Operandum at a glace

Research for a more resilient Europe

OPERANDUM is a European research project that aims to demonstrate the efficacy of **sustainable solutions** inspired by nature to **adapt territories** to hazards derived from **extreme weather events**, such as floods, droughts, landslides and storm surges, making human communities more resilient to climate change.

Nature-Based Solutions

Using nature to adapt landscapes

The frequency of severe hydro-meteorological events is rising in many regions of the world as a consequence of **climate change**. Society must be ready to make landscapes more resilient. **Nature-Based Solutions (NBS)** are inspired and supported by nature and provide environmental, social and economic benefits, while helping to **build resilience against climate change**. OPERANDUM has been built to deliver **tools and methods** to demonstrate the efficacy of a variety of **locally-adapted** NBS, involving **multiple stakeholders** in the process, such as citizens, associations, business players and policy makers.

The Geospatial Information Knowledge Platform

The project offers a **Geospatial Information Knowledge Platform** (GeoIKP) as an online **open hub** to exchange knowledge about Nature-Based Solutions. This way, OPERANDUM provides the basis to strengthen **adaptation policies** whilst boosting **new business opportunities** to build more resilient landscapes and communities.

Find out more

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The project in numbers

10	26	4 +	14M
Open-Air Laboratories	International partners	Years (2018-2022)	Funding

International Open-Air Labs

10 areas to examine Nature-Based Solutions

OPERANDUM **tests the efficacy** of multiple NBS through 10 Open-Air Laboratories (OALs) distributed across the world. Based on the concept of **living lab**, the OAL is an original multidisciplinary framework that connects research institutes, enterprises and stakeholders to co-design, co-develop and co-deploy NBS. The OALs provide the framework to build **scientific evidence** of the efficacy of the NBS to mitigate the impact of hydro-meteo hazards, thereby enabling their replication and upscaling in other regions.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 776848.

OPERANDUM

OPEn-air laboRAtories for Nature baseD soluTions to Manage hydro-meteo risks

GREECE

Spercheios river

Spercheios river

An OAL to test solutions against floods and droughts

This Open-Air Laboratory is located in the Spercheios river basin, in **Central Greece**. From October to May, **heavy rainfall** and snowmelt often cause the riverbank to overflow, which threatens the **population** of the region as well as its **agriculture** and livestock. During the summer, the area experiences water scarcity because of the **limited precipitations** and the increasing **irrigation demands**.

Co-creation of the NBS

A whole area involved in the process

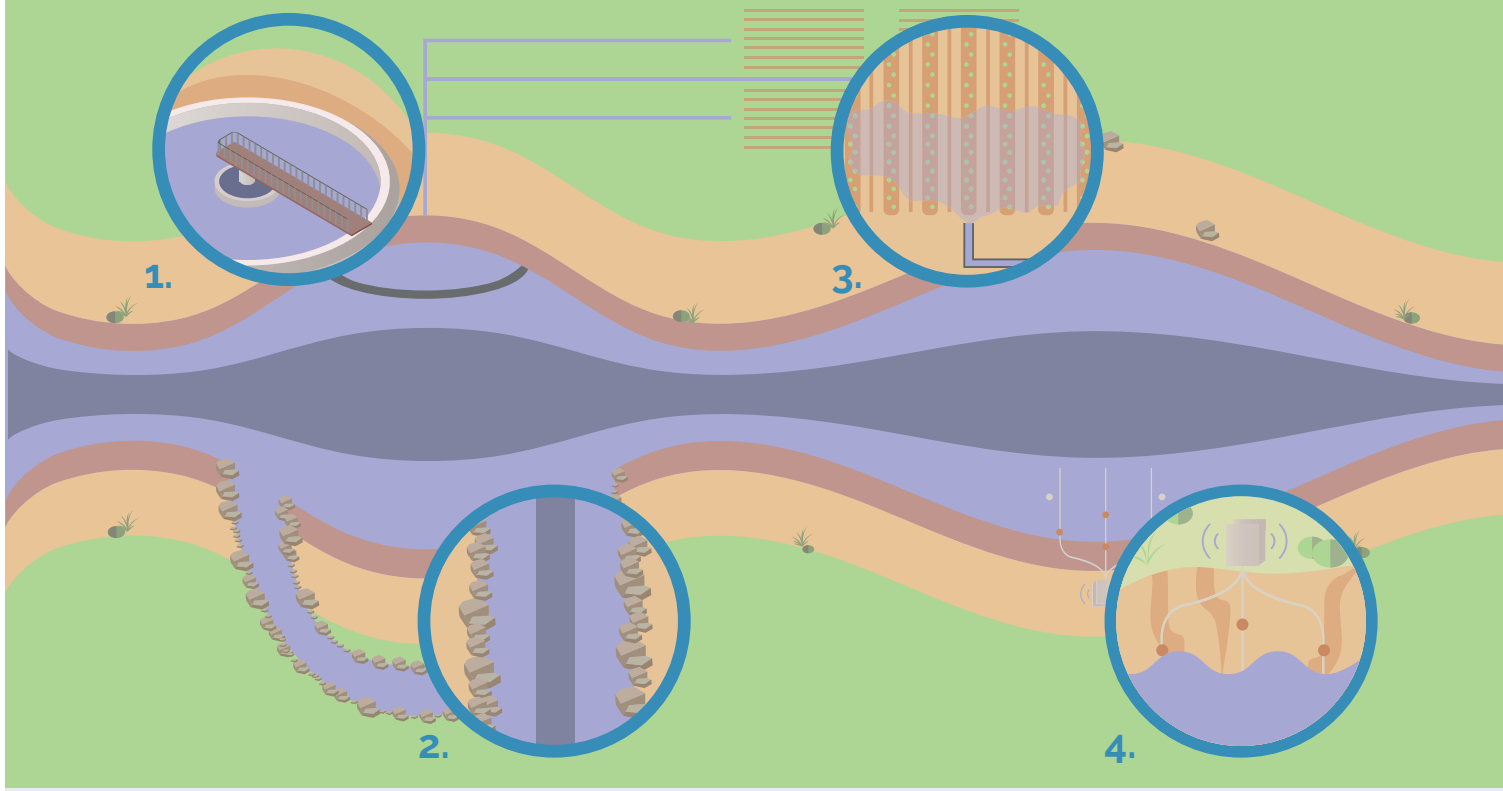
Operandum collaborated with several **local researchers** and experts, as well as members of the **local communities**, to **co-design** the NBS and agree upon the best locations to implement them. During the implementation, the team also worked together with **private companies**.

If you want to find out the updated results, visit www.geoikp.operandum-project.eu

Natural Water Retention Measure

An NBS to adapt areas to floods and droughts

Operandum has built a natural reservoir within the river course to absorb floods and provide irrigation to the area during dry periods.



1. In the region of **Komma**, the team has made **wider riverbeds**, **more stabilized** banks and has **cleaned the vegetation bedload** to build a natural reservoir of water.

2. In **Zilefto**, in order to build a similar water reservoir, Operandum has **re-meandered the river** course, while also restoring the riverbanks and widening its bed.

3. The water retention measures can **absorb floods** and contain **600,000 m3 of water** in Komma and **30,000 m3** in Zilefto, providing **irrigation** to the surrounding crop areas.

4. A **network of sensors** is installed in the water reservoirs to monitor the **river flow**, the **meteorology** and the **groundwater level** and salinity.