

S.O.S - SAVE OUR SEDIMENTS

■ **Jos Brils (deltares)**

What Approach, results and key messages

Globally river-sea-systems are short of sediment mostly due to damming. This causes dramatic impacts such as drowning deltas. Scientists and stakeholders should find solutions. The session aims to gain support and ingredients for drafting of a call text to promote as topic under EC FP9.



Health

Societal Demands

Jobs

Cities

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Soil

Ecosystem Services

Spatial Planning

Farming

Natural Capital

Land-Use

Resources

Water

World Soil Day

European Commission



‘S.O.S – Save Our Sediments’

SedNet session
at the final conference of INSPIRATION
6 December 2017, Brussels

Session chair and report:
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Deltares & INSPIRATION core group & SedNet Steer Group
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1. Introduction

The European Commission’s co-funded Horizon 2020 Coordination and Support Action INSPIRATION¹ had its final conference in Brussels at 4-6 December 2017². At this event, INSPIRATION’s main product, i.e. the European strategic research agenda (SRA) for “Integrated Spatial Planning, Land Use and Soil Management” was made public. The SRA was developed through a bottom-up process that engaged more than 500 experts (science, management, policy making, industry, NGOs) from 20 European countries. The SRA is accessible on-line³. Although the key-focus is on soil and land-use/management, the SRA also covers some sediment management related research needs.

2. The session

SedNet contributed to the final conference with the session “S.O.S – Save Our Sediments” that was announced in the following way in the conference program:

Globally river-sea-systems are short of sediment mostly due to damming. This causes dramatic impacts such as drowning deltas. Scientists and stakeholders should team-up urgently in research and innovation to inform solutions for sediment quantity management. The session aimed to gain support and ingredients for drafting of a call text to promote as topic under EC FP9.

The session was held at 6 December from 10.00 – 12.00 hour. There were 12 participants with a variety of backgrounds: science, policy making as well as NGO. The session kicked-off with the introduction presentation ‘S.O.S – Save Our sediments’ given by Jos Brils. An INSPIRATION briefing note with the same title is now available and attached as Annex to this document and is also available on-line⁴.

Ample of room was given during the presentation for questions and discussion. At the end of the presentation it was questioned to the group who was in favour to see the ‘S.O.S.’ topic included as a call under EC FP9. Eleven out of twelve participants were in favour and one participant abstained from voting due to a lack of expertise to be able to answer the question. The session concluded with a working session where the participants were invited to suggest components to be included in such a possible FP9 call topic. The outcome is presented in the next section.

¹ See: www.inspiration-h2020.eu

² See: <http://www.worldsoilday2017.eu/>

³ See: www.inspiration-agenda.eu

⁴ See: <http://www.inspiration-h2020.eu/sites/default/files/upload/documents/inspiration-briefingnote-sos.pdf>

3. Suggested components for an EC FP9 'S.O.S.' call text

Scope of the possible S.O.S project:

- Holistic, entire river-sea system oriented with also a focus on social and economic aspects
- Development and use of a holistic sediment management concept (see Elbe for example)
- Very practical, applied research and sharing of experiences and best practices
- Pilots to test, demonstrate, inspire/learn:
 - Integrated management, integrating: remediation, flood risk mitigation, enabling recreation possibilities, cost-benefit analysis, job creation and practical use and application, capitalization of solutions
 - The role of sediment management in climate change mitigation
 - Nature based solutions
 - Reuse possibilities
- As input for learning experiences, a comparison across countries or territories is suggested of sediment & dredged material management strategies, assessment criteria and (re)-use options
- Sediment ecosystem services
- Respecting natural processes and functions, but keeping in mind 'trade-offs', e.g. navigation versus road-transport or hydropower versus nuclear plants
- Overcoming the Waste Directive bottleneck that regards even non-contaminated dredged material as a waste (it is NOT, see below under Impact) which hinders re-use, e.g. on land
- Stakeholder engagement work: engage them in the early steps of the project and as end-users to become owner of the developed management solutions. However, realize that power between them is different and that they may have conflicting interests. Who 'benefits' and who faces 'costs' of a proposed solution and how to balance this and come to actionable solutions? Maybe application of the DELPHI method⁵ could help here
- Engage networks such as European Land and Soil Alliance, Climate Alliance, NGO's etc. as supporters (ask for their letter of support) and observers of the progress in the project
- Awareness raising: EU and national and regional governments should fund NGOs that work with local authorities, especially with majors of cities and villages to make them aware about soil and sediment management

Content of the possible S.O.S project:

- Data: this is the basis. So collecting of field data should be part of the call
- Sediment quantity / sediment continuum:
 - Get the bad spots out to restore continuum
 - Benchmarked tools that can be used across the system to describe the sediment situation and suggest suitable action that would help with any 'negative' impacts identified
 - Suitable models for sediment evolution after dredging
- Sediment quality / contaminated sediment:
 - Integrated, *in situ* and *ex-situ* risk assessment, integrating: human, ecological/biological and chemical/physical parameters
 - Tackle hot-spots of contaminated sediment
 - Reuse possibilities
 - Good quality of sediments as it is also secures, enables sustainable (re)use
- Soil-Sediment-Water (SSW) nexus related:

⁵ See e.g.: https://en.wikipedia.org/wiki/Delphi_method

- Impact of contaminated sediment on meeting WFD objectives: good (ground)water status. This is a key-driver for action as we know that water quality is always regarded as very important
- (Re-)use of sediment as fertilizer on the near agricultural lands (deposited after flooding, or re-use after dredging)
- Soil sealing
- Urban sprawl
- Role that sediment plays in land-use management, e.g. as mitigation to the soils that we lose (e.g. do to soil erosion) or soil subsidence

Impact of the possible S.O.S project (i.e. key-deliverables):

- Identified best practices and cost-effective solutions
- Demonstrated examples of restored sediment continua
- An entire river-sea system oriented (systems thinking), Soil-Sediment-Water management integrated and holistic (environmental, social and economic aspects) management approach
- Enhanced sediment ecosystem services provision
- Contribution to job creation: green economy, green jobs
- Delivery of climate change mitigation options
- Raised awareness and nudging towards changed
 - Mind-sets: sediment is NO waste but a natural resource having economic, social and environmental value
 - Behaviour: e.g. re-use of dredged material which is also an environmental sound solution.

4. What next

The session resulted in the above additional suggestions for sediment related topics for INSPIRATION's SRA. These suggestions are also passed to, and further elaborated in the SedNet working group (WG) on "Sediment Quantity Management of entire River-Sea Systems". This WG was initiated at the last SedNet conference, 14-17 June 2017 in Genoa. The initial WG objectives (open for further adaptation) are in brief:

- To increase the general awareness for sediment quantity management;
- To promote the sharing of experiences and best management practice in this field;
- To develop a related strategic research and innovation agenda (SRIA), not only focusing on research, but also on sound solutions (measures), their effectiveness and feasibility;
- To promote the developed SRIA to potential funders.

WG membership is free of charge and open to any professional willing to engage and (pro-) actively contribute to achieving the WG objectives. Today's members of the WG come from Europe and beyond and bring in the perspectives from a.o. science, policy making, management, navigation, NGO as well as industry. The next WG workshop is held 7 and 8 March 2018 at the Deltares main office in Delft. In this workshop we aim to refine the WG starting document as well as to jointly produce the first drafts for some other possible WG products, such as a flyer/brochure for the WG, a (scientific) review paper and the first version of the SRIA.

If you are interested to engage in this WG, then please contact: Jos Brils: jos.brils@deltares.nl.

5. Annex – INSPIRATION briefing note ‘S.O.S. – Save Our Sediments’




S.O.S. – SAVE OUR SEDIMENTS

Sediment shortage in river-sea-systems causes dramatic impacts, such as drowning deltas, worldwide. EU research can inform solutions.

Why we need to act

Human interferences, such as damming, have disturbed the sediment continuum in river-sea systems, worldwide. These interferences result either in a surplus or a lack of sediment. A surplus causes the siltation of reservoirs with negative effects on hydropower production and water storage; causes siltation of waterways with negative effects on navigation; and causes hyper-turbidity in estuaries resulting in the decline of ecosystem health. A lack of sediment causes coastal erosion and retreating or drowning deltas; causes erosion of river beds and degradation of channel morphology with impacts on river habitat and floodplain groundwater; and causes a lack of suited spawning material.

What we will gain

If scientists and stakeholders are given the opportunity, e.g. under EU Framework Programme 9, to team-up in research and innovation (R&I), this R&I can inform solutions that we urgently need to mitigate the societal, economic as well as ecological impacts resulting from either a surplus or from a lack of sediments in river-sea systems.

Key research areas

Sustainable and resilient solutions to disturbed sediment continua should be sought at the entire river-sea system scale. Presently, there are on-going R&I activities which only partially target “end-of-pipe” management solutions. Up to now, hardly any concerted R&I action is taken on the entire river-sea systems scale. R&I is needed which:

- Addresses entire river-sea systems, so crossing geographical as well as political borders;
- Carefully balances social, economic and environmental values;
- Involves stakeholders;
- Embraces the entire soil-sediment-water system (integrated solutions);
- Respects natural processes and functions;
- Not results in unwanted impacts elsewhere in the river-sea system (up- or downstream), not now, nor in the future;
- Recommends early solutions to decision makers where they can be implemented.

How to become active?

Contact your INSPIRATION national contact at www.inspiration-agenda.eu to identify joint funding options. For further information, in favour to see this topic in FP9 and/or want to suggest ingredients for the topic, then please contact Jos Brils (jos.brils@deltares.nl).



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Contact your INSPIRATION national contact at www.inspiration-agenda.eu for further information on this topic.