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ResiRiver - Mainstreaming and Upscaling Nature Based Solutions in North West European Rivers

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Introduction

River managers today are faced with the challenge of adapting to climate change while also having to sustainably secure all important functions in a healthy river system for society. Nature-based Solutions (NbS) have proven themselves effective across a multitude of contexts; providing integrative approaches for river restoration, conservation and sustainable management, ensuring both climate change adaptation and contribute to climate change mitigation and biodiversity recovery for generations to come. NbS are multi-faceted and more importantly, they are effective when it comes to addressing complex societal challenges (e.g. reducing flood risk, increasing natural values and biodiversity, ecosystem services and human well-being), as they provide a novel, integrative and coherent approach. Despite the significant and rapidly growing base of scientific evidence regarding the effectiveness of NbS in riverine systems management, the actual uptake and application of NbS on a larger (EU) scale is still in its early phase. From where we stand today, a major barrier to the wider uptake and application of NbS in riverine systems remains (a) our limited experience in scaling solutions beyond their local contexts (so called 'Upscaling'), and (b) make Nbs as a standard work practice within water management organisations throughout North-West Europe (so called 'Mainstreaming'). Also, our lack of standardised methods for quantitative assessment and monitoring of ecosystem services and benefits related to NbS hinders replication and application at a wider scale.

The INTERREG ResiRiver Project

The Interreg North West Europe project ResiRiver (Creating Resilient River Systems by Mainstreaming and Upscaling Nature-based Solutions, see https://resiriver.nweurope.eu/) is a close partnership between local, regional and national water management authorities, municipalities, Ngo's in stakeholder engagement and universities from France, Germany, Ireland, Belgium and the Netherlands. ResiRiver aims to overcome the challenges related to the limited application of NbS by bridging the gap between practice, science, society and policy. This is done in three work packages (WP's, see also Figure 1).

In WP1, we consider the individual pilots that vary in terms of geographical location in river systems and are subdivided into two broad groups; i) physical pilots and ii) study pilots and concentrate on enablers that lead to successful implementation of NbS, and on barriers that prevent that (Moons et al 2021). The first thing to do is to apply the IUCN Standard for Nature based Solutions (IUCN 2020, Berg 2022) to assess the current state of the pilots. In WP2, we will focus on training methods and training material, where we use the experience from the pilot studies as well as insights from previous projects. The training material is aimed at contributing to a firm base with respect to supporting NbS at the various levels (implementation, but also planning and policy) in the river management organizations that are part of the ResiRiver project. In WP3, we develop strategies, action-plans and guidelines that build upon existing material, to assess the pilot studies and quantify the NbS-co-benefits in those initiatives. This also results in writing policy-briefs at regional, national and European level, to influence policy on those different levels.

The project has had its kick-off last year (2023) and is currently working towards its overarching objective through several "large scale – learning by doing NbS pilots" in NWE rivers.

First Results

At this stage, ResiRiver's primary activities include: the development and execution of IUCN baseline assessment studies for all pilots; the design and improvement of specific NbS-technologies and the advancement of suitable frameworks schemes that serve to evaluate and monitor the effectiveness of proposed measures. Another important project-element, is the creation of hands-on training schemes and materials, based on the knowledge and experience gained from these pilots; which serve to support and inform not only the project partners, but also the river management community as a whole. Finally, in order to facilitate the mainstreaming and

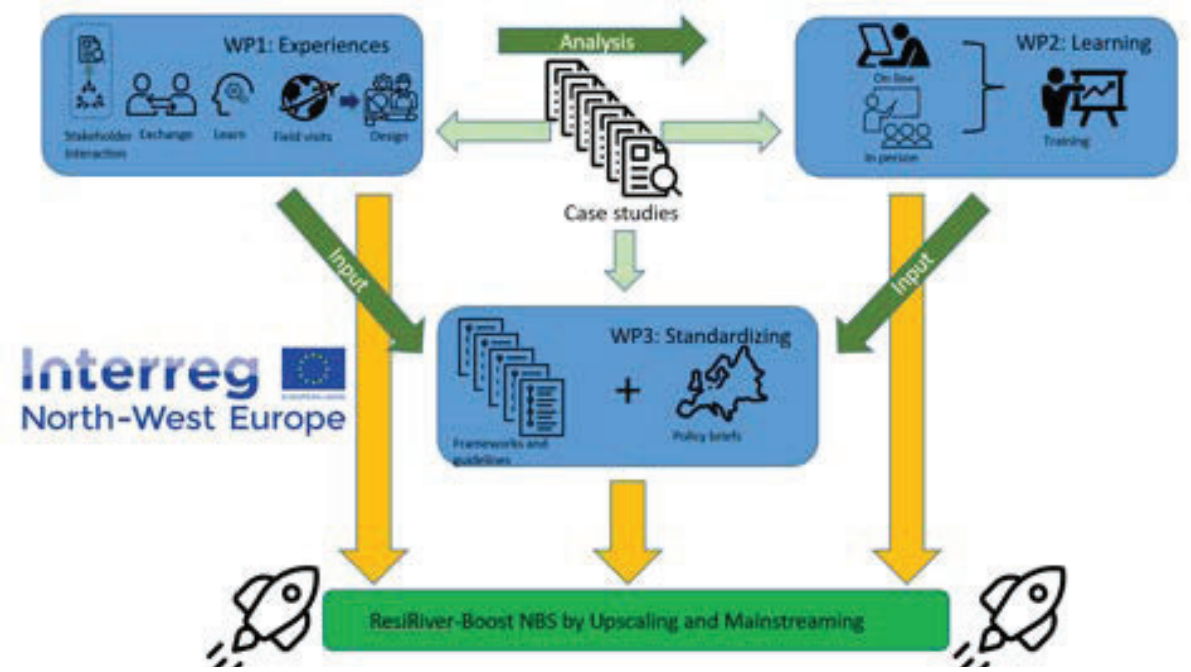

Figure 1: Graphical summary of ResiRiver, with the three WP's and the overall goal: Upscaling and Mainstreaming Nature based Solutions.

upscaling of NbS beyond local contexts in the future, ResiRiver aims to continually work on the improvement of existing frameworks and guidelines for NbS through experimentation and critical analysis. It's our ambition that our insights will be imbedded at relevant policy- levels and fields by actively contributing to the development of local, national and EU-based policy papers and guidelines. This may play a pivotal role in making NbS a standard measure for river restoration.

Next steps

Currently, we are making progress in assessing NbS activities at the 9 pilot locations of ResiRiver, using the IUCN self-assessment (IUCN 2020). This exposes certain shortcomings in the Standard, and we are developing initial ideas for extension of the Standard.

We are also developing preliminary ideas on how to effectively build a knowledge and training schemes to achieve mainstreaming and upscaling of NbS in riverine systems. Here, we make use of the concepts of Technical Readiness Level and Societal Readiness level, applied to the pilots, and use this to determine whether we need a societal pull or a technological push in order to help to make the next step in the application of NbS.

Lastly, we are using the scientific partners and associated partners in the project to set up a Science Team that takes up the scientific challenge to develop new concepts for mainstreaming and upscaling, based on the experiences in the pilots and the discussions in the various WP's. The newly developed concepts will be tested scientifically and published in journals, such that the knowledge is stored and can be used by the NbS-community.

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