LIFE+ INADAR - INADAR - Innovative and ecological approach for dam restoration

LIFE14 ENV/DE/000851

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Project description:

Background

The banks of most water bodies containing dams today are covered with wave breakers made of concrete. They commonly don’t host ecologically rich habitats. According to the Water Framework Directive, these water bodies are considered to be “significantly modified water bodies". The water resides longer in them, leading to possible higher water temperatures and eutrophication.

Dam restoration activities in these areas mostly consist of replacing the old concrete, without improving the environment for flora and fauna. When dams have to be elevated the dam becomes broader on the landside, which increases land consumption and has an impact on the floodplain forests. The approval procedures are time-consuming and the cost for restoration and elevation of dams are quite high.

Due to climate change, torrential rains and flooding are expected to occur more frequently. This makes it even more important to maintain dams in a reliable status and restore them in time. In some cases it might even be necessary to elevate the dams to match the consequences of climate change. The European Floods Directive for flood risk management has to be implemented to avoid major hazards for citizens.

Objectives

The INADAR project will demonstrate a new approach for dam restoration by implementing ‘eco-berms’ – a sediment and erosion control measure - in two locations in Germany: Offingen and Oberelchingen. Eco-berms make it possible to carry out restoration while elevating the dam in line with the Floods Directive and the improvement of the ecological potential as demanded by the Water Framework Directive (WFD). This increases the efficiency and cost effectiveness of the measures.

The eco-berms are suitable for all dams, where the capacity of the river is not critical for flood protection, for example in the water storage areas at hydroelectric power stations or at inland waterways. It is estimated that some thousands of kilometres of dams in Europe could be suitable for the INADAR approach.

For both demonstration sites, detailed implementation plans will be developed with stakeholders. At the water storage area in Offingen, eco-berms will be implemented on more than 500 m length. In Oberelchingen, the dam at the water storage area will also be restored and moreover elevated by 70 cm on a sector of more than 500 m.

Evaluations will focus on dam stability and safety, the development of a good ecological potential and the economic efficiency of the approach. Finally, recommendations will be developed for the future organisation of approval procedures for the implementation of eco-berms. Indicators will be defined, under which conditions simplified processes can be applied or a full planning approval procedure is necessary. Additionally indications will be presented, where eco-berms are not a suitable solution. The recommendations will be disseminated to relevant stakeholders at the regional, national and EU level.

Expected results:

- Efficient dam renovation with or without elevation;
- Significant improvement of the ecological potential at the river banks and a better environment for fauna and flora – good ecological potential for the whole water body;
- Avoidance of impacts on floodplain forests (mainly FFH-areas) and reduced compensation measures;
- Reduction of land consumption of dams;
- Reduced used of cement and associated CO2, since eco -berms are built mainly with natural materials;
- Lower costs for restoration and elevation reducing barriers for necessary measures for flood protection and environmental improvement; and
- Development of simplified approval processes for the implementation of eco-berms –indicators developed together with the actors involved that determine where and how this solution can be applied.

Results

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Environmental issues addressed:

Themes

Water - River basin management
Water - Water resources protection

Keywords

restoration measure, water resources management, water quality

Target EU Legislation

- Water
- Directive 2007/60 - Assessment and management of flood risks (23.10.2007)
- Directive 2000/60 - Framework for Community action in the field of water policy (23.10.2000)

Natura 2000 sites

Not applicable

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Beneficiaries:

Coordinator	Bayerische Elektrizitätswerke GmbH
Type of organisation	Large enterprise
Description	Bayerische Elektrizitätswerke GmbH is a subsidiary of Lech Werke AG (LEW) in Augsburg. The LEW Group operates as a regional energy supplier for around 500 000 customers in Bavaria and parts of Baden-Württemberg. The business segments of the BEW include hydropower, energy services and a range of network services.
Partners	UIBK(Universität Innsbruck – Arbeitsbereich Wasserbau), Austria VGB(VGB PowerTech e.V.), Germany

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Administrative data:

Project reference	LIFE14 ENV/DE/000851
Duration	01-AUG-2015 to 31-JUL -2019
Total budget	1,417,105.00 €
EU contribution	655,100.00 €
Project location	Bayern(Deutschland)

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