

# Operandum at a glance

## 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

 [www.operandum-project.eu](http://www.operandum-project.eu)

 [info@operandum-project.eu](mailto:info@operandum-project.eu)

 [www.geoikp.operandum-project.eu](http://www.geoikp.operandum-project.eu)

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## The project in numbers

10  
Open-Air  
Laboratories

26  
International  
partners

4+  
Years  
(2018-2022)

14M  
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.



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# GERMANY

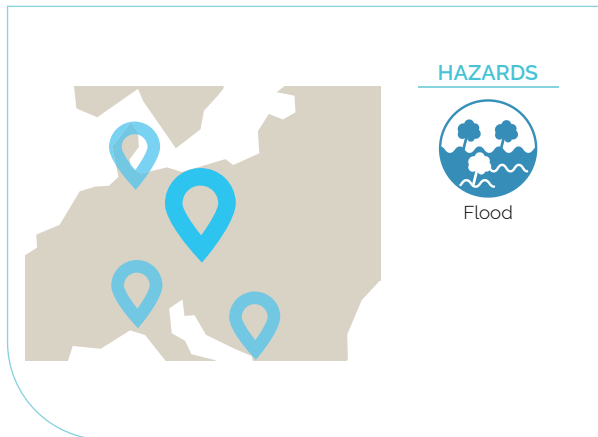
## Lower Saxony Elbe Valley



# Lower Saxony Elbe Valley

## An OAL to test solutions against floods

This Open-Air Laboratory is located in UNESCO's biosphere reserve **Flusslandschaft Elbe**, specifically in the Lower Saxony Elbe Valley. The Natura 2000 protected area alongside the Elbe river holds **uniquely biodiverse floodplain forests** and is home to an **active rural life**. Due to climate change, the regular hydric fluctuations in this area are turning into **extreme floods**, with increasingly frequent **heavy rainfall** events that threaten the local community's lives and means, highly dependant on agriculture and tourism.



## Co-creation of the NBS

### A whole area involved in the process

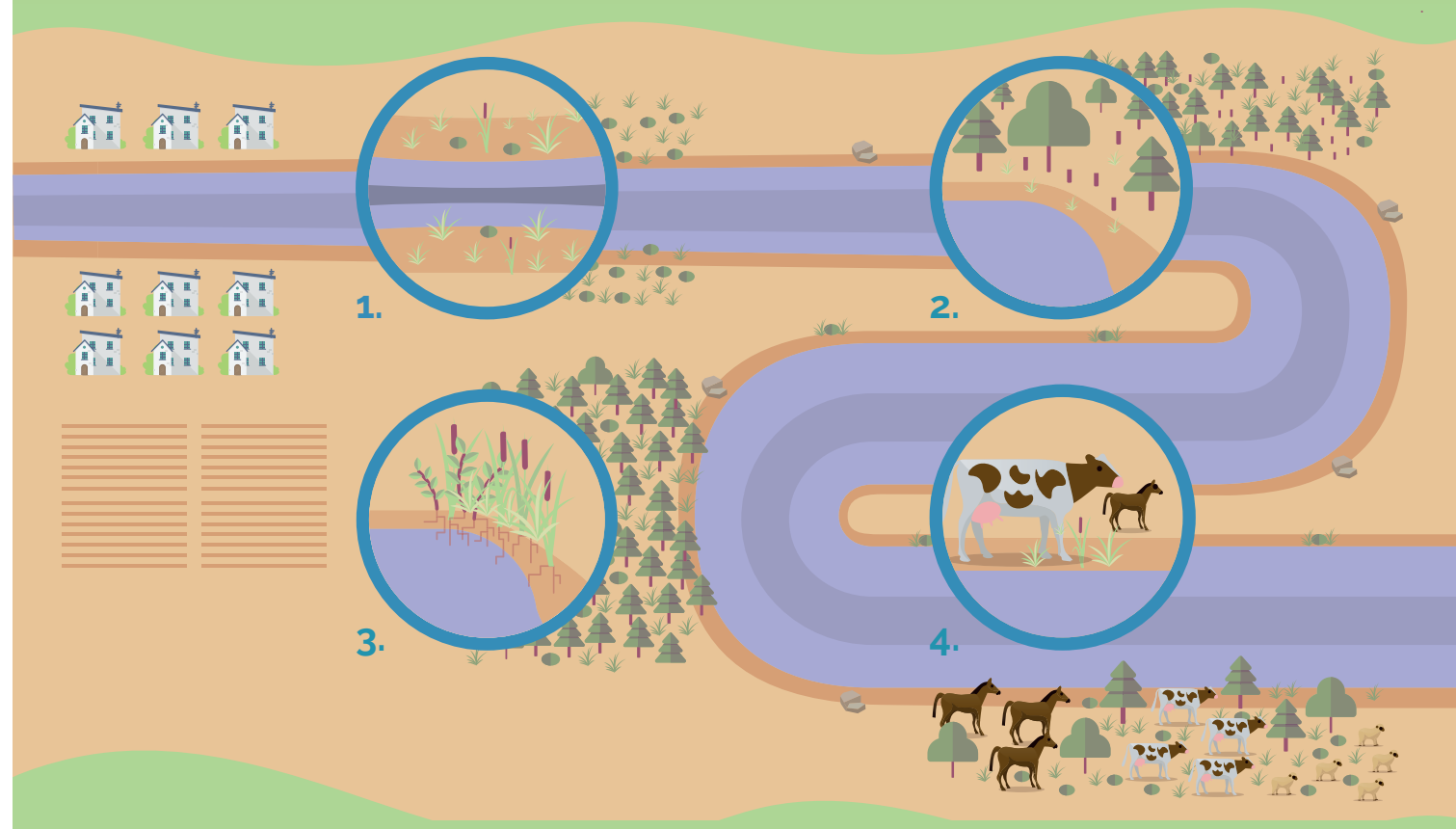
This Operandum OAL required a **multidimensional participatory approach**. The Floodplain Management Cooperative was especially established to deal with **conflicting legal frameworks** that protect both the **biosphere** and **human interests**. Home owners, farmers and local administrative officials collaborated in co-designing, monitoring and adapting the NBS to the continuously changing weather conditions.

If you want to find out the updated results, visit [www.geoikp.operandum-project.eu](http://www.geoikp.operandum-project.eu)

# Vegetation management

## An NBS to adapt areas to floods.

Operandum has used a four-phase method that **removes water-loving vegetation** at specific points of the Elbe to promote **water runoff** and prevent extreme floods.



**1. With hydraulic modelling** Operandum identifies narrow points of the river that **overflow** under heavy rain and should be kept free of high vegetation to allow **drawdown**.

**2. Vegetation modelling** pinpoints areas where stakeholders must not remove **protected species** and where **clear-cutting** is allowed, as well as zones Operandum should **afforest** as a compensatory measure.

**3. Operandum plants new specimens** in safe preservation areas before **removing runoff-inhibiting vegetation** from previously-identified points of the floodplain, thus combining flood protection and compensatory measures.

**4. Grazing animals** such as cows, sheep, goats and horses are introduced in the intervened areas to **prevent vegetation regrowth**.