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SURICATES: demonstration through pilots of sediment reuse for coastal defence or climate change mitigation

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Background/Objectives.

The SURICATES project is a research initiative funded by the European Union regional funds (INTERREG NWE), aimed at increasing the reuse of dredged sediments. The current European practice favours relocation at sea without beneficial uses (more than 99%), unless the sediment is highly contaminated. In many countries, dredged sediments are considered as waste, increasing thus waste production by 200 Mm³/y (80 Mt dry weight). The waste status hampers sustainable fluvial and marine transport and prevents sediment reuse as an alternative to minerals extraction for civil engineering. Climate change, erosion and flood risk increase require greater mitigation measures (strengthening or regeneration of harbour/river banks, beach nourishment), consuming high volumes of natural resources.

Previous research projects (CEAMaS, PRISMA, SETARMS) highlighted various reuse alternatives and investigated them at the laboratory scale, with specific attention for environmental, economic and social aspects. This is not enough to convince sediment managers of the feasibility of reuse options and move towards circular economy options.

Approach/Activities.

SURICATES aims at providing real scale demonstration of selected alternatives through large size pilot tests (2,000 to 200,000 tonnes). Furthermore, SURICATES targets specifically applications offering opportunities for climate change mitigation, such as coastal defence, river channel reinforcement and flood protection.

The largest pilot test will be performed in the port of Rotterdam, with an application of dredged sediments in estuarine works aimed at improving the channel and the resilience to major flood events. Other tests will be performed in Scotland, in the regions of Glasgow and Fort William, with benefits in coastline defence, land restoration and development. Various options will be tested with a focus on low cost, large volume solutions, which are the only ones for which sediments can compete with extracted minerals and offer integrated benefits for territorial planning.

A large part of the pilot tests will therefore consist in a direct application of raw or dehydrated sediments, though some technologies from mineral processing may be used too.

Results/Lessons Learned.

The pilot tests have not yet begun and the current activities are in the laboratory or on site, for baseline definition. Other ongoing activities comprise regional inventories of available sediments and of material needs for climate change-related civil works. Later, an evaluation of economic and environmental impacts from pilots at the local scale will be carried out.

Information will be published as soon as the tests will begin, and we invite all interested participants to provide their contact details to receive project updates. This will increase our knowledge of potential needs, issues and opportunities, and promote dissemination.

The expected outcome is an increase in sediment reuse projects in NW Europe to drive sediment reuse to 1.3 Mt/y after 5 years, and 2.3Mt/y after 10 years.