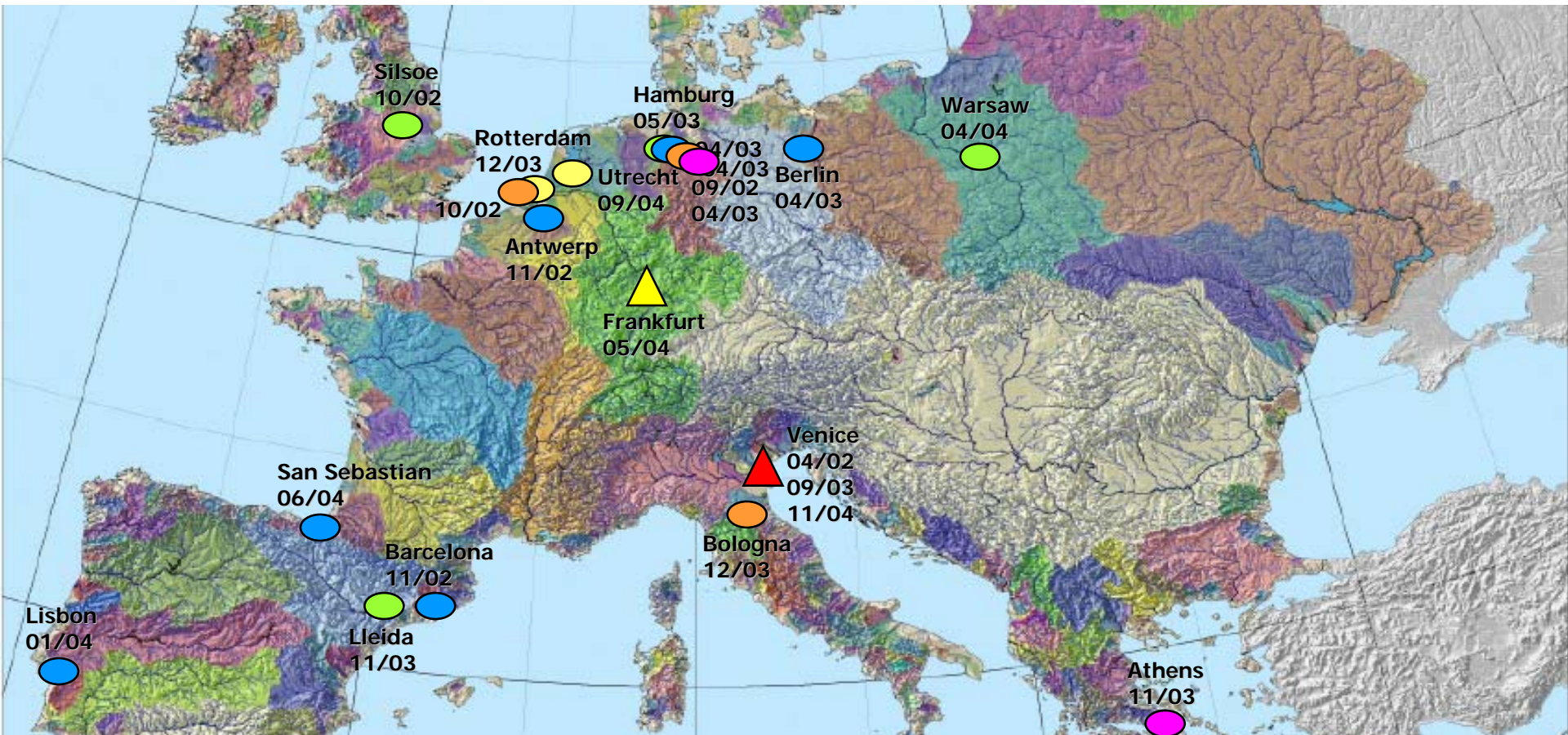
Steer Group:

- | | |
|--------------------------------------|-----------------------------|
| - Port of Hamburg (D) | Axel Netzband (chair)* |
| - Rijkswaterstaat (NL) | Piet den Besten* |
| - TNO (NL) | Jos Brils* & Marjan Euser** |
| - Federal Institute of Hydrology (D) | Peter Heininger |
| - Port of Venice (I) | Stefano Della Sala |
| - Port of Rotterdam (NL) | Marc Eisma |
| - TU Hamburg-Harburg (D) | Susanne Heise |
| - Cranfield University (UK) | Sue White |
| - NGI (N) | Audun Hauge |
| - ICPDR (International) | Igor Liska |
| - DEC (B)? | Siegfried D'Haene? |

* Daily management

** Secretariat

SedNet tour de l' Europe (2002 – 2004)



▲ Conferences
▲ Nicole – SedNet

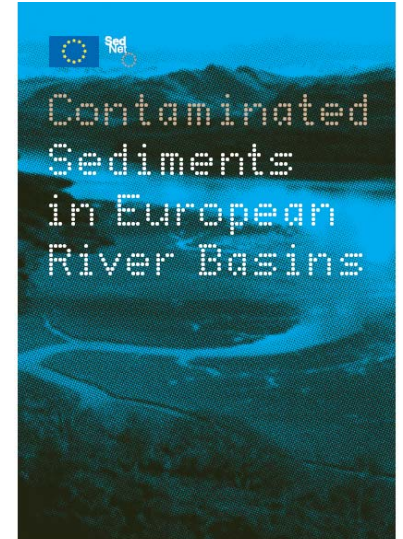
Workshops
 WP1 Stakeholder participation
 WP2 Management at the basin scale

WP3 Quality and impact assessment
 WP4 Treatment
 WP5 Risk management and communication

Results

Free of charge, through website (www.sednet.org):

- Booklet “Contaminated Sediments in European River Basins”
- And many more documents
- Who-is-who



Commercially published by Elsevier (2006/2007):

- Scientific books on the specific sediment management issues addressed

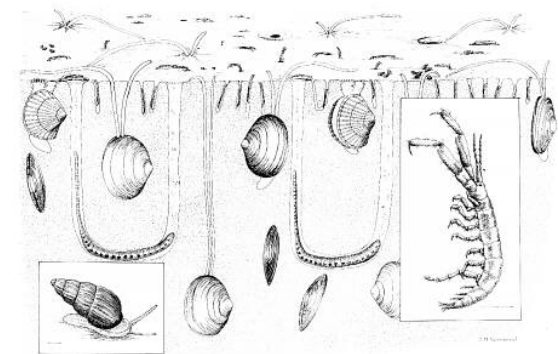
SedNet-Elsevier book series

1. Sediment management at the river basin scale (end 2007)
edited by Dr. Phil Owens, Cranfield University, UK
2. Sediment quality and impact assessment of pollutants (published)
edited by Prof. Dr. Damià Barceló, CSIC, Spain
3. Sediment and dredged material treatment (published)
edited by Dr. Giuseppe Bortone, ARPA Emilia Romagna, Italy
4. Sediment risk management and communication (published)
edited by Dr. Susanne Heise, TU Hamburg-Harburg, Germany

The importance of sediment

(Martin 2002)

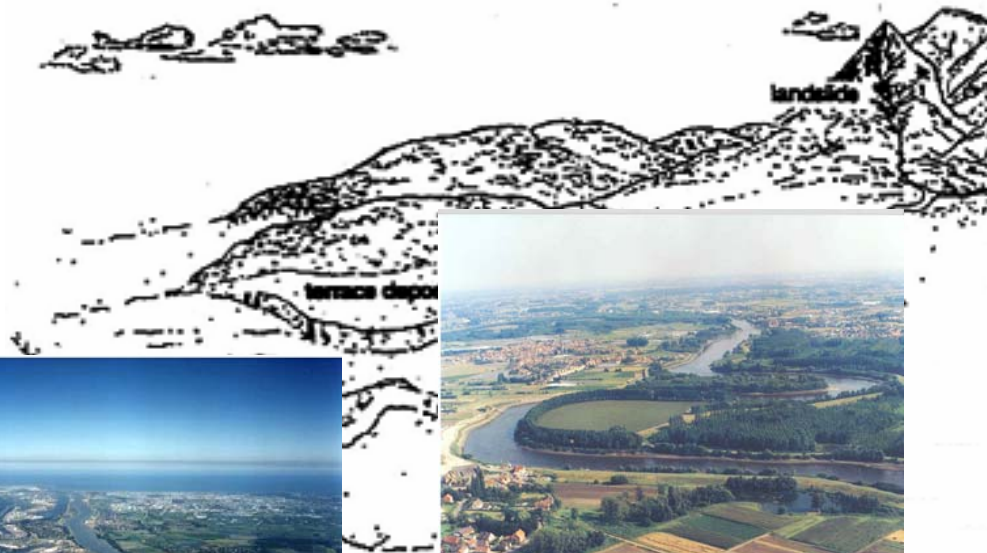
Too much sediment	Too little sediment	Sediment as resource
Obstruction of channels Rivers fill and flood Reefs get smothered Turbidity	Beaches erode Riverbanks erode Wetlands are lost River profile degradation	Construction material Sand for beaches Wetland nourishment Soil enrichment Habitat and food for life



Sediment = essential and integral part of our river basins

Tentative sediment budget Europe

(x million ton per year)



Production: 1800



Estuaries, harbours, deltas
& discharged in sea: 714



River, floodplains & reservoirs: 886
Mined: 200

(Owens & Batalla 2003)

Main threats

Quantity related:

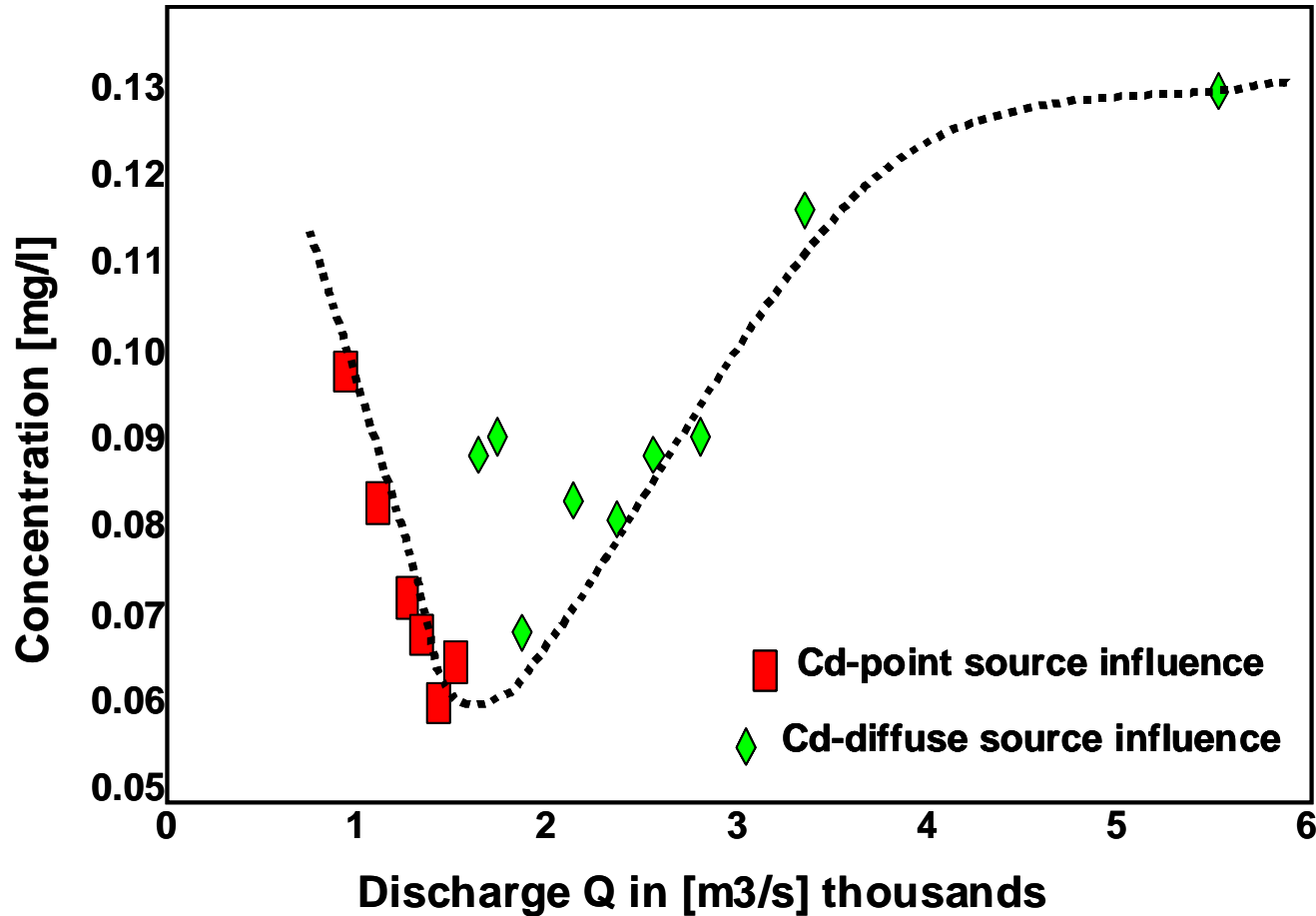
Too much or too little sediment

Quality related:

Contamination:
due to their nature many
hazardous chemicals
stick to sediment



Actual v.s. historical contamination...



(Vink & Berendt 2001)

Environmental impacts of contamination

- Decreased abundance of species → decreased biodiversity
- Secondary poisoning through consumption of contaminated species
- Decreased water quality (sediment & water quality are linked)

But, at what sediment contamination level do these effects occur?



Socio-economic impacts of contamination

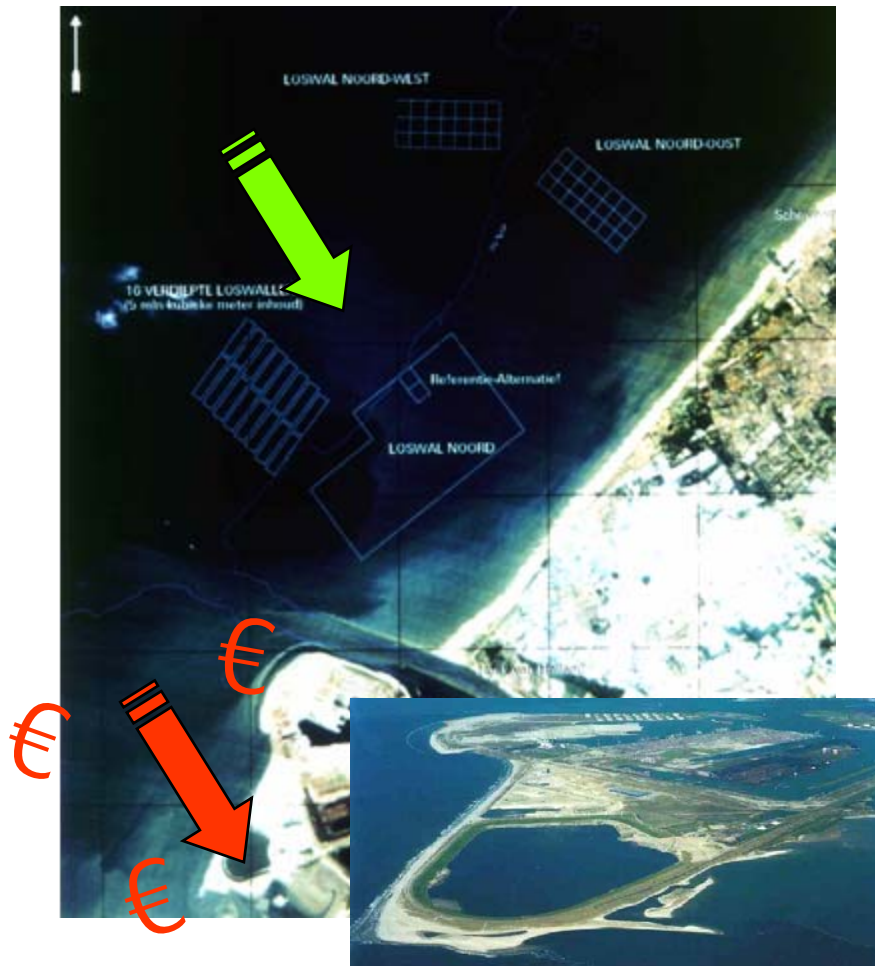
- Decreased valuation of sediment: 'its toxic waste' (**while it is a valuable resource**)
- Complicating management of dredged material (next slide)

But, no common perception of 'contamination':

- Typically countries along same river use different methods
- No uniformity in quality standards or guideline values
- Thus a lack of inter-comparability



Dredged material management



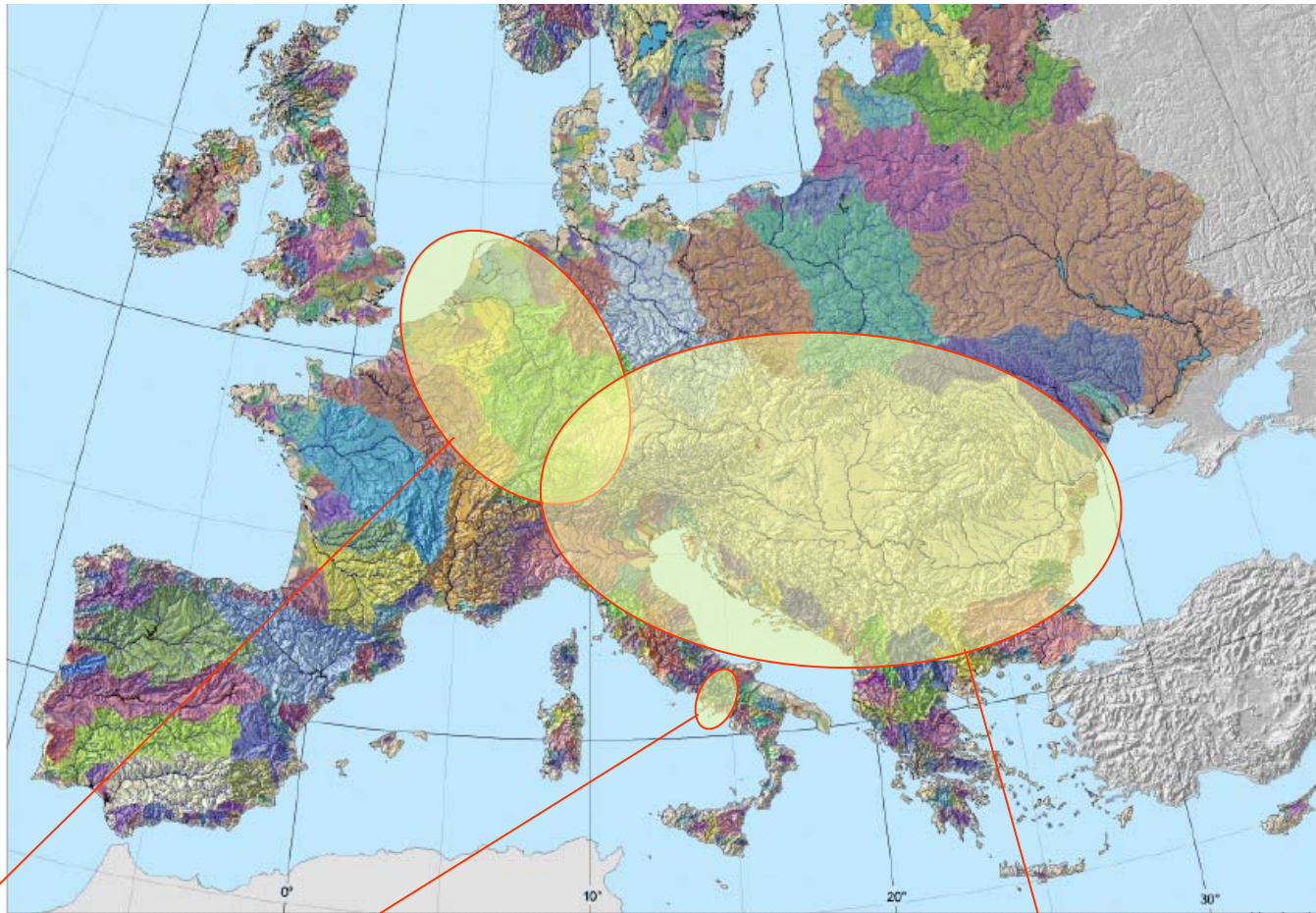
Relocation of **clean** material



Confined disposal or treatment of **contaminated** material

But, why have downstream managers to pay for upstream problems?

Management at basin scale

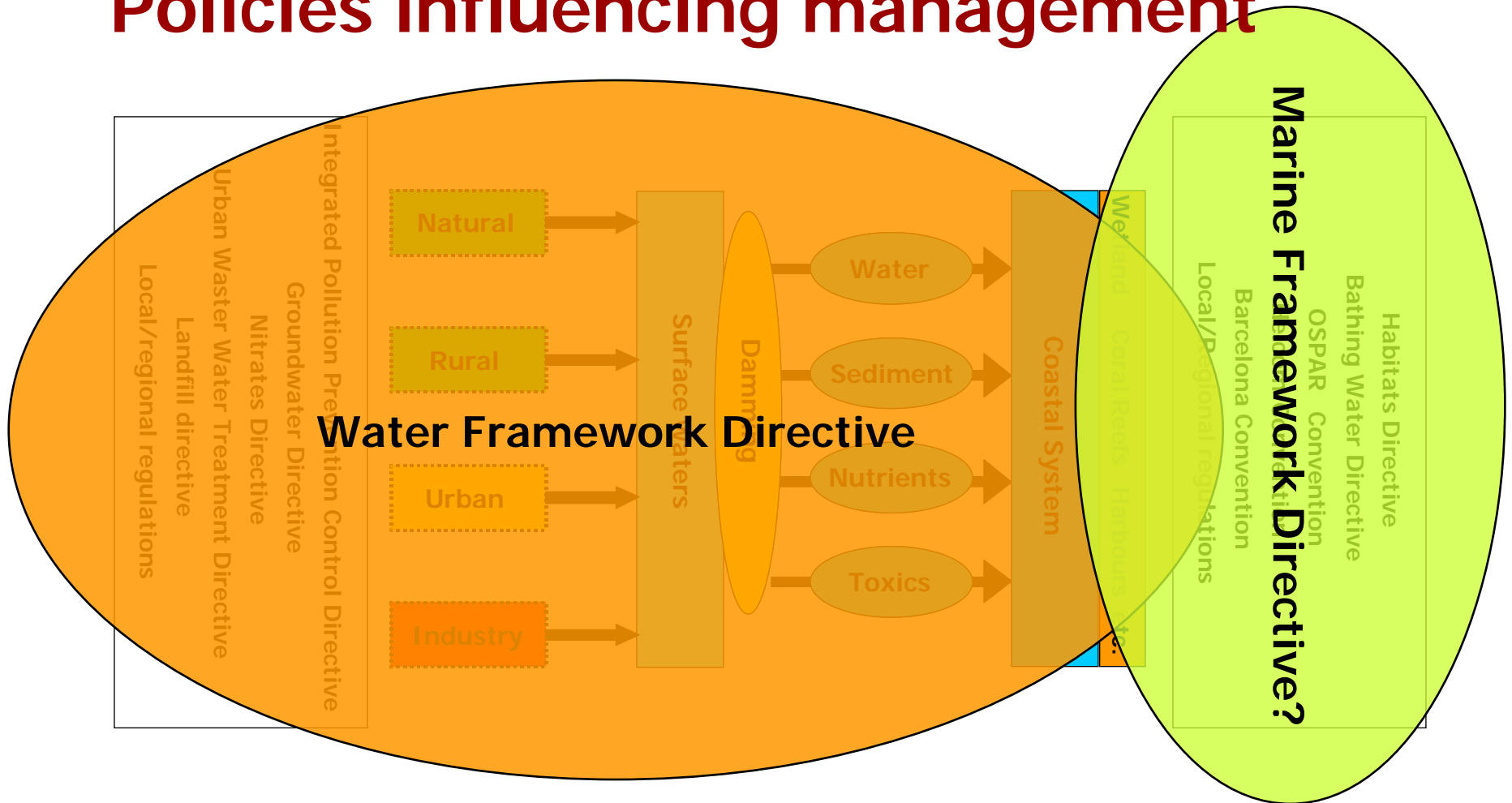


Rhine:
lot of experience

Sarno:
heavily contaminated, but
not much source control yet

Danube:
19 countries from the EU
'richest' to 'poorest'

Policies influencing management



But, they all (so far) only fragmentarily and indirectly address sediment

Water Framework Directive



Objectives:

- Protection of **ALL** waters
- Good ecological and good chemical status by 2015
- Degradation of water bodies not allowed
- Stepwise reduction/elimination of the emission of hazardous substances

Changing perspective on sediment



Due to Water Framework Directive implementation: sediment seen as integral and essential part of river systems.

Hence:

- scope is shifting from from local to river basin scale sediment management
- **sustainable sediment management** will eventually become integral part of WFD **River Basin Management Plans** (RBMP)

Sustainable Sediment Management

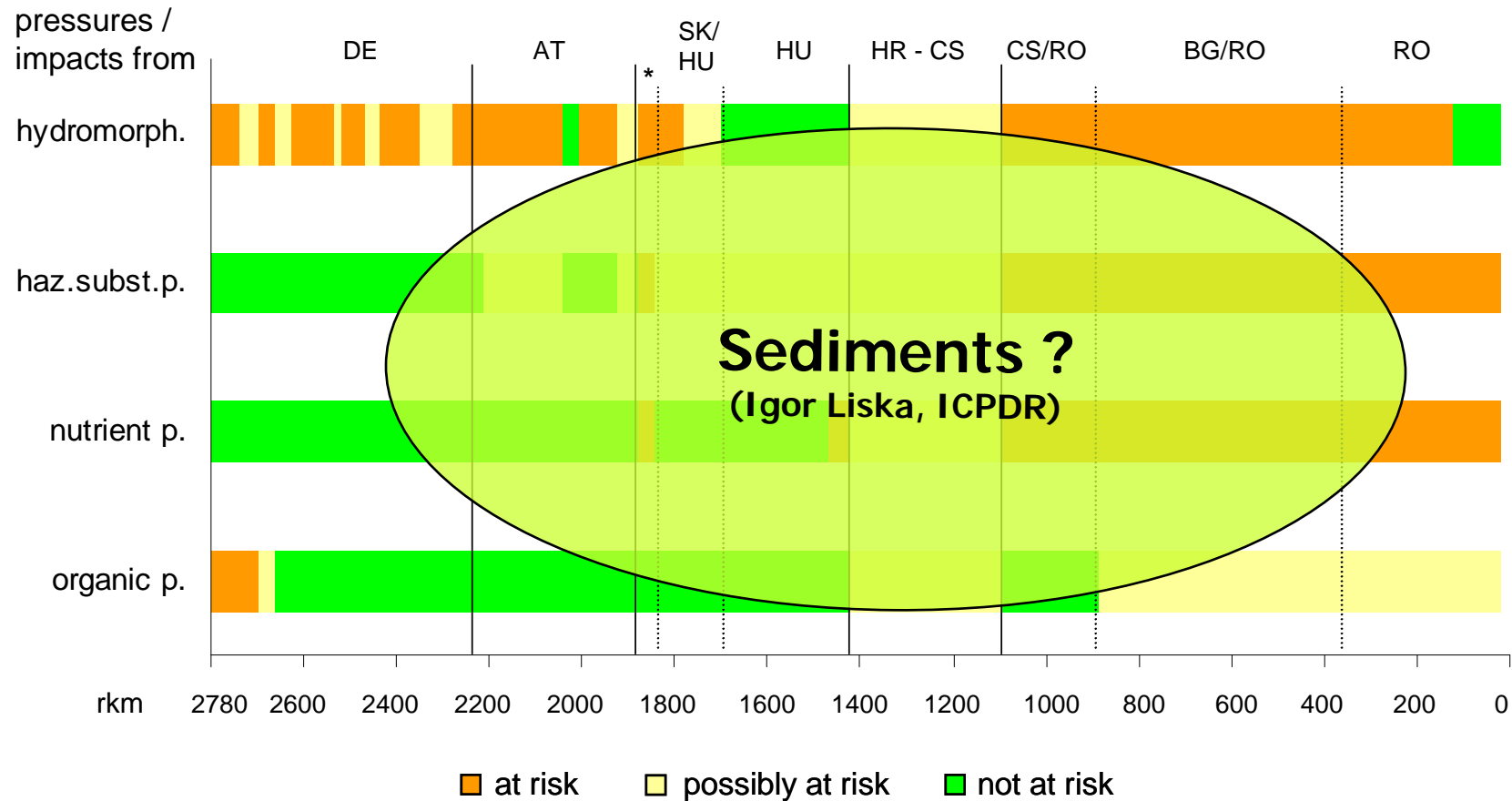
(according to SedNet)

Find solutions:

- in the context of the whole river system
- carefully balancing environmental and socio-economical values
- in increased interaction with stakeholders
- embracing the whole soil-water system (integrated solutions)
- respecting natural processes and functioning
- not resulting in up-/downstream impacts, not now or in the future

Sediment & WFD implementation: Danube

Environmental status of the Danube (WFD Roof report 2004):



Sediment & WFD implementation: Danube

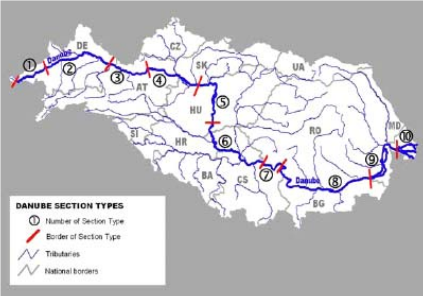
Danube stakeholders workshop:

- Origin: SedNet conference 2004
- Budapest, 24 & 25 March 2006
- 13 Danube countries represented
- Joint workshop of:
 - UNESCO ISI
 - ICPDR
 - SedNet
 - AquaTerra
- Sponsored by:



Towards the integrated management of the Danube sediment-soil-water-system as

Support to the implementation of the EU Water Framework Directive in the Danube river basin



DANUBE SECTION TYPES

- Number of Section Type
- Border of Section Type
- ~ Tributaries
- ~ National borders

Source: Danube Basin Analysis (WFD Roof Report 2004)

A joint workshop of
UNESCO IHP/ISI, SEDAN, AquaTerra and SedNet
with cooperation of the ICPDR
and of VITUKI (host institution)

March 24-25, 2006,
Hotel RILA, Budapest IX., Fehér Holló u 2.
Hungary

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**Workshop brochure**  
Prepared by  
J. Brils (chairman), A. Slob (moderator) and M. Domokos (local organiser)

# Sediment & WFD implementation: Danube

## Workshop outcome/agreements:

- Outcome supported by:
  - ICPDR
  - UNESCO International Sediment Initiative
  - SedNet
  - and by all 13 Danube countries represented (SEDAN delegates)
- Before end 2009 come to sediment balance (quantity and, as far as possible also quality) for the Danube and its main tributaries  
**Study sponsored by UNESCO**
- Improve Danube system understanding  
**FP7 proposal submitted under 1<sup>st</sup> call for proposals (Twinning):  
"The role of local & scientific knowledge in IWRM" (LocalsKnow)  
Partners: TNO, WWF, UNESCO, Sava Commission a.o  
Cases: Sava/Danube (EU) – Nile/Zambesi (AF) – Rio Plata/Patanal (SA)**

# SedNet activities

## Ongoing:

- Continuously updated website ([www.SedNet.org](http://www.SedNet.org))
- E-newsletters, approximately once every 3 months
- Member UNESCO ISI Steer Group (Jos Brils)
- (Re)presentation in sediment related events & activities
- Participation in WFD CIS discussions

## Recent:

- Round-table discussion, Venice 22-23 November 2006
- “Sediment key-issues between the river and the sea”  
SedNet 1-d conference, Venice, 24 November 2006
- Recommendations for FP7 sediment research to EC DG Research &  
EC DG Environment, Brussels, 8 February 2007

# Proposed sediment research EC FP7

## Monitoring:

improve the understanding of the role of sediment in the functioning of the natural sediment-soil-water system in river basins with a specific focus on:

- relation between sediment contamination and its actual impact to the functioning of ecosystems (ecological status)
- assessing of the combined impact of sediment quantity and quality on the ecological status

## Measures:

- 'Large-scale' ( $\geq$  water body) field experiments in which the effectiveness of measures are meticulously monitored over a long period ( $\geq$  5 years) and then evaluated (a.o. cost-benefit)
- Selection of study areas & measures, and evaluation of monitoring results in close consultation of stakeholders



# Planned activities

- Sediment chapter in WFD book of Philippe Quevauviller (EC DG Environment, WFD team)
- “Bottom-up” integration of sustainable sediment management: Interreg 4c proposal (end 2007): “Living with Sediments”
- SedNet conference: Oslo, +/- May 2008
- More to be announced in next E-newsletter

## Interested?

- Register at SedNet website: [www.SedNet.org](http://www.SedNet.org) (free of charge)
- Become SedNet Steer Group member: we still miss several countries!

**Thank you for your attention**

