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OPERANDUM project.

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Can nature-based solutions replace hard-engineered ones?

Sure, ecological engineering has a wealth of welcome side effects ranging from enhanced biodiversity up to better overall health for people surrounded again by nature through mitigating climate change or environmental risks.

BUT, does it work?

The Idea with OPERANDUM is to construct a proof of the efficacy of nature-based solutions to mitigate hydro-meteorological risks



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Therefore, the project team leverages 10 Open-Air Laboratories with 26 Partners across 14 Countries.

Open-Air Laboratories are an evolution of the concept of living labs, customized for hydro-meteorological risks.

Each of these labs is tailored to represent a specific problem, like a landslide in Austria, desertification in China, or Flood risk in Finland.



It is then equipped with continuous monitoring to measure the impact and results of the nature-based solutions tested and evaluate them over time.

But how do those solutions look like?

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For instance, we're testing the introduction of seagrass with deep roots within the existing embankment on the Panaro River.



This nature-based solution replaces the traditional grey approach of solidifying embankments with concrete.

Now put yourself in the shoes of a river neighbor. Would you be concerned about this experiment?

We have a multi-disciplinary approach with engineers, physicists, architects but also sociologists. We're seeking co-creation, participatory science, and social acceptance!

Another solution tested in the Italian Open-Air Laboratory is a sand dune to act as a natural barrier between sea and land.



It dissipates the waves' energy, protects the land from water intrusions, and diminishes the coast's stress.

We filed a patent that describes how to construct such a dune, including sensors and vegetation

Indeed, the project also aims at enabling the market uptake of Nature-Based Solutions, which may involve business plans and replication packages.

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Then, once the science is proven, won't additional benefits make for an easy sell anyways?

We also covered:

- How Computational Fluid Dynamics and numeric models are a strong support to the OPERANDUM research project
- How nature-based solutions are much more than the “Hippie Science” image they may convey
- How important communication, pedagogy, and vulgarisation are for NBS to be widely accepted
- How development stages of blue-green approaches differ from one country to another
- How nature-based solutions induce a shift of paradigm, from CAPEX intensive grey approaches to OPEX intensive blue-green alternatives
- The outlook on nature-based solutions, bringing all the stakeholders together, sharing an open platform, the importance of regulations... and much more!

Don't miss a single bite: head over to dww.show!

