

On-line proceedings of National Workshops No 2

Deliverable D6.13



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Abstract (for dissemination, 100 words)	D6.13 includes the reports from 4 RECONNECT national workshops, held respectively in Switzerland, The Netherlands, Italy and Germany. A series of national workshops are to be organized in Demonstrators and EU Collaborators, with the aim to enforce the stakeholder’s engagement at regional/national level and to increase their awareness on NbS potential and applicability. RECONNECT workshops are not to be considered just as a “RECONNECT information corner”, but they want to represent a robust contribution to upscaling and exploitation strategies. The RECONET national workshops aim to drive the target audience towards a change in their mindset and to build a new culture of land planning and risk mitigation.
Keywords	Demonstrator, National Workshop, Stakeholder engagement, Upscaling, Exploitation, Networking

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Executive Summary

The deliverable D6.13 includes the reports from the four RECONNECT national workshops held during the fourth project year, respectively in the Demonstrators of Switzerland (Thur River Basin), of The Netherlands (Ijssel River Basin), Italy (Portofino Park) and Germany (Elbe Estuary). This series of workshops is part of the first round of workshops in Demonstrators A and B that started in 2020 and some of which are reported in D6.7. The deliverable makes reference also to the RECONNECT web site session where the on-line proceedings of each workshop are included and are publicly available.

The deliverable includes also a tentative schedule of next national workshops both in Demonstrators (second round) and Collaborators (single round) that will be reported in D6.14 issued at the project end.

RECONNECT workshops are not to be considered just as a “RECONNECT information corner”, but they want to represent a robust contribution to upscaling and exploitation strategies. The RECONNECT national workshops aim to drive the target audience towards a change in their mindset and to build a new culture of land planning and risk mitigation.

National workshops here reported are organized in Demonstrators A and B, with the aim to enforce the stakeholder’s engagement at regional/national level and to increase their awareness on NbS potential and applicability. This deliverable report about the main outcomes of National Workshops offering an overview of general knowledge and NbS culture around different countries, hence contributing to streamline project activities and, for some instances, overcome barriers.

The present deliverable is, on the one side, addressed to an internal audience (RECONNECT Consortium and RECONNECT Demonstrator and Collaborator clusters) in order to get feedback and share outcomes from the organized National Workshops and to assess the general knowledge around NbS and the replication and upscaling potential. Outcomes from the workshops can be used by the partners also to inspire key messages addressed to specific categories of target audience.

On the other side, reports and on-line proceedings are open to a wide public, addressed, in particular, to regional and national governments, practitioners and scientific community, representing an important repository of reflections and considerations on a different approach to risk mitigation and climate change adaptation.

The deliverable D6.13 is part of a series of 3 deliverables which includes also D6.7 (already submitted) and D6.14 (expected at the project end). As already explained in D6.7, due to the COVID-19 restrictions, the original plan for the National Workshops organization was not respected and a re-schedule of workshops was done. This deviation didn’t affect so much the outcomes of this task and in D6.13 a comprehensive collection of the overall key findings and lessons learned from National Workshops is included, as well as the on-line proceedings available on the RECONNECT web site. In any case, main consideration that can be done at this stage is that National Workshops are fundamental for a deep analysis of local and national perception and knowledge of NbS and for addressing and streamlining future project activities and outputs in order to maximize impacts.

Many recommendations and suggestions derived from these workshops, that have been fully reported in the workshops reports by the organizers. The main concept that emerged from the discussion and roundtables of these workshops is the need

for “connection”, intended in terms of connection with stakeholders to attract in particular private investors, connection between cities and rural areas to favour the exploitation of NbS also for recreation, to connect actors each other, to speed up planning processes and undertake effective and rapid solutions against floods and droughts.

Link to the on-line proceedings of National Workshops:

<http://www.reconnect.eu/national-workshops/>

Contents

Executive Summary	5
Contents	7
1 Introduction	9
1 Scope of this deliverable	9
2 Plan for National Workshops organization (Y5 and Y6)	9
2 Report of the RECONNECT National Workshop in Thur River Basin (Demo B), Switzerland	12
3 Report of the RECONNECT National Workshop in Ijssel River Basin (Demo B), The Netherlands	17
4 Report of the RECONNECT National Workshop in Portofino Park (Demo A), Italy	21
5 Report of the RECONNECT National Workshop in Elbe Estuary (Demo A), Vier- and Marschlande, Germany	32
6 Conclusions and follow up	49
Annex A – Quality evaluation of German Workshop	50
Annex B – Press Release of German Workshop	52

1 Introduction

1 Scope of this deliverable

As Deliverable 6.7, previously issued, the Deliverable 6.13 is part of a series of public deliverables collecting on-line proceedings from RECONNECT National Workshops. Last issue of this series of deliverables in the D6.14 expected at the project end (month 71).

This series of deliverables is generally composed of:

- 1) a first part with an introduction and a plan of national workshops to be organized in the forthcoming period;
- 2) the report of each organized workshop in the previous period;
- 3) an online session, available at www.reconnect.eu/national-workshops, including a rough description of the workshop objectives and the proceedings in a digital format.
- 4) An overall conclusion and follow up
- 5) Annexes

The present deliverable D6.13 has the purpose to collect into a single document and harmonise the outcomes from the four RECONNECT National Workshops respectively held in the Demonstrators B of Switzerland (Thur River Basin) and The Netherlands (Ijssel River Basin) and in Demonstrators A of Italy (Portofino Park) and Germany (Elbe Estuary).

According to the RECONNECT Communication & Dissemination Strategy and Plan (D6.1 and D6.9), a series of national workshops are to be organized along the project in Demonstrators and EU Collaborators, with the aim to enforce the stakeholder's engagement at regional/national level and to increase their awareness on NbS potential and applicability. A specific task under WP6 (Task 6.6), led by GISIG, is dedicated to manage the organization of these workshops. Due to COVID-19 pandemic, a re-scheduling of the workshops was needed as documented in D6.7 and also as reported herebelow, together with the definition of some recovery actions to deal with the accumulated delay and the uncertain evolution of the pandemic. Taking into consideration the increase of COVID-19 cases of the last spring and summer, the Consortium opened to the possibility to organize also hybrid events, on the one hand to keep the original configuration of the National Workshops as face-to-face events, and on the other hand to assure an adequate number of participant and their quality, even with a limited participation in person.

As already showed in D6.7, the organization of the workshops is supported by standard guidelines and instructions to ensure that scope, target audience and follow up are properly achieved for each organized workshop, and also that a common visual identity and brand is applied. In the guidelines for the organization and the reporting of the National RECONNECT Workshops is highlighted the need to generate an outcome from the presentations and the discussions, as contribution to the project in particular on how the stakeholders perceive the NbS and how barriers in their application can be overcome.

Along the 6 project years, 2 national workshops by each demonstrator and 1 national workshop by each EU collaborator are expected to be organized.

2 Plan for National Workshops organization (Y5 and Y6)

According to the Description of Activities (DoA) for Task 6.6, each demonstrator and collaborator cluster is requested to organize **national workshops**, in order to maximize

dissemination and awareness, as well as to foster the adoption of RECONNECT solutions and their up-scaling. Relevant **institutional and technical stakeholders** should be involved in these events. According to the implementation plan of WP6 – Task 6.6 and the recovery plan adopted with D6.7:

- Each **Demonstrator** cluster has to organize, along the project, **two workshops** at national level, and namely a first workshop by August 2022 (M48) and a second workshop by the project end (August 2024).
- Each **EU Collaborator** cluster has to organize **one workshop** by the project end.
- Joint workshops can be organized in countries having more than one Demo or Collaborator cluster (e.g. Denmark and France).

The following table is a tentative schedule of the next National Workshops both in demonstrators and collaborators. In particular, in collaborators the national Workshops will be, most probably, held during the last project year (September 2023 – July 2024) since in the next months they will be committed with the organization of workshops with stakeholders on acceptability and feasibility of NbS, with support by UFZ. In this case, National Workshops can be exploited to clarify, elaborate and further discuss some concepts emerged during the acceptability workshops.

On the other side, basis for the second workshops in the Demonstrators have been already put during the first round of workshops, both in terms of topics to be covered and participants /institutions to be invited. The reports below in fact include some ideas and hints for the organization of the second workshop.

Different is the case of Danish demonstrators that planned to organize a single workshop (instead of two) lasting two days with also a visit to the NbS site.

Table 1: template for scheduling workshops in Demo A and B

Demonstrators	First workshop (by August 2022, end of Y4)	Second workshop (in Y4 and Y5)
DA1 Elbe Estuary (DE)	11th July 2022	Spring 2023
DA2 & DB3 Odense and Aarhus (DK)	One single workshop lasting 2 days (plenary session + field trip) by mid 2023	
DA3 Tordera River (SP)	Done in February 2020	To be defined
DA4 Portofino Park (IT)	15 June 2022, Turin	By end 2023
DB1 Ijssel River (NL)	14 June 2022	To be defined
DB2 Inn River (AT)	Done in September 2020	To be defined
DB4 Thur River (CH)	8 June 2022	Spring 2023
DB5 & DB6 Var River and Les	Done in June 2021 within Simhydro conference in Nice	To be defined

Boucholeurs (FR)	(on line proceedings and report still pending)	
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<i>EU Collaborators</i>	<i>First workshop (Y5 and Y6)</i>
EC1 Kamchia River (BG)	In Y5
EC2 Pilica River (PL)	In Y5
EC3 Bregana River (HR)	In Y5
EC4 & EC5 Drina and Koulbara River (SRB)	In Y5

2 Report of the RECONNECT National Workshop in Thur River Basin (Demo B), Switzerland

First Swiss National Workshop on Nature-Based Solutions at EAWAG

Online-Dübendorf, 08.06.2022

Workshop rationale and outlines

The Eawag team of the RECONNECT project organised the online workshop titled “First Swiss National Workshop on Nature-Based Solutions”. The aims of the workshop were four. First, we disseminated the results of the RECONNECT project relative to the Thur catchment, which is the Swiss Demo Case. Second, we explained why it is of utmost importance that the three pillars of RECONNECT (i.e., water, nature and people) blend together for public acceptance and successful realisation of Nature Based Solutions (NBS). Third, the invited speakers presented other Swiss case studies. Fourth, altogether we discussed current hindrances in the design and realisation of NBS but more importantly the possible solutions to overcome them. The workshop was organised in an online format to allow Swiss stakeholders to participate from any location. The workshop was divided in 5 presentations of about 15-25 minutes each and we allocated 5 minutes for Q&A after each talk. In the end, we discussed the outline for the second national workshop happening in April 2023.

Programme

“First Swiss National Workshop on Nature-Based Solutions”

PROGRAMME

Time	Title of the speech, speaker
09:30-09:40	Welcome!, Dr. Daniele la Cecilia (Eawag)
09:40-10:00	River restoration in Switzerland: a long-term perspective, Prof. Dr. habil. Mario Schirmer (Eawag)
10:00-10:30	Investigating the impacts of Nature Based Solutions. The restoration of the Thur River in Niederneunforn, Dr. Joao Paulo Leitao (Eawag)
10:30-10:50	Drinking water production and river restoration – synergies and conflicts, Dr. Lina Tyroller (Canton Thurgau – Groundwater protection zones and water resources management)

10:50-11:10	Break
11:10-11:30	Blue Green Infrastructures: lessons and experiences of planning nature in cities, Dr. Peter Bach (Eawag)
11:30-11:55	The Ticino landscape restoration plan with a vision for the agricultural landscape, Filippo Zibordi and Dr. Martina Spada (Oikos)
11:55-12:30	Discussion, All

List of participants

N	Surname	Name	Company - Association
1	la Cecilia	Daniele	Eawag – W+T
2	Schirmer	Mario	Eawag – W+T
3	Leitao	Joao Paulo	Eawag – SWW
4	Tyroller	Lina	Canton Turgau
5	Bach	Peter	Eawag – SWW
6	Zibordi	Filippo	Oikos Institute
7	Spada	Martina	Oikos Institute
8	Moeck	Christian	Eawag – W+T
9	Pfenninger	Numa	Eawag – W+T
10	Graf	Tobias	Canton Fribourg
11	Wey	Hannah	inNET Monitoring AG
12	Läubli	Saskia	Eawag – W+T
13	Dietzel	Andreas	Eawag – W+T
14	Haltiner	Linda	Eawag – AA
15	Cook	Lauren	Eawag – SWW
16	Hofmann	Benjamin	Eawag – ESS
17	Chen	Jixuan	Eawag – SWW
18	Antonelli	Marta	Eawag – SURF
19	Thuer	Angela	Wasser-Agenda 21
20	Chow	Reynold	Stellenbosch University
21	Smith	Virginia	Villanova University
22	Gionchetta	Giulia	Eawag – SURF
23	Schelbert	Vasco	Eawag – Sandec
24	Gruenholz	Mirjam	Eawag - ESS
25	Duque	Natalia	Eawag – SWW
26	Buri	Noemi	Eawag - SWW
27	Molnar	Darcy	ETH Zurich, Institute of Environmental Engineering
28	Raths	Johannes	Eawag – Uchem
29	Wyss	Carlos Rodrigo	Wasser-Agenda 21
30	Logar	Ivana	Eawag - ESS
31	Latella	Melissa	Politecnico di Torino
32	Meeks	Jessie	Colorado School of Mines, USA

Agenda

Welcome by the hosts

1) River restoration in Switzerland: a long-term perspective

Prof. Dr. habil. Mario Schirmer

Overview on Swiss rivers and their changes over time as well as on the Swiss federal law on river restoration from 2012 which will help to further revitalize the Swiss river landscapes in the next seven decades.

2) Investigating the impacts of Nature Based Solutions. The restoration of the Thur River in Niederneunforn

Dr. Joao Paulo Leitao

Exploration of the impacts of the river restoration project in Niederneunforn (river Thur, Switzerland) on water resources protection, flood regulation, ecology and also new opportunities related to citizens recreational opportunities.

Technical session

1) Drinking water production and river restoration – synergies and conflicts

Dr. Lina Tyroller

Overview of synergies and conflicts between river restoration and drinking water production in consideration of Swiss groundwater protection law and gives examples of the river restoration project ThurPlus.

2) Blue Green Infrastructures: lessons and experiences of planning nature in cities

Dr. Peter Bach

Exploration of the techniques and challenges of planning nature-based solutions in cities for a range of human and ecosystem services. It provides insights into the core philosophies around Blue Green Infrastructures and how we have applied it in several case studies around Switzerland.

3) Drinking water production and river restoration – synergies and conflicts

Dr. Lina Tyroller

Overview of synergies and conflicts between river restoration and drinking water production in consideration of Swiss groundwater protection law and gives examples of the river restoration project ThurPlus.

4) The Ticino landscape restoration plan with a vision for the agricultural landscape

Zibordi Filippo and Dr. Spada Martina

Overview on the Ticino Landscape Restoration Plan 2021-2031, with a focus on the activities in agro-ecosystems. The speakers illustrated their approach for establishing governance tools and frameworks for the transnational management of the Ticino Landscape. They proposed their plans to improve the eco-hydrological connectivity between terrestrial and aquatic ecosystems and to improve the conservation status of locally extinct or threatened aquatic species. They emphasised the designed actions to increase the resilience of the secondary water network of the Lower Ticino river to cope with unsustainable irrigation practices and the implications of climate change.

Target Audience, event outcomes and follow-ups

The audience of the workshop was mainly composed by scientists of Eawag willing to get insights on NBS for river restoration. We explained the long-term vision of Switzerland to revitalise its water courses and the available funds to realise the planned interventions. We disseminated our multidisciplinary scientific results to the audience; there was great interest in learning the project outcomes and the criteria used to assess the effectiveness of the NBS project. We had two officers of the cantonal authorities who explained the constraints on river restoration projects given the Swiss groundwater protection laws. We also had scientists from abroad interested in knowledge transfer from Swiss institutes and in establishing future collaborations. The participation of the ETH professor active in the field of NBS will lead to the involvement of Master students for designing NBS and assessing their effectiveness within the ongoing projects presented in the workshop. There were also exchanges on the mathematical tools used by different stakeholders to design NBS in urban landscapes.

One of the most important discussions was the striking tangible perception by people of NBS in urban rather than natural landscapes. That is, aesthetics vegetated stormwater retention infrastructures in cities have a strong impact on people than water retention ponds in rural areas. The reason being that ponds do not typically belong to cities and people appreciate the presence of natural elements in cemented areas. In addition, green elements in cities increase the economic value of private properties, which is a strong incentive in taking up these solutions. In contrast, naturalising elements like ponds are somehow expected in the natural landscape of rural areas; therefore, engineered solutions that enhance eco-hydrological benefits could not be always self-evident. Inherently, this hinders the willingness by single citizens to contribute economically for the realisation of NBS in rural areas.

The workshop was the ideal venue for identifying the next steps necessary for improving and streamlining project activities. We found that we need to better communicate the vital role of NBS in rural areas. We believe this activity should be flanked by state-of-the-art marketing strategies, so that the maintenance costs of NBS in rural areas can be self-sustained. For example, we shall seek to establish innovative collaborations with experts in “design thinking” for understanding users experience in rural NBS and in connecting with “investors”, such as local companies willing to sponsor environmental projects driven by sustainability. For the purpose of mitigating hydro-meteorological risks, NBS in the urban context should not be underestimated. Activities coordinated at the city level, rather than on households voluntary base, could bring the necessary contribution to safely laminate rainwater. Taken altogether, we need to inform citizens about the positive benefits that already existing NBS solutions bring in rural and urban areas. This requires a great effort and time. As a result, we have already started organising the second workshop scheduled in April 2023. The workshop will consist of two sessions, one scientific with invited contributions and one for citizens engagement. We aim to host the workshop in person at Eawag where we can showcase NBS downsized to the laboratory-scale. In

the ideal case, NBS will be permanently installed at Eawag for anyone to see (especially students) also at a later moment.

On-line proceedings

<http://www.reconnect.eu/national-workshops/thur-river/>

3 Report of the RECONNECT National Workshop in IJssel River Basin (Demo B), The Netherlands

“Experience with NBS solutions in the Netherlands: now and in the future”

Online - Deventer, 14.06.2022

Workshop rationale and outlines

RECONNECT partner TAUW organized the online workshop titled “Experience with NBS solutions in the Netherlands: now and in the future”. The aim of the workshop was to raise awareness about the potential and applicability of NBS solutions and stimulating the involvement of local stakeholders.

This is done by first presenting the RECONNECT project with the emphasis on the IJssel river and its relevance for Dutch water infrastructure challenges. The possibilities for monitoring and data platform is presented by InterAct. This is followed by a presentation about the first results of the evaluation of the Room for the River project in terms of nature and people indicators. In the last part of the workshop examples of small-scale NBS (such as wadi’s in Deventer) and co-creation with different stakeholders is discussed.

The workshop was divided into 4 presentations of approximately 20 minutes and ended with a broad discussion about co-creation of NBS.

Program

“Experience with NBS solutions in the Netherlands: now and in the future”

Time	Subject	Speaker
15:00-15:20	Welcome by the host and description of EU RECONNECT project and Room for the River as demonstrator	Ramon van Bruggen (TAUW)
15:20-15.40	RECONNECT data platform and monitoring	Marcel Krabbenborg (InterAct)
15:40-16:00	Evaluation of Room for the River – People and Nature indicators	Christa Fung-A-Loi and Tisja Dagers (TAUW)
16:00-16.05	Pause	
16:05-16:35	Climate Scan & wadi’s as a small-scale NBS (in Deventer)	Floris Boogaard (Deltares) and Sanne Hulleman (municipality of Deventer)
16:35-17.15	Interactive discussion about co-creation of NBS in the playing field of different parties and interests	Rick Kuggeleijn (Rijkswaterstaat)

SEMINAR

NATURE-BASED SOLUTIONS

Ervaringen met nature-based solutions in Nederland: nu en in de toekomst

In september 2018 is het HORIZON 2020 project RECONNECT (Regenerating ECOSystems with Nature based solutions for hydro-meteorological risk EduCTion) van start gegaan. Het doel van dit project is het demonstreren (van opschalingspotentie) van nature-based solutions (NBS) ten behoeve van hydro-meteorologische risicovermindering in landelijke en natuurlijke gebieden. TAUW is als partner betrokken bij het RECONNECT consortium; een transdisciplinair partnerschap tussen onderzoekers, bedrijfsleven en lokale overheden over de gehele wereld.

In het kader van het RECONNECT project organiseert TAUW een nationale seminar met als doel stakeholders bewust te maken van de potentie en toepasbaarheid van NBS en de betrokkenheid van lokale stakeholders te stimuleren.



Samen met ClimateCafé GroenBlauw willen wij de ervaringen en toekomst van NBS in Nederland bespreken, om een mooier en klimaatadaptievere Nederland te creëren. Zo komen o.a. de ervaringen met het Ruimte voor de Rivierproject als NBS aan bod. Ook de effecten van NBS op natuur, mens en water worden gepresenteerd: de indicatoren die binnen RECONNECT gebruikt worden voor monitoring en evaluatie.

De ervaringen vanuit RECONNECT kunnen worden toegepast op huidige en toekomstige nature-based solutions. Ervaringen en data worden aangevuld door belangrijke ontwikkelingen en technieken zoals de Climate Scan, een interactieve web-based kaart voor klimaatadaptieve maatregelen, en het RECONNECT dataplatform. Hoe de kleinschalige toepassingen tot uiting komen zien we tijdens een rondleiding langs de wad's bij de IJssel.

Het programma

Datum: 14 juni 2022 | 13.00 - 17.00

12.30 - 13.00	Inloop
13.00 - 13.20	Opening (Ramon van Bruggen, TAUW)
13.20 - 13.45	Ruimte voor de Rivier (Rick Kuggeleijn, RWS)
13.50 - 14.00	Pauze
14.00 - 14.30	Evaluatie van de Ruimte voor de Rivier (Christa Fung-A-Loi en Tisja Daggars, TAUW)
14.30 - 15.00	RECONNECT data platform (Marcel Krabbenborg, InterAct)
15.00 - 15.15	Pauze
15.15 - 15.30	Climate Scan (Floris Boogaard, Deltares)
15.30 - 17.00	Buitenactiviteit: naar de wad's nabij de IJssel in Deventer
17.00 - 18.00	Borrel (centrum Deventer)

Locatie:
TAUW kantoor,
Handelskade 37
Deventer

Opgeven voor de seminar?
Mail naar Laura van der Stelt (laura.vanderstelt@tauw.com) of bel naar 06 15 01 13 41.

List of participants

Nr	Surname	Name	Company - Association
1	Kuggeleijn	Rick	Rijkswaterstaat, Dutch Ministry of Infrastructure and Waterways
2	Appelman	Jaco	University of Utrecht
3	Zuurman	Antal	RoelofsGroep
4	Hulleman	Sanne	Municipality of Deventer
5	Krabbenborg	Marcel	InterAct
6	Huybrechts	Micha	InterAct
7	Boogaard	Floris	Deltares
8	Van Bruggen	Ramon	TAUW
9	De Bloois	Emma	TAUW
10	Van de Coterlet	Guido	TAUW
11	Fung-A-Loi	Christa	TAUW
12	Daggars	Tisja	TAUW
13	Van der Stelt	Laura	TAUW
14	Wilhelm	Michiel	TAUW

Agenda

Welcome by the host and description of EU RECONNECT project and Room for the River as demonstrator (Ramon van Bruggen, TAUW)

Ramon van Bruggen welcomed the attendees and presented the program and aim of the workshop. Furthermore, the RECONNECT project is presented with the emphasis on the IJssel river and its relevance for Dutch water infrastructure challenges, as well as the Netherlands involvement as a demonstrator case.

RECONNECT data platform and monitoring (Marcel Krabbenborg, InterAct)

The role of monitoring and data dissemination is emphasized by Marcel Krabbenborg from Interact. Marcel demonstrated the great value of having a central data platform which allows for fast insight and analysis of Nature Based Solutions projects all over Europe.

Evaluation of Room for the River – People and Nature indicators (Christa Fung-A-Loi and Tisja Daggars, TAUW)

The first insights of the monitoring results (changes before and after the Room for the River projects) is presented. Tisja demonstrated some first signs that the land-use of the project areas changed towards a natural river ecological landscape. After this, Christa shared the insights of a large survey from summer 2021, which zooms in on how the use of the Room for the River Project sites has developed since the implementation of the measures. Insights regarding leisure and touristic activities in these areas is presented.

Climate Scan & wadi's as a small-scale NBS in Deventer (Floris Boogaard, Deltares, and Sanne Hulleman, Municipality of Deventer)

Floris zoomed in on the many different Small scale Nature Based Solutions which can and have already been implemented in cities in the River IJssel catchment, for example wadi's. Wadi is an abbreviation of water discharge, drainage and infiltration (in Dutch **w**ater **a**fvoer, **d**rainage en **i**nfiltratie) and is basically a green ditch in the urban area that stores rainwater and purifies it after which the water infiltrates into the subsoil. Sanne Hulleman from the Municipality of IJssel city Dventer emphasized the importance of applying a co-creation approach for the acceptance of nature based solutions. She demonstrated how the municipality succeeds in involving citizens with new NBS-projects.

Interactive discussion about co-creation of NBS in the playing field of different parties and interests (Rick Kuggelijn, Rijkswaterstaat)

The final part of the National Workshop consisted of an elaborate discussion regarding the importance of Nature Based Solutions for climate-challenges in the near future. Rick Kuggelijn (Rijkswaterstaat, Dutch Ministry of Infrastructure and Waterways) was a special guest for this discussion. Rick shared his insights on how we have to think beyond strictly flood-protection. Especially in the lights of the already occurring climate

extremes (high intensity rain periods, but also extensive draughts) it is vital to apply a holistic approach toward the governance of the riverine system. A healthy ecological system has in turn proven to be much more resilient to both flood and draught episodes. The systems thinking behind Nature Based Solutions provides an important element in battling the future challenges in the Dutch Riverine landscape.

And with the audience representing the Dutch public authorities, university and (environmental) consultants, experiences about (small-scale) NBS implementations were shared in the discussion.

Target Audience, event outcomes and follow-ups

The audience of the workshop was mainly composed by TAUW consultants, but there were attendees representing the Dutch (local) public authorities, university and other (environmental) consultants. This was a good composition of attendees as the aim of the workshop was to raise awareness about the potential and applicability of NBS solutions and to stimulate involvement of local stakeholders.

One of the most important outcome of this workshop is the sharing of experiences in the implementation of small-scale NBS initiatives. The Room for the River project as a large scale NBS is implemented by the government, and while citizens are aware of the potentials of this project, it is not something that they feel that they are actively involved in. There are many (green) neighborhood initiatives (such as the wadi's/bioswale) where citizens are inspired to actively participate and where knowledge exchange take place (whether or not as part of citizen science projects). This stimulates the involvement of local stakeholders in the implementation of NBS. The importance of data and the possibility (or necessity) of proper data-management was also emphasized.

At first the workshop was intended to be a live event of half a day with an outdoor activity at small-scale urban NBS in the city of Deventer. Because the workshop had to be planned before August, attendees were a bit reluctant to spend a half day at a workshop when most people are trying to complete things at work so before the summer vacation. It was then decided to do the workshop online instead. For the next workshop the attendees have the following (practical) remarks:

- Sent the invitation at least 6 months in advance so people can block this in their agenda's
- A live event with the planned outdoor activity is a good way to have more discussions and knowledge sharing. Some attendees were looking forward to having a live meeting
- They would like to stay informed about the monitoring activities of the IJssel case
- Make it clearer what attendees/stakeholders can learn during the workshop

On-line proceedings

<http://www.reconnect.eu/national-workshops/ijssel-river/>

4 Report of the RECONNECT National Workshop in Portofino Park (Demo A), Italy

State of the art and perspective in the application of Nature-based Solutions for the mitigation of the hydro-meteorological risk in Italy

CNR-IRPI, Strada delle Cacce, 73

Turin (Italy), 15th June 2022 - 9h00 to 13h00

Workshop rationale and outlines

The workshop was jointly organized by the Italian RECONNECT cluster, composed by Portofino Park, CNR IRPI and GISIG, with the support of the University of Genoa. In RECONNECT, the Portofino Regional Park represents the pilot site for Italy. NBS interventions for slope stabilization are combined with environmental monitoring and stakeholder involvement activities, to demonstrate the effectiveness of a holistic and participatory approach in mitigating the hydro-meteorological risk.

The First RECONNECT workshop was intended to be an opportunity to meet and exchange experiences and knowledge between nationally important actors, aimed at outlining a state of the art of NbS applications in Italy and discussing future perspectives for development and innovation.

The workshop was organized in Turin at the premises of CNR IRPI, the research institute involved in the Portofino Cluster, in order to exploit its networks of researchers and scientists and assure a high-level profile audience. This first workshop was, in fact, mainly targeted to the scientific community in order to assess the state of the art and the readiness level of science in demonstrating the effectiveness of these solutions in the risk mitigation planning processes.

The workshop was organized in a hybrid mode, both in presence and on line, because of the increase of COVID infections that was registered in June and also to gather participant and speakers from as much regions as possible.

As the other RECONNECT National workshops, also this event ended with a round table discussion in order to fix the conclusions and to make proposal on the way forward at national level.

Noteworthy was the participation by Prof. Silvana Di Sabatino, coordinator of the OPERANDUM project (<https://www.operandum-project.eu/>) as a demonstration of a continuous collaboration and exchange of knowledge between RECONNECT and its sister's projects.

FIRST ITALIAN RECONNECT WORKSHOP

State of the art and perspective in the application of Nature-based Solutions for the mitigation of the hydro-meteorological risk in Italy

PROGRAMME

Time	Title of the speech, speaker
9:00	Registration of participants
9:30	Welcoming Speech, <i>Francesco Faccini (Portofino Park Authority)</i>
9:40	The European Project RECONNECT, <i>Guido Paliaga (CNR IRPI Turin)</i>
10:00	NbS within the OPERANDUM project in Italy, <i>Silvana Di Sabatino (University of Bologna)</i>
10:20	NbS and the interlinked challenges of climate change and biodiversity decline, <i>Valentina Rastelli (ISPRA)</i>
10:40	NbS design and evaluation: a multiscale approach, <i>Andrea Tartaglia (Polytechnic of Milan)</i>
11:00	<i>Coffee break</i>
11:10	Artificial wetlands for wastewater treatment, <i>Michele Freppaz and Roberta Gorra (DISAFA – University of Turin)</i>
11:30	Nature-based Solutions in Turin: long-term planning, engagement of local community, building of a common language, <i>Chiara Lucchini (Torino Urban Lab)</i>
11:50	Shallow landslides and susceptibility map of the Portofino Promontory, <i>Anna Roccati (CNR IRPI Turin)</i>
12:10	The activities of the InTerraced project within the Interreg programme Italy Switzerland, <i>Niccolò Mapelli (Project Manager InTerraced)</i>
13:30	Discussion and conclusions
13:00	<i>End of work</i>

STATO DELL'ARTE E PROSPETTIVE PER L'APPLICAZIONE DI NATURE-BASED SOLUTIONS NELLA MITIGAZIONE DEL RISCHIO METEO-IDROLOGICO IN ITALIA

Il progetto RECONNECT (09/2018 - 08/2024) contribuisce a migliorare il quadro di riferimento europeo delle Nature-Based Solutions (NBS) per la riduzione del rischio meteo-idrologico in aree naturali e rurali. Il progetto si fonda su una rete di siti pilota, EU ed extra EU, che si confrontano allo scopo di innovare l'approccio alla gestione del territorio, perseguendo obiettivi sia di riduzione del rischio meteo-idrologico che di sviluppo locale e regionale e tutela della biodiversità.

In RECONNECT, il Parco Regionale di Portofino (*nella foto*) rappresenta il sito pilota per l'Italia. Interventi NBS per la stabilizzazione dei versanti si coniugano con attività di monitoraggio ambientale e di coinvolgimento degli stakeholders, per dimostrare l'efficacia di un approccio olistico e partecipato nella mitigazione del rischio meteo-idrologico.

Il Primo Workshop RECONNECT vuole essere un'occasione di incontro e di scambio di esperienze e conoscenze tra attori di rilievo nazionale, volto a delineare uno stato dell'arte delle applicazioni NBS in Italia e discutere su prospettive future di sviluppo e innovazione.



La baia di San Fruttuoso nel Parco di Portofino (GE)

Programma

9:00 Registrazione dei partecipanti

9:30 Saluti istituzionali, *Francesco Faccini (Ente Parco di Portofino)*

9:40 Il Progetto europeo RECONNECT, *Guido Paliaga (CNR IRPI Torino)*

10:00 NBS all'interno del progetto OPERANDUM in Italia, *Silvana Di Sabatino (Università di Bologna)*

10:20 Le NBS e le sfide interconnesse del cambiamento climatico e del declino della biodiversità, *Valentina Rastelli (ISPRA)*

10:40 Progetto e valutazione delle NBS: un approccio multiscalare, *Andrea Tartaglia (Politecnico di Milano)*

11:00 Coffee break

11:10 Aree umide artificiali per il trattamento delle acque reflue, *Michele Freppaz e Roberta Gorra (DISAFA- Università di Torino)*

11:30 Le Nature Based Solutions a Torino: programmazione di lungo periodo, attivazione della comunità locale, costruzione di linguaggi comuni, *Chiara Lucchini (Torino Urban Lab)*

11:50 Le frane superficiali e la carta della suscettività del promontorio di Portofino, *Anna Roccati (CNR IRPI Torino)*

12:10 Le attività del Progetto InTerraced nell'ambito del programma Interreg Italia Svizzera, *Niccolò Mapelli (Project manager di InTerraced)*

12:30 Discussione e conclusioni

13:00 Termine dei lavori

Organizzatori



Il progetto RECONNECT (Regenerating ECOSystems with Nature-based solutions for hydro-meteorological risk rEduCTION) è finanziato dal programma dell'Unione Europea per la ricerca e l'innovazione Horizon 2020, contratto No. 776866.



List of participants

N	Surname	Name	Company - Association
Participants in presence			
1	Turconi	Laura	CNR IRPI
2	Faccini	Francesco	Portofino Park/University of Genoa
3	Paliaga	Guido	CNR IRPI
4	Marchese	Alessandra	GISIG
5	Tartaglia	Andrea	Polytechnic of Milan
6	Freppaz	Michele	DISAFA – University of Turin
7	Roccati	Anna	CNR IRPI
8	Lucchini	Chiara	Torino URBAN Lab
9	Costanzo	Ilaria	Val Grande National Park
10	Gullino	Paola	DISAFA – University of Turin
11	Bono	Barbara	CNR IRPI
Participants on-line			
12	Battini	Francesca	Regione Liguria
13	Bazzurro	Nicola	IREN
14	Bertolotto	Rosa Maria	ARPAL
15	Brogno	Luigi	University of Bologna
16	Brunelli	Francesco	-
17	Ceccarelli	Federico	TechCom srl
18	De Stefanis	Pietro Gabriele	Municipality of Genoa
19	Di Sabatino	Silvana	University of Bologna
20	Franciosi	Chiara	CIMA Foundation
21	Gorni	Silvia	GISIG
22	Lazzari	Monica	ARPAL
23	Mantelli	Lucia	Turin Metropolitan City
24	Mappelli	Niccolò	PM InTerraced
25	Nencioni	Andrea	Regione Liguria
26	Neri	Laura	AlgoWatt
27	Rastelli	Valentina	ISPRA
28	Saio	Giorgio	TICASS/EASS
29	Sgro	Barbara	Regione Liguria
30	Siragusa	Tiziana	University of Genoa
31	Valletta	Salvatore	-
32	Vierin	Aline	-
33	Zerega	Beatrice	Liguria Digitale
34	Otonello	Dario	ARPAL

Agenda

Single session – details of the speeches

Welcoming speech

Francesco Faccini, Portofino Park Authority

The speech introduced the workshop and its aims, in particular the need to make a first assessment at national level on the research, the acceptance and the effectiveness of NbS implementation and discuss about future perspectives.

Portofino Park represents in RECONNECT a Demonstrator A, that means a site where NbS interventions are implemented, demonstrated and validated on a scientific base also thanks to the funds by EU. The speech highlighted the important opportunity given to the Park by RECONNECT to test and monitor on the site the performance of NbS interventions. The Park represents in fact an optimal case study and demonstrator, being characterized by a high geo-morphological risk whose impacts must be mitigated through green solutions that allow the protection of the park's biodiversity and do not compromise its cultural and natural heritage. Finally, the speaker gave to all the participants an appointment at the next workshop in Portofino to be held next year and which will address the issues of implementation of NbS more at a political and strategic level.

The European Project RECONNECT

Guido Paliaga (CNR IRPI Turin)

The speech started with an introduction to the RECONNECT project and the consortium. Main aim of RECONNECT is to improve the EU reference framework on NbS for hydro-meteorological risk mitigation, by implementing and demonstrating large-scale NbS in rural and peri-urban areas. The rapid urbanization, the population growth and the increasingly extreme weather events exert constant and increasing pressure on land and water resources already under threat. The speech sent a first key message according to which the integration of green infrastructures, or Nature-based Solutions (NBS), in landscape planning and development makes urban and rural areas more resilient to the impacts of climate change while also providing a wide range of social, environmental and economic benefits. Another important message is the importance, in a NbS implementation, of a transdisciplinary approach putting together skills, expertise and needs from different categories of stakeholders. Then it is recommended a good transition from science to practice, in order to build in the decision makers a robust knowledge and provide consolidated procedures addressing their choices. Finally, a standard approach is needed to extend the application to other context and favour the upscaling. After a general introduction to the project, the speech started to give details on the implementation of the Portofino Demonstrator (San Fruttuoso and Paraggi are the pilot sites) and preliminary results from research activities and analysis. Main risks in the Park are generated by debris flows and shallow landslides, having their principal origin by abandoned ancient terraces. Main objective from the implementation of NbS in the park is the reduction of the erosion in water courses and slopes and to maintain hiking paths.

An intensive monitoring activity is carried out in the Park, thanks to the installation of 3 meteorological stations and two hydrometric stations, and to periodic Lidar surveys (ante and post opera) needed to state a baseline situation and evaluate the performance on NbS in the mid and long term after the implementation. In particular, the Lidar survey carried out in February 2020 was really useful to identify main abandoned terraces, and hence assess volumes of sediments that can be moved by intense rainfalls.

Within a collaboration between CNR IRPI and the University of Santa Cruz in California, a modelling activity was carried out both in San Fruttuoso and Paraggi. In San Fruttuoso a model reproduced the debris flow that in 1915 destroyed the San Fruttuoso Abbey

(and also generated the beach behind, currently existing), and in Paraggi, it was simulated the impact potentially generated in the area by an event with intensity and duration similar to the event that, in October 2011, destroyed the Cinque Terre (whose geomorphological features are similar to Portofino Park).

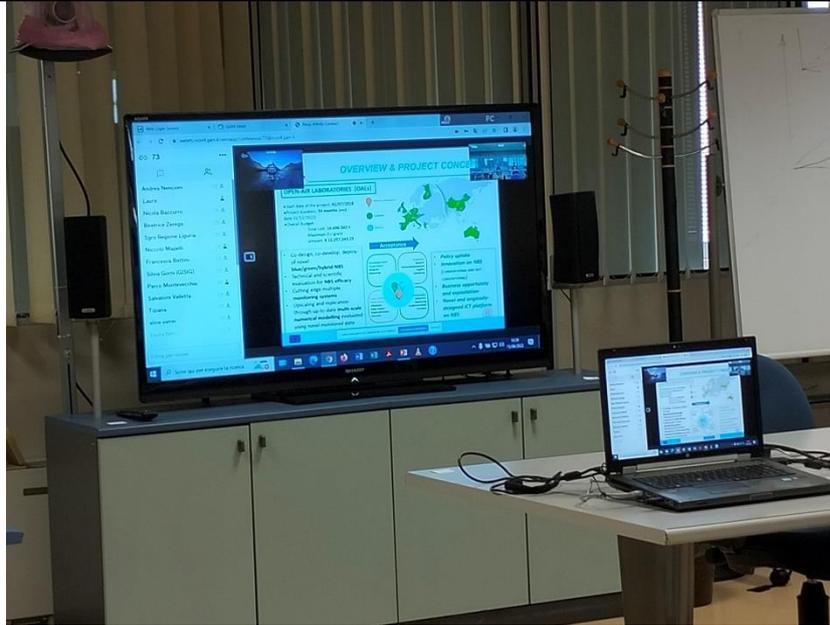
Finally, the presentation pointed out the great replication and upscale potential of NbS implemented in Portofino Park, being the majority of Mediterranean basin territories affected by this kind of risks, as well some mountain areas on the Alps and around the world.



NbS within the OPERANDUM project in Italy

Silvana Di Sabatino (University of Bologna)

OPERANDUM is one of the two RECONNECT sister's projects together with Phusicos. It counts 26 partners, a budget of 14,000,000 euro and its end is expected at the end of 2022. As a multi-hazards project, It relates both with coastal and pluvial floods, implementing and demonstrating NbS effectiveness through a network of Open Air Laboratories. OPERANDUM demonstrates the effectiveness of plants on river banks to mitigate floods, of the halophilic plants to contrast salt wedge and of artificial lagoons to mitigate sea level rise. Operandum makes experiments in a semi-controlled environment. Choices are shared with stakeholders. NbS implemented in Italy (near the Po river mouth) regards the installation of a semi-artificial dune (patented by RINA Consulting), then covered by sand and plants, to contrast coastal erosion. The IPCC report on climate change, in fact, estimates that effects on coastal area will be high, in terms of sea level rise, erosion, marine heatwaves. Monitoring demonstrated the erosion is definitely decreased in that area and also the Posidonia grassland was regenerated. A short video provided an overview of the project. Key message launched by the coordinator is the important to establish and sustain an Italian community of NbS, starting from research projects, lobbying national and regional authorities and providing evidence-base and training on the specific topic.



NbS and the interlinked challenges of climate change and biodiversity decline
Valentina Rastelli (ISPRA)

The speech provided an overview in terms of EU and international policies on ecosystem approach, NbS and biodiversity. NbS have been considered since the beginning as an instrument against climate change, connecting climate, wellness and health. A report by IPCC 2018 states that to contain the increase of temperatures within 2 degrees, role of nature in capturing CO2 and decrease their concentration in atmosphere is fundamental. Starting from the Biological Diversity Convention of 1992, the Open Ended Working Group 4 introduces the concepts of Nature-based Solutions, ecosystem-based approach and ecosystem services in the convention as main means to fight against climate change.

The importance of NbS and ecosystem-based approach to tackle climate change challenges was also highlighted during the G20 (Italian Presidency) in November 2021, with also an overview of investments that should more than double by 2050.

The decline of biodiversity can be stopped in several ways, starting from conservation and restoration, but the biggest results in terms of Climate Change mitigation is given by afforestation and reforestation. It is hence recognized that the two environmental crisis (climate change and loss of biodiversity) can be tackled in an integrated way with a series of mutual co-benefits, but to do that a gap of knowledge must be filled.

The two environmental crises cannot be tackled separately. A systemic and holistic approach is needed, and NbS give a very good example and representation of this approach. Therefore, main barriers to implement NbS at a large scale are represented by the lack of knowledge (still difficult to evaluate their effectiveness in biophysical, social and economic terms) and the low funding allocation (partly connected with the difficulties in assessing their economic value)

NbS design and evaluation: a multiscale approach
Andrea Tartaglia (Polytechnic of Milan)

As known, NbS bring a lot of co-benefits in terms of ecosystems services. They can be used as stand-alone infrastructures or combined with grey. They are more adaptative and resilient to climate change. Moreover, the return from the investment in NbS sometimes can be three or four times, if co-benefits are considered.

The presentation highlighted at first the importance of predictive capacity. By example, in the so called “urban canyon” (meaning a stress, with building on both sides)

sometimes planting rows of trees is wrong, since air quality can get worse due to a lower circulation. In such a case, the use of predictive model is fundamental. As well, to allocate priorities in minimizing impacts by heatwaves, it is important to know at first by whom a specific area is more frequented, in particular by children and elderly people. Social and environmental indicators are hence important to design an NbS. An NbS can give also benefits in terms of energy and management, in particular in urban areas (e.g. water treatment). The challenge is to adopt a holistic approach and methodology, consisting of a deep analysis of the baseline situation, developing assessment of possible benefits, comparing different projects, monitoring the effectiveness of adopted solutions. To conclude, the design and the implementation of NbS is carried out through methods and tools. The future should be the development of a **NIM (Nature-based Information Modelling)** putting together methods, tools and indicators for an environmental design and assessment.



Artificial wetlands for wastewater treatment

Michele Freppaz and Roberta Gorra (DISAFA – University of Turin)

Wetlands are defined as land areas that are wet during part or all of the year because of their location in the landscape (Bastian et al. 1979). They have the property to transform many common pollutants into harmless or unavailable by products or essential nutrients. This transformation process is carried out through: 1) natural filtration, sedimentation and other processes may clean the water of many pollutants; 2) diverse microbes break down complex compounds into simpler substances that are recycled through microbial food chain and removed from the water (degradation, respiration, growth); 3) absorption and assimilation, wetland plants remove nutrients for biomass production.

Constructed wetlands are designed and man-made complex of saturated substrates, emergent and submergent vegetation, animal life and water that simulates natural wetlands for human use and benefits. They offer an economical (largely self-maintaining) and therefore preferred alternative to conventional treatment of a variety of types of contaminated water. The speech showed an experimental sub-surface constructed wetland for cheesemaking wastewater treatment in Aosta Valley in Italy.

Constructed and natural wetlands are ecosystems driven by a high diversity, active and synergistic microbial community. Advances in the design of constructed wetlands are often based on the achieved knowledges on microbial ecology and processes.



Nature-based Solutions in Turin: long-term planning, engagement of local community, building of a common language

Chiara Lucchini (Torino Urban Lab)

Torino Urban Lab is an independent association born to describe all transformation processes of Turin and its urban area. Through a series of network at international level, Urban Lab offers to practitioners the possibility to elaborate on policies, plans and projects dealing with the urban transformation, looking at local and international experiences. As many other cities, Turin has undertaken a path to make the city more resilient to climate change and to valorise green areas also through the enforcement and the implementation of NbS. NbS relates both with the implementation of sustainable drainage systems to mitigate floods and also of green solutions to decrease effects by drought heats waves in urban areas. In 2020 Torino approved two important plans, the “Plan for Climatic Resilience” and the “Strategic Plan for green infrastructures”. Two are the running projects that allow to experiment these two plans CONEXUS and proGReg. Some open issues in applying the two plans above are:

- To put strategies into practice
- Experimentations are not enough, need to apply plans at a large scale
- Need for skills, to be mapped and systematized
- Creation of the right mindset

Shallow landslides and susceptibility map of the Portofino Promontory

Anna Roccati (CNR IRPI Turin)

The research was carried out to create a landslide susceptibility map for the Portofino Park, starting for a landslides inventory and an analysis of historical rainfalls having triggered landslides. The data analysis allowed to identify landslides predisposing main factors (acclivity, lithology, land use, orientation) and secondary factors (terraces, roads, hydrography, man made infrastructures). From the weighted combination of all predisposing factors it was derived a Landslides Susceptibility Map (LSM) for the Portofino Park. The map can provide a quick individuation of areas prone to landslides, supporting preliminary NbS design and co-creation phase.

The activities of the InTerraced project within the Interreg programme Italy Switzerland

Niccolò Mapelli (Project Manager InTerraced)

The project started from an initial idea, supported by the Montevercchia Park Authority, for the conservation of the rural landscape. The objective is to activate a plan for the conservation and valorization of terraced landscape with the common view that a sustainable mitigation of risks can bring also a series of benefits from the point of view of cultural heritage, tourism and socio-economics.

The shared action plan focuses in particular on these aspects:

- Activation of a cooperation among private and public entities of touristic and economic sectors;
- Proposal for an innovative marketing and certification of territories
- Assessment of the ecosystemic potential of terraced landscape, also in terms of biodiversity and ecological connections
- Environmental management and valorization of sustainable agriculture products

Target Audience, event outcomes and follow-ups

The workshop was participated by almost 40 participants, in line with the expectations and the need for the project and with the stakeholder mapping carried out in the first project stage. Being the first Italian workshop, its aim was to define and discuss the current state of the art at national level in the acceptance and implementation of NbS for climate change and risk mitigation and outline possible perspectives and future actions to foster the uptake by the planners and decision makers. Hence, main target audience of this workshop was the scientific community and the community of running demonstrator projects, important to build a robust evidence base and to demonstrate the effectiveness of such solutions.

Therefore, representatives from public entities and private companies participated as well to the workshop, as an obvious sign of the growing interest towards NbS and potential related business (e.g. monitoring systems, DSS).

Outcomes from the First Italian RECONNECT Workshop can be summarized as it follows:

- NbS and ecosystem-based approach to tackle climate change challenges are supported by majority of policies, and investments should double by 2050;
- Currently, in Italy are many research projects and demonstration activities and sites on NbS, that can constitute a robust evidence base of the effectiveness of these solutions to mitigate climate-related risks. Results are demonstrated on a sound scientific base and can constitute all together a good collection of Best Practice, with an high replication potential;
- One of the main obstacle in designing and implementing NbS and ecosystem based approach is the lack of skill at all levels, from technicians to policy makers. We need to invest to create workforce for the future to properly promote and implement NbS.
- Important is also to invest in research and innovation to properly measure effectiveness of NbS solutions. This can also represent a good business opportunities for private companies and start-ups.

Finally, RECONNECT and OPERANDUM, represented in the workshop by its Italian coordinator, are among the first and the main NbS projects in Italy, and they must be committed in promoting a National NbS Community and to become a reference point for stakeholders and operators. The Italian community should:

- Generate an impact in different categories of NbS stakeholders categories
- Network and share Good Practices
- Make research and collect data
- Promote training initiatives
- Involve decision makers

The second and next Italian Workshop will be held in the surroundings of Portofino, to better get in contact with local and regional administrators and will be focused on governance and decision making for NbS.

On-line proceedings

<http://www.reconnect.eu/national-workshops/portofino-natural-park/>

5 Report of the RECONNECT National Workshop in Elbe Estuary (Demo A), Vier- and Marschlande, Germany

RECONNECT Regional Workshop Vier- and Marschlande, Hamburg, July 11th 2022

Clubhouse Allermöhe “Kuller” of the voluntary fire brigade, Mittlerer Landweg 78, Hamburg, July, 11th 2022, 5.30pm to 9.30pm

Workshop rationale and outlines

On July, 11th 2022 the first national workshop in the demonstrator DA1 Elbe Estuary took place. Because of the regional to rather local scale of the demonstrator area (Vier- and Marschlande) and the invited local participants (see section *Target Audience, Event Outcomes and Follow-ups*), the workshop will be referred to as regional workshop hereafter.

The ministry of the environment, climate, energy and agriculture (BUKEA) of the FHH was in charge of organisation and conduction of the regional workshop. The project member of the Senate Chancellery (SK), Hamburg University of Technology (TUHH) and the State Agency Roads, Bridges and Waters (LSBG) supported the organisation and the conduct of that workshop, especially by providing expert presentations on the different topics covered in the in the demonstrator area (see section *Agenda*).

The first regional workshop, organised as invitation event, aimed at the information of the participants about the project, the activities of the project partners in the demonstrator area and the current project results. Moreover, an open unbiased discussion with the participants on:

- The topic of NBS implementation in the scope of flood protection and drought prevention,
- The identification of barriers and enablers with regard to enhance resilience against hydro-meteorological extreme events and
- The identification of development potentials of the cultural and natural landscape of the Vier- and Marschlande especially with respect to the people and nature was conducted serving as a kick-off for further workshops of this kind.

The table in the following section *Programme* provides an overview of the workshop agenda. A more detailed description of the workshops content can be found in section *Agenda*.

After a brief welcome, the basic concepts and characteristics of NBS using different global and local examples were introduced. By this, the participants were made familiar with the basic topic and a baseline was defined for the event. In the following sessions consisting of four expert presentations aiming at the introduction of the EU project RECONNECT, the presentation of the activities of the project partners LSBG, TUHH and BUKEA and the related results were given. The workshop was divided in two parts. Between the first and second part of the regional workshop a short break provided the possibility of a refreshment and space for informal discussions between all participants. The second part of the evening was organised as an interactive discussion session on the basis of Metaplan methods, in which different questions raised by the project team to further develop the co-creation

process in the demonstrator area. For a more detailed description of the sessions and presentations refer to the section *Agenda*.

In this regard, the regional workshop represents a further step within the co-creation process on NBS in the Vier- and Marschlande as we approached and invited the local private public, pressure groups and citizen’s initiatives. For a more detailed description of the target audience see section *Target Audience, Event Outcomes and Follow-ups*. In the beginning of the project, the focus was on stakeholder being professionals in the field of flood protection, flood management and water management/water supply. The reason for the late roll-out to the private public, boards and associations at such an advanced stage of the project is due to a failed roll-out of an earlier project on a similar topic in the same area, causing huge concerns and irritations of the public. Not to speak of the distrust against public officials, authorities and the ministry and an enlarged reservation against their activities. COVID 19 constraints hampered the development of such workshops at an earlier point in time as the project team felt it of uttermost importance to turn away from video conferences instead of “physical” meetings. The event was the first information event of BUKEA with public presence after the long lockdown period. Regarding RECONNECT, the head of the ministry of the environment required the project partners not to approach the broader public before specific and proved project results were available.

The following sections provide an overview of the programme, summaries of the given presentations and sessions as well as a description of the target audience, the event outcomes and follow-ups.

Programme

RECONNECT Regional Workshop

PROGRAMME

Time	Title of the speech, speaker
17:30	Welcome and Introduction to the Workshop , Christian Ebel (BUKEA)
17:45	Nature-bases Solutions – An Introduction , Christian Ebel (BUKEA)
18:10	The EU-Project RECONNECT and the FHH , Angelika Gruhn, (BUKEA)
18:25	RECONNECT Activities in the FHH (per institution) LSBG: Dieter Ackermann TUHH: Prof. Dr.-Ing. Peter Fröhle BUKEA: Angelika Gruhn
19:00	Short Break / Snack
19:15	“Campfire talk” / Discussion , Moderation: Christian Ebel (BUKEA)
20:15	Closing , Christian Ebel (BUKEA)
20:30	End

List of participants

N	Surname	Name	Company - Association
1	Ackermann	Dieter	Project Member, LSBG
2	Antonczyk	Volker	Resident of the Vier- and Marschlande
3	Albright	B.	Resident of the Vier- and Marschlande
4	Charles	Wolfgang	Borough of Bergedorf
5	Diekmann	Lena	Press, Bergedorfer Zeitung
6	Ebel	Christian	Project Member, BUKEA, Department Water, Sewage and Geology
7	Festing	Herbert	Resident of the Vier- and Marschlande
8	Ehlebracht	Claudia	Shipyard Allermöhe
9	Froh	Jörg	Local Politician
10	Gabers	Erika	Local Politician
11	Gruhn	Angelika	Project Member, BUKEA, Department Water, Sewage and Geology
12	Hastedt	Kay	Voluntary Fire Brigade Allermöhe
13	Hesser	Fred	BUKEA, Department Water, Sewage and Geology
14	Heymann	Walter	Resident of the Vier- and Marschlande
15	Holzapfel	Regine	Local Beekeeper
16	Iblher	Stephan	Professional and Commercial Beekeeper e.V., Regional Manager
17	Jacobsen	Werner	Dike Association Vier- and Marschlande
18	Kiesel	Jens	Bergedorfer Fishing Club, Vice-Chair
19	König	Helge	Water Supplier, Hamburg Wasser
20	Langeloh	Jan-Hendrik	Dairy Farm Reitbrook
21	Larsen	Knut-Harald	Borough of Bergedorf
22	Lopez Zarate	Luis Manuel	Project Member, LSBG
23	Lühr	Liesing Elisabeth	Local Politician
24	Magoltz	Martin	Project Member, BUKEA, Department Water, Sewage and Geology
25	Meyns	Stephan	Local Politician
26	Möller	Helmut	Voluntary Fire Brigade Allermöhe
27	Paulssen	Karsten	Pressure Group "Unser Dorf retten e.V.", Chair
28	Pelch	Stephanie	Regional Committee Bergedorf, Chair
29	Posewang	Niels-Peter	Farmer, Posewang Gemüse u. Salate GbR, Voluntary Fire Brigade Allermöhe
30	Riecken	Torsten	Water Board Vier- and Marschlande,
31	Rhode	Thomas	Voluntary Fire Brigade Allermöhe
32	Sannmann	Kristof	Farmer, Axel's Gemüsegarten
33	Schäfermeyer-Gomm	Stefanie	BUKEA, Department Water, Sewage and Geology
34	Schmieder-Festing	Ursula	Resident of the Vier- und Marschlande
35	Schiraishi	Julie-Ann	Project Member, SK
36	Tadesse	Yohannis	Project Member, TUHH
37	Thiesen	Klaus	Water and Land Communities Hamburg
38	Timmann-Bartsch	Margret	Resident of the Vier- and Marschlande
39	Bartsch	Wolfgang	Resident of the Vier- and Marschlande
40	Storm	Peter	Water Board Nettelburg
41	Wulff	Harald	Haral Wulff Horticulture
42	Martens	Harald	Member of the Regional Committee Bergedorf
43	Hoff (?)	Erwin	
44	Jarchow	Heinz	Local Politician
45	Gerbich	Christian	NABU Hamburg
46	Fröhle	Peter	Project Member, TUHH
47	S.	Andreas	--- --- ---

Agenda

Welcome and Introduction to the regional workshop

Christian Ebel, Angelika Gruhn

The hosts warmly welcomed the participants to the first regional workshop in the RECONNECT project in the event location clubhouse “Kuller” in the Vier- and Marschlande. Christian Ebel explained the overall aim and purpose of the workshop briefly and what a pleasure it is to be able to hold an event in presence again after two years of the pandemic. Furthermore, he explained the reason for holding that event at such an advanced stage in the project (see section *Workshop Rational and Outlines*).

Angelika Gruhn introduced the programme of the evening to the participant, explaining the purpose of the different parts of the event being a rather technical session, aiming at the general introduction of the project, the project objectives and results (see summary The EU-Project RECONNECT and the FHH, RECONNECT Activities in the FHH), and an interactive discussion organised as a “campfire talk” using Metaplan methods.

Nature-based Solutions – An introduction

Christian Ebel

This introductory presentation served to level out the existing knowledge of the participants and familiarize the audience with the conceptual approach of Nature-based Solutions (NBS). This was done to ensure, that all participants (non-professionals and professionals) have a common understanding of NBS and to familiarize them with the topics which were being presented during the workshop.

The speaker defined the term nature-based solutions using the definition of the IUCN (International Union on Conservation of Nature) and pointed out the fundamental characteristics of NBS being an integrative approach that combines biodiversity conservation, climate change mitigation and adaptation, and the achievement of the sustainable development goals.

After this general introduction of the concept of NBS the speaker continued to refer to NBS in the field of hydraulic engineering. First, traditional hydraulic engineering measures for the reduction of hydro-meteorological risks were briefly introduced followed by global and local examples of NBS providing the same purposes and coupled environment friendly elements (e.g. restoration of more natural water courses, promoting continuity of water courses, creation of floodplains, enlargement of retention areas, dike relocation etc.). By introducing and explaining the concept of hybrid nature-based solutions as a combination of nature based and hydraulic engineering measures, the speaker prepared the floor for the further presentations of the programme.

The EU-Project RECONNECT and the Free and Hanseatic City of Hamburg (FHH)

Angelika Gruhn

In the scope of this presentation, the EU project RECONNECT was introduced to the participants. First, the project was introduced in general, pointing out the main objectives, the network of demonstrator and collaborator cases in RECONNECT. The

focus of this talk was on the Vier- and Marschlande in the FHH as the demonstrator area of the demonstrator DA1 in RECONNECT. The speaker outlined the issues related to hydro-meteorological extreme events that are prevailing in the demonstrator area and deduced the objectives the project team are working on. The project objectives encompass the stabilisation to the water levels in the Dove- / Gose-Elbe and Bille during flood and drought periods by means of i) an optimised use of the retention areas and volume of the network of water courses in the area through an optimized operation of the dike lock Tatenberg on the basis of a preventive flood management concept. Once again, it was emphasised that the project team follows the concept of hybrid nature-based solution by combining hydraulic engineering measures and nature-based measures.

Towards the end of the presentation the speaker highlighted the project benefits with regard to i) an integrated water management and ii) the protection and management of the water bodies and groundwater.

By indicating the basic work approach followed in the project the speaker led over to the following presentations on the specific project activities of the project partners LSBG, TUHH and BUKEA.

RECONNECT Activities in the FHH

LSBG – Dieter Ackermann

Dieter Ackermann presented the project activities and the related results carried out by the LSBG (State Agency Roads, Bridges and Waters) within the RECONNECT project. His presentation was entitled “Optimized operation of the dike lock Tatenberg for flood protection”.

First the speaker outlined the characteristics of floods in the project area Vier- and Marschlande. It was explained, that a significant risk of flooding of low lying areas occurs in cases of storm surges and high precipitation events leading to high water levels in front and behind the flood protection dikes. In cases of higher water levels in the Tidal Elbe (= in front of the flood protection dikes) the dike lock Tatenberg will be closed. The dike lock Tatenberg provides the regular drainage of the Vier- and Marschlande. If extreme rainfall events occur in the catchment area of the Bille river (which flows into the Dove-Elbe river) leading to high water levels in the Dove-/Gose-Elbe and connected ditches the risk of flooding increases significantly. Furthermore, the speaker showed a schematic diagram of the river system respectively drainage system (including the water management facilities) to illustrate the complexity of the hydrological and hydraulic situation in the focus area, that is meant to store flood water during extreme events and lastly drain it into the Tidal Elbe.

In order to reduce the flood risk in that area, a concept of a preventive flood management was implemented. Based on forecast and real time meteorological and hydrological data the development of the discharge and water levels within the river system can be assessed. Resulting from the forecast the operation of the infrastructure (Tatenberg dike lock) can be optimized as required in order to use the natural retention volume of the river system.

The project activities of the LSBG cover i) the technical implementation of an operational flood forecast, ii) the optimisation of the flood management and the determination of operations rules of the water management facilities and iii) the implementation of numerical simulations to prove the effectiveness of the developed operation rules.

As part of these activities the speaker explained that different flood scenarios representing different loading cases have been simulated using the mentioned hydro-

numerical model in order to optimize the operation rules of the dike lock Tatenberg to additional storage volume in the river system (= hybrid nature based solution) without jeopardising the safety and functionality of the water management facilities.

From the numerical models the following operation rules were determined which are to be applied in case a flood event is forecasted:

- Lowering of the water level in the Dove-Elbe by 20 cm prior to the event
- Drainage through 3 dike lock openings at water levels of NHN +110 cm in the Dove-Elbe
- Extension of the drainage duration by allowing a higher permitted water level difference of 1,9 m (current state 1,6 m) between the Tidal Elbe and Dove-Elbe

The higher allowed water level between the Tidal Elbe and Dove-Elbe does not lead to a significant increase of the flow velocities in the dike lock Tatenberg. Furthermore, by increasing the allowed water level difference in the dike lock the drainage duration could be extended by 20% of the current drainage duration.

The application of the operation rule leads to a lowering of the water level by 15 cm during the event and an increase of the drainage capacity by approx. 350 Mio m³ per Tide compared to the current state of dike lock operation.

In the end of his presentation, the speaker addressed a flood event that occurred in February 2022. This extreme event was characterized by a series of severe storm surges in the Tidal Elbe leading to the closure of the dike lock Tatenberg, impeding the drainage of the Vier- and Marschlande, in combination with a heavy rainfall event over the catchment areas of the Dove- and Gose-Elbe as well as the Bille, leading to an increased discharge in the river system of the demonstrator area. This combination of unfavourable conditions led to a serious flood event in the Vier- and Marschlande during which the officials successfully applied the newly developed operating rules for the dike lock Tatenberg, whereby the flood situation could be successfully eased. Pictures of the impact of that flood event completed the impression.

A summary concluded the presentation of the representative of the LSBG.

TUHH – Prof. Dr.-Ing. Peter Fröhle

Prof. Dr.-Ing. Peter Fröhle presented the project activities carried out by the Hamburg University of Technology which focussed on a holistic analysis of the drought problem in the area of the Vier- and Marschlande and in particular of the drinking water extraction area Curslack/Altengamme and the proposal of recommendation of actions based on nature-based solutions to conquer the drought problem in that area. The activities and investigations are on a conceptual level and the results are meant to be regarded as preliminary as a basis for further feasibility studies.

The speaker started his talk by outlining his presentation.

First, basic facts about the drinking water extraction area were presented followed by a brief discussion of the development of the climatic conditions, especially the development of the precipitation with recurring very dry years leading to severe drought situations and jeopardising the drinking water supply. Furthermore, the Vier- and Marschlande as a low lying marsh land are characterized by constant draining.

Next, the significance of the explained climatic boundary conditions for the drinking water extraction area was discussed and research questions were derived. Due to the extraction of drinking water and the limited water supply by meteorological events,

temporary water deficits occur over the course of a year, which must be balanced by supply of water from the rivers Bille and/or Elbe. The derived research questions are:

- Can smart water management based on nature-based approaches succeed in reducing or avoiding the water deficits?
- What are recommendations of action based on NBS?

To answer the research questions TUHH developed a conceptual water management model which was briefly introduced to the participants. The speaker explained that the conceptual water management model is a water balance of the model domain, indicated the relevant physical processes (precipitation, evapotranspiration, discharge (inflowing and outflowing), percolation, capillary rise) and pointed out the mathematical numerical sub-models included in the water balance model to describe the physical processes mentioned.

Subsequently, the speaker went a bit into detail about the water balance of the water extraction area Curslack/Altengamme and illustrated locations and directions of significant water outflow (including ground water production and evapotranspiration) from and water inflow (including ground water inflow and precipitation) into the area.

This concluded the introduction of this sub-topic drought problem in the Vier- and Marschlande / water extraction area Curslack/Altengamme and the conceptual water management model.

The speaker continued by presenting selected results from the investigations of the TUHH. To begin with, results from an analysis of the current state of water balance were presented. The speaker contrasted the volume of water of i) natural net water inflow, ii) taken from the rivers Bille and Elbe to compensate for the water deficit and iii) the ground water production for the period 2002 to 2020 and indicated periods of water surplus and water deficits. Additionally, water deficits (ground water production minus natural net water inflow) cannot be fully compensated for by the intake of river water. A similar analysis was carried out for future climate scenarios based on regional climate projections (Euro-CORDEX) and an assumed ground water production (the average daily ground water production of 2019) for the period of 2020 to 2050. The results suggest an aggravation of the drought problem since water deficits will occur more frequent in the future.

In the following, two different nature-based solutions were introduced, which were investigated on a conceptual level as a basis for further feasibility studies. One scenario envisaged the construction of retention basins in the demonstrator area to store precipitation and as the case may be to store water from Bille river after heavy rainfall or flood events. The stored water may be used in times of water deficits. The speaker illustrated the impact of the retention basins on the current and future climate situation. He concluded that the retention basins could contribute to a reduction of the drought problem by using the stored water in period of water shortages.

A second scenario involved the infiltration of water from the Dove-Elbe instead of the Bille or Elbe river in combination with an adjusted operating water level in the Dove-Elbe. The operating water level must be increased to prevent a decline of the Dove-Elbe water level under the current operating water level. It was concluded that the infiltration of Dove-Elbe water could reduce the drought problem for both the current and future climate scenarios.

The speaker ended his presentation by summarising his talk.

BUKEA – Angelika Gruhn

The last presentation in this session covered the activities of the ministry of the environment (BUKEA). The presentation was given by Angelika Gruhn.

In the beginning, the speaker gave a brief overview of the activities of the BUKEA. She stated that, the BUKEA is in charge of the professional coordination of the activities in the project in cooperation with the Senate Chancellery (administrational coordination of the project) and the ministerial monitoring of the project in close cooperation with the borough of Bergedorf. She listed briefly the activities outsourced to the LSBG. In the following she focussed on the monitoring and evaluation activities the ministry is carrying out with respect to the people indicator.

The speaker introduced the social science survey on the people indicator developed by the Danish project partner Danish Technical University (DTU) and carried out in every demonstrator case. She explained the objectives the social science survey pursues. The objectives are:

- Investigation of the openness of the local residents to NBS
- Evaluation of the implementation, the benefits and the potential risk reduction by local residents
- Identification of the barriers to the implementation of NBS measures
- Identification of the contribution to the community's resilience to hydro-meteorological extreme events

Furthermore, she explained the background and the reasons for setting up a social science survey. She referred to her presentation on the EU project, where she explained the overall objectives of the project. One of the objectives is to establish NBS as a serious alternative to hard grey flood protection infrastructure. To achieve this, it is necessary to explore and assess the advantages and disadvantages of NBS as holistically as possible. This refers not only to specific tangible asset values, but also to intangible benefits (e.g. human well-being or enhancement of nature and environment). Ideally, the assessment takes into account economic and social aspects, the characteristics of the NBS, its impacts on nature and environment and their complex interlinkages. In order to be able to assess the overall value of NBS, the intangible aspects must be made tangible in monetary terms. The social science survey in the form of a questionnaire attempts to carry out this assessment.

She ended her talk by giving an overview of the topics covered by the questionnaire, a time frame for the distribution of the survey via direct mail and the link to the online version of that survey.

Campfire Talk / Discussion

Christian Ebel

After a short break with snacks and beverages, the interactive campfire discussion started. Christian Ebel chaired the discussion. At first, he explained the initial situation of the evening, the participants and the project team encountered. He showed an illustration that displays schematically several different stakeholders having their own demands and interests. Using this illustration, the speaker explained the aim and objectives of the campfire talk:

- Unbiased open exchange with the participants

- Find the opinion of the participants on the implementation of NBS
- Identification of boundary conditions and priorities for the development of the Vier- and Marschlande to promote resilience to extreme hydro-meteorological events
- Identification of development potentials in the Vier- and Marschlande as a natural and cultural landscape

and introduced the general course of the discussion. The discussion should be developed by means of guiding questions:

- How do you perceive the region?
- What is of particular concern to me for the Vier- and Marschlande as a cultural and natural landscape and settlement area?
- What would **inhibit** the development of the Vier- and Marschlande or **promote** it?
- Are the flood protection and the drinking water supply set up in a future oriented way? Please give a brief explanation.

(The font colour is used to indicate the affiliation of the given answers to the different categories (below), see section *Target Audience, Outcomes and Follow-ups*).

The participants were given 10 minutes to answer the questions. The given answers were assigned to the following categories (see section *Target Audience, Outcomes and Follow-Ups*):

- Social,
- Water and environment,
- Recreation and leisure,
- Administration and politics
- Economy and production industry

Since the short amount of time during this first regional workshop, the speaker pointed out that this initial event should serve as a collection of impressions, opinions and ideas, that will to be interpreted, analysed and evaluated in the aftermath of that workshop. The results of this analysis and evaluation will be used to derive further project activities and form the input for further participatory actions and events in the beginning of 2023 and until the end of the project.

Closing

Christian Ebel

At the end of the event, the speaker summarised what had been heard and what had happened during the evening and gave a preview of what is to come in the near future:

- Dispatch of the presentations (pdf file), including the link to the accompanying social science study.

- Time horizon for the distribution of the questionnaires (paper format of the accompanying social science study)
- Evaluation of the discussion round
- Organisation of follow-ups

The speaker thanked those present for the lively discussion, the open exchange and the pleasant evening.

Target Audience, event outcomes and follow-ups

Target Audience

As already mentioned in section *Workshop Rationale and Outlines* local private public of the Vier- and Marschlande, pressure groups/citizen's initiatives, representatives of local water boards and dike associations, local manufacturer as well as professionals from the field of flood protection, flood management and water management have been approached and invited to the regional workshop.

The invited participant groups were identified based on the stakeholder mapping exercise carried out in the beginning of the RECONNECT project and revisited during the preparation phase of the workshop to review and extend the stakeholder landscape. As can be seen from Figure 1, which gives an overview of the relevant stakeholder in the demonstrator area, representatives of all relevant stakeholder groups have received a workshop invitation.

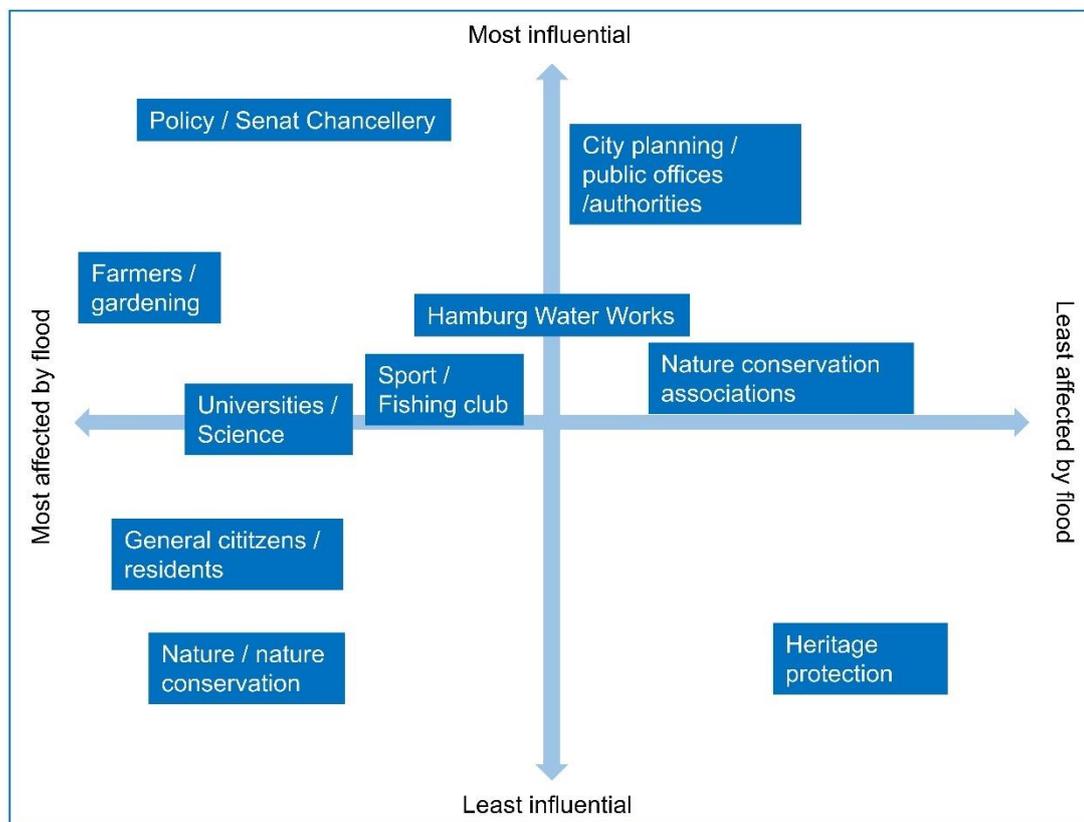


Figure 1: Stakeholder landscape with key stakeholder in the demonstrator area (source: RECONNECT HH Team)

The primary target groups were the local residents of the Vier- and Marschlande, pressure groups/citizen's initiatives, representatives of local water boards and dike associations and local manufacturer, since professionals from the above mentioned field of work have already been involved earlier in the project. The reason for the involvement of the primary target group at such an advanced stage in the project lies in a failed earlier project on a similar topic in the same area, that caused a defensively attitude towards the officials and the ministry, leading to the requirement of the head of the ministry to do the roll-out at a well-advanced stage of RECONNECT (see section *Workshop Rationale and Outlines*). It is a key objective of the RECONNECT Team to enhance acceptance for the application of NBS in the demonstrator area and create ownership of the inhabitants and stakeholders by transparently informing the public. The teams approach consists of taking the stakeholders and public along the path of the implementation of the hybrid solution in the demonstrator region in Vier und Marschlande.

The stakeholder landscape of the Vier- and Marschlande also include local politics, of course. Anyway, the local politicians were intentionally excluded from direct invitation, because the focus of the participatory workshop should be on the primary target group and no stage for political profiling. The aim was to get to know the local residents, explore their willingness to participate in the co-creation process and fathom their attitude towards NBS for hydro-meteorological risk reduction and their visions for future development of their living environment. Nevertheless, local politicians have become aware of the regional workshop and have registered accordingly. Representatives of the borough of Bergedorf, who have been informed and invited to the workshop forwarded the invitation to the members of the regional committee (local political board).

Outcomes

In the course of the workshop evening the EU project RECONNECT was introduced and the Hamburg partners presented their project activities as well as the current results. The participants have been informed about the project. In the second part of the workshop a campfire discussion, which was very well received, was held. By interacting with the wide-ranging group of participants, that focussed on local residents, traders and local boards the initial step to involve also the local non-professionals in the project activities was taken and the participators co-creation process was put to the next level.

In the course of the campfire discussion the hosts were able to get a very good impression about the participant's willingness and openness to take an active part in that co-creation process, their concerns and visions with regard to the (current) development of the demonstrator area Vier- and Marschlande.

As mentioned in the section Agenda-Campfire talk/discussion a number of questions were raised by the hosts, the answers to which were then assigned to different categories (see Figure 2).

a) Social



b) Water and environment



c) Politics and administration; Economy and production industry



c) Recreation and leisure

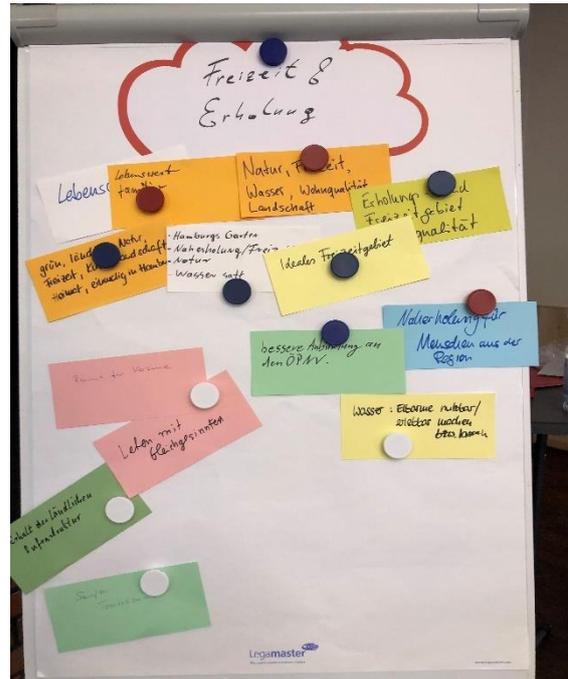


Figure 2: Answers to the guiding questions of the campfire discussion assigned to the categories (see section Agenda – Campfiretalk/discussion)

The following represents the transcription of the answers, whereby the font colour indicates the affiliation to the respective guiding question (see section Agenda – Campfiretalk/discussion):

- Social
 - Living space for people, beautiful living close to the city, quiet living environment => village-like, home, community, ethnic

- Stop urban sprawl, more (secondary) schools, cultural events, new forms of housing (Tiny Houses),
- tourism/leisure development, no common goals for the various actors, dormitory towns for Hamburg
- Preserving traditions, avoiding urbanisation, V+M typical development, preserving culture (monuments/customs), community
- Water and environment
 - Close to nature, natural, cultural landscape
 - Drainage, flood protection, no housing estates, preserve nature for future generations, remain rural, open landscape, preserve nature for humans and animals, no more industrial buildings (wind turbines).
 - If V+M remain as reserve for compensation areas & "stacked" nature reserves ("upgrading"), ban on motor boats on the Dove-Elbe, more water/irrigation, wider roads, no pumping/scooping stations
 - Preservation of the existing natural and cultural landscape, ensure drainage, safety against flooding is positive, declare V+M the green lung of HH and preserve it.
- Politics and administration
 - Increasing building development, strong change, preservation of current structures, Lots of green = trees, Lots of blue = water, Too much red = houses.
 - Flood protection, monuments/cultural monuments to be preserved or must be preserved, no conurbations like Oberbillwerder.
 - See V+M as part of the city => not outside the gates of the city => recognise the treasure of V+M, Involve the residents, Landscape conservation, Better perception in HH of what is done for HH in V+M, Stop Oberbillwerder, Better connection to public transport, People must not be excluded from nature (NSGs, compensation areas, B-plans), 3 pumping stations (Riepenburg, Gauort, Dove-Elbe), Maintain horticultural businesses.
 - Oberbillwerder, no B-plans, paternalism of politicians in property development, no recognisable strategy, lack of/insufficient public transport connections, too much of a good thing: Tourism, housing, industry, enacted(?), HH sees V+M as potential for compensation areas, building land etc. not as food production area, Long planning processes, that private investments are held back, The non-involvement of residents in new projects/changes.
- Economy and production industry

- Cultural landscape, Agricultural, Basis for regional food production, Food producer for HH.
- Support and maintain agriculture and horticulture, Maintain/enable regional food production, Maintain agriculture and horticulture.
- Better infrastructure (e.g. shopping), Awareness of regional food, Better public transport connections, Support horticulture and agriculture
- Overpriced production conditions for agriculture and market gardens, development of agriculture - wind and solar, short-circuiting of politics on the district by senate decisions, decline of agriculture, destruction of land for horticulture and agriculture, abandonment of agriculture (fallow land), more funds for ditch maintenance
- Recreation and Leisure
 - Worth living; family-oriented; nature, leisure, water, quality of living, landscape; recreation and leisure area, quality of life, green rural nature, unique in Hamburg, ideal leisure area, Hamburg's garden/local recreation area.
 - Local recreation for people from the region, spaces for clubs, living with like-minded people
 - Better connection to public transport, preservation of rural infrastructure, soft tourism
- Inland flood protection
 - If the measures presented today are implemented, yes.
 - In theory yes, in practice no => too slow.
 - I am unsure whether enough is being or has been done in time.
 - No, any time Feb. 2022 can repeat itself. The pumping stations and the upgrading of the dyke keel must be done in a timely manner. Looking at them secondary dike alone is not enough. Old dykes, which are now only referred to as embankments, must be included. An overall concept for flood/inland flood protection of the VuM + Bergedorf is needed.
 - Inland flood protection must be urgently improved. Old structures must be repaired and new ones created (pumping stations).
 - No, drainage via Tatenberg is not sufficient - long follow-up flow time
 - I don't think so. If my land is wet, I'm on my own, if it's dry, I'm on my own.
 - Flood protection must be implemented more quickly, construction of the pumping stations!, No to Oberbillwerder!

- Not yet, because the pumping stations are still missing, to Mr. Ackermann: lowering before heavy rain is difficult to implement, because out of 10 reports there are only 3-5 thunderstorms (very regional) and then...
- No, maintenance of the existing systems is neglected.
- Flood protection needs to be improved, pumping stations need to be strengthened.
- Flood protection must be improved => see Flood 2022
- Inland flood protection questionable, weather forecasts e.g. chain tides not predictable, drainage still far from adequate, construction of pumping stations takes decades
- Inland flood protection not yet future-oriented, measures not sufficient
- No, as long as climate change is not combated more strongly, the V+M is not safe from flooding.
- Many problems solved by pumping stations
- Flood protection is constantly being improved
- Without pumping stations, inland flood protection is not given
- Not yet, but the path seems to be going in the right direction (RECONNECT). Cost/benefit must be considered more strongly by the authorities.
- Drinking water supply
 - Drinking water supply is well established. There are sufficient possibilities to store water
 - Drinking water: No, there are fracking rights from the Reit to Lüneburg across all drinking water protection areas.
 - Drinking water: No, in the long term we will not be able to consume as much drinking water as we have in the past - so we must finally think about saving water and find solutions for this.
 - Contamination of drinking water by Elbe water and pesticides
 - Drinking water: I cannot evaluate it here and now.
 - Drinking water supply will become problematic in the future => quality problems.
 - Drinking water supply must be future-proof, therefore an ongoing review of measures is necessary.
 - Drinking water supply ok. We can also use less water

- Drinking water supply is future-oriented
- Drinking water: No, drinking water contains more pollutants, surface water would have to be purified more strongly
- According to Prof. Dr. Ing. Fröhle (TUHH) yes
- As the model study has shown, the drinking water supply is set up for the future
- Drinking water seems ok
- Random factors that are unpredictable could hinder drinking water supply
- I don't think so. If my land is wet, I'm on my own, if it's dry, I'm on my own.
- Not yet, but the path seems to be going in the right direction (Reconnect). Cost/benefit must be considered more strongly by the authorities.

An initial superficial review of the answers to the guiding questions suggests that the participants have a strong sense of place and perceive the Vier- und Marschlande as their home and a very liveable natural and cultural landscape in which they feel a sense of community.

Many of the participants see the urban sprawl and the realisation of new urban centres (Oberbillwerder) as a major problem. However, a bigger problem for the participants is the current situation of flood protection, which is not perceived as sufficiently safe by the participants. There is great concern about flood events and flooding. The drought issue, on the other hand, was not such an important problem. Nevertheless, the necessity of artificial irrigation for agriculture e. g. vegetable farming is an issue and reflects a prominent and undiscussed common interest. Improving flood protection for the region is a very big wish for all participants and would, according to the participants, advance the development of the region.

The answers and arguments collected will be further analysed and interpreted in the aftermath of the workshop and serve as input for further activities, e.g. the identification of development potentials in the Vier- and Marschlande with regard to people and nature. The outcomes of this first regional workshop will form the basis and input for future co-creation events until the end of the project.

All in all, the workshop was very well received by the participants and the willingness to engage and participate for their homeland was clearly noticeable. The results of the quality questionnaire, that was handed out at the end of the workshop were correspondingly positive. All of the questions were rated good to excellent in at least 75% of the cases. An analysis of the questionnaire responses is attached to that documentation.

After the event the presentations were sent to the participants. Thereupon, the Nettelburg water board proactively reported on the event in its websites (<https://www.nettelburg.com/grabenschauen/eu-projekt-reconnect-fuer-bergedorf>) and published the presentation together with a brief summary and also encouraged their members to participate in the social science survey (see section *Agenda – RECONNECT Activities in the FHH – BUKEA*), much to the delight of the project team. BUKEA observed for the first time, that information provided by the public administration was honoured in this form. The project team was proud on this from our viewpoint successful and constraint free roll out of the project's information and results. This is encouraging activities in the future.

Furthermore, the Bergedorfer Zeitung, a local newspaper, reported positively about the regional workshop. The article can be found attached to this documentation. Together with the report the online link to the social science survey (see above) was published too.

Both, the publication of the event on the websites of the Nettelnburg water board and in the newspaper articulated entails to an enormous multiplier effect.

Through the organisation and implementation of the regional workshop, the project gained a lot of attention in the region, also at the political level, which was reflected in a de novo invitation to the Bergedorf Regional Committee, a political board of regional and local politicians. The project team was invited to report on the current status of the results and their impact on the region at the next meeting of the regional committee on Sept. 13th 2022.

Follow-Ups

As mentioned earlier in this report, further co-creation workshops will be held in the near future. A first follow-up event is planned for spring 2023, which should be used to inform about the results of the campfire discussion, first results of the social science survey on the people indicator and the derived further project activities and objectives.

On-line proceedings

<http://www.reconnect.eu/national-workshops/elbe-estuary/>

6 Conclusions and follow up

As said above, the aim of the RECONNECT National Workshops is also to collect feedbacks and conclusions about the status of NbS perception and implementation at national level, stakeholders' engagement in land planning and sustainable risk mitigation, future perspectives and needs.

This first round of workshops in Demonstrators (A and B) was, in most cases, dedicated to outline the current status at national /regional level about NbS projects, to transfer knowledge and experiences and also to put the basis for next workshops, collecting needs and opportunities to be more investigated in a future occasion.

Target audience and aim for each workshop were defined by the organizers by matching the stakeholder's mapping (done at the project beginning) with needs to achieve specific outcomes and results from the event.

In the majority of cases (CH, IT, NL) the workshop was mainly targeted to scientific community since the first round of workshops was expected to draft a state of the art on NbS acceptance and implementation at national level and the status of research and proof of evidence in the field.

Main topics discussed overall in these workshops were:

- The need to better connect NbS areas to cities and urbanized area, to create a continuum and incentivize the fruition of naturalized areas also for recreational scopes and raising in this way awareness among citizens about the existence of the NbS. Being integrated into the nature, NbS are often not evident, hence people are reluctant to perceive their existence and function. A better communication about vital roles of NbS towards citizens and knowledge transfer to administrations could push the investments in NbS also by private sector.
- The prevision of a growing public investments on NbS by 2050 implicitly brings the attention on the need of skilled workforce in the field and efficient land planning procedures to optimize the use of available funds, their integration with private investments and the achievement of tangible results in terms of risk mitigation.
- The need to create a network at national level, grouping all the subjects involved in R&I projects on NbS, for lobbying and for addressing future policies and funding opportunities, and also for an effective transfer of knowledge and for promoting evidence-based approach to NbS design.
- The need to increase the sense of security of population from hydro-geological events, in presence of a NbS, and the consequent need to calculate and certify upon standard parameters the effectiveness of an NbS as protection measures for population and infrastructures against floods and landslides.

All the organized workshops agreed to turn, in the next round of workshops, on a less technical audience, such as citizens or decision makers, in order to have a comprehensive overview of NbS perception by different categories of target users and also discuss on how to engage them at the best.

Annex A – Quality evaluation of German Workshop

Quality Questionnaire - Evaluation

RECONNECT Regional Workshop / Information and Discussion Event

Total Number of Participants: 40 (excl. Project Member) Total Number of Questionnaires completed: 29 (excl. Project Member) 70-75 Percent 76-80 Percent 81-85 Percent 86-90 Percent 91-95 Percent

Organizational aspects	Poor					Good					Sum Votes (total)	Sum Votes (Good to Excellent)	Percent Votes (Good to Excellent)
	1	2	3	4	5	1	2	3	4	5			
1 - Suitability of workshop venue and infrastructures	2	2	2	10	12						28	24	85,71%
2 - Functionality of computers, projectors and other facilities	1	3	14	7	5						28	24	85,71%
3 - Quality and usefulness of distributed material	0	3	9	12	4						28	25	89,29%
4 - Development of the workshop and chairman activity	1	4	7	9	7						28	23	82,14%
5 - Minimization of the environmental impact of the event	0	5	8	8	3						24	19	79,17%
6 - Quality of the organisation and communication of the event (invitations, management of the participants, support for questions...)	4	4	10	9	2						29	21	72,41%

General content of the programme	Poor					Good					Sum Votes (total)	Sum Votes (Good to Excellent)	Percent Votes (Good to Excellent)
	1	2	3	4	5	1	2	3	4	5			
7 - Interest and relevance of the covered topics	3	4	6	7	9						29	22	75,86%
8 - Expertise of the speakers	3	2	3	12	9						29	24	82,76%
9 - Clarity of the speakers in presenting their contents	2	1	6	10	8						27	24	88,89%
10 - Usefulness of the workshop for your work/activities	4	4	8	8	6						28	20	71,43%

Project Presentation	Poor					Good					Sum Votes (total)	Sum Votes (Good to Excellent)	Percent Votes (Good to Excellent)
	1	2	3	4	5	1	2	3	4	5			
11 - Completeness of information of project contents and objectives	0	5	7	8	3						23	18	78,26%
12 - Level of technical and scientific information on the project	0	2	11	8	3						24	22	91,67%

Round Table	Poor					Good					Sum Votes (total)	Sum Votes (Good to Excellent)	Percent Votes (Good to Excellent)
	1	2	3	4	5	1	2	3	4	5			
13 - Overall management of the Round Table	3	3	5	5	3						24	18	75,00%
14 - Competencies of the participants to the Round Table	2	3	4	10	4						23	18	78,26%
15 - Interest and relevance of the Round Table	3	2	3	11	4						23	18	78,26%

General evaluation	Yes	No	Yes/No
16 - Would you recommend a next RECONNECT event to a friend/colleague of yours?	23	2	2
If "No", please motivate and indicate suggestions to improve the organization or the content of the events:			
No significant further information than in the script (which script?, could refer to the official information letter, that describes the project itself only, during the event also results were presented, maybe comment by a politician).			
I find the use of EU funds for administrative services and "digital innovative solutions" a misinvestment. From my point of view, the consideration is far too selective for such complex topics. Once again, we have not thought outside the box. The solution lies, for example, in permaculture. Permaculture is the purest form of nature-based solutions. (Comment by a farmer)			
Partly very lengthy and the action with the cards very unstructured - metaplan methods are different. (Comment by a farmer)			

Your details	
Please select the category that better fits with your profession:	
Government Agencies (mandated to ensure security, protect ecosystems, improve quality of life and health)	2
Practitioners (engineers, regulators, land use planners, biologists, insurance brokers, others)	5
Policy and Decision makers (local authorities with a jurisdiction over the land impacted by the NBS: cities, metropolitan government, river basin authorities, etc.)	5
Public and Private Stakeholders (those who own the land or have their activity on the land impacted by a specific large-scale NBS)	6
Financiers	
Industry (Service and equipment providers; developers of NBS; Private sector CSR)	1
Scientific Community	
Other: please specify:	<ul style="list-style-type: none"> - Farmer: Why are they missing here? Apparently the people who live off the land they farm are not that important, otherwise they would not be missing here. - Resident Dove-Elbe - General Interest - Shool - Farmer - Resident - Public Service/FHH

Annex B – Press Release of German Workshop

13.07.22, 08:36 Wie man Risiken durch Extremwetter naturnah begegnen kann - Hamburger Abendblatt

Bergedorfer Zeitung

Jetzt ins Jahresabo wechseln und sparen!

Bergedorf **Vier- und Marschlande** Sport Hzgl. Lauenburg Stormarn

PROJEKT

Wie man Risiken durch Extremwetter naturnah begegnen kann

Aktualisiert: 13.07.2022, 06:28 | Lesedauer: 3 Minuten
Lena Diekmann



Im Februar 2022 herrschte Binnenhochwasser in der Dove-Elbe, Wasser trat über die Ufer und flutete Felder wie hier in Höhe Allerhöher Deich und Vorderdeich. Foto: Thomas Heyen

Zu dem Thema forscht das Projekt Reconnect. Erste Erfolge gab es beim Binnenhochwasser im Februar, die jetzt vorgestellt wurden.

Diesen Artikel vorlesen lassen:



Hamburg. Als das **Projekt Reconnect** im September 2018 in Hamburg gestartet wurde, da hatte wohl niemand damit gerechnet, dass **Modell-Berechnungen** des Projekts dreieinhalb Jahre später dazu beitragen würden, eine **Katastrophe** zu verhindern: Denn als im Februar dieses Jahres **Teile von Bergedorf und den Vier- und Marschlanden im Binnenhochwasser beinahe untergingen**, wurde das Tatenberger Siel anders gesteuert, als es die Bedienungsrichtlinien vorsehen.

Es wurde nicht nur der Wasserstand in der Dove-Elbe vor dem **Hochwasserereignis** abgesenkt, sondern es wurden auch die Entwässerungsdauer verlängert und die Abflussleistung des Tatenberger Deichs

<https://www.abendblatt.de/hamburg/bergedorf/vier-und-marschlande/article235875811/Wie-man-Risiken-durch-Extremwetter-naturnah-begegnen-...> 1/3

erhöht, indem über drei Durchlässe – und nicht nur über zwei – Wasser aus der Dove-Elbe in die Stromelbe fließen konnte.

EU fördert das Projekt mit insgesamt 13,5 Millionen Euro

Ein 2D-Modell des Reconnect-Teams hatte zuvor gezeigt, dass die Kombination dieser Maßnahmen eine merkliche Entlastung bringen würde. „Die Realität hat bestätigt, dass das Modell Wirkung zeigt. Dadurch wurde Schlimmeres verhindert“, ist Dieter Ackermann vom Landesbetrieb Straßen, Brücken und Gewässer (LSBG) überzeugt. Er erläuterte am Montagabend im Kulturheim am Mittleren Landweg, wie das Deichsiel ohne bauliche Veränderungen und nur durch eine optimierte Steuerung zu einem vorausschauenden Hochwasser-Management beitragen kann.

Ins „Kuller“ hatte das Reconnect-Team, darunter Vertreter von der Umweltbehörde (Bukea), LSBG und TU Hamburg-Harburg um Projektleiter Christian Ebel (Bukea), interessierte Vier- und Marschländer geladen, um sie in einem Workshop über das Projekt zu informieren und zu beteiligen. Gut 40 Interessierte folgten der Einladung.

LIVE ABSTIMMUNG  85358 MAL ABGESTIMMT

Frage der Woche: Kaufen Sie wegen der steigenden Inflation weniger ein?



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Statt technischer Lösungen mehr naturbasierte

Das EU-geförderte Projekt wurde ins Leben gerufen, um Extremwittersituationen zu begegnen. Denn die nehmen tendenziell in ihrer Häufigkeit zu. Diesen Gefahren mit immer mehr technischen Lösungen wie Schleusen, Deichen oder Wehren zu begegnen, könne aber nicht allein die Lösung sein. Stattdessen sollen Wege gefunden werden, um hydrometeorologische Risiken wie Hochwasser, Sturmfluten und Dürren durch naturnahe Lösungen zu mindern.

Dazu zählen Rückhaltebecken ebenso wie eine naturnahe Gewässerentwicklung. Mehr als 35 Partner aus Europa, aber auch Malaysia oder Taiwan, beteiligen sich an dem Projekt. Das Gesamtbudget liegt bei 13,5 Millionen Euro, die EU-Förderung für Hamburg bei knapp 1,7 Millionen Euro.

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Wasserstandssteuerung soll optimiert werden

Die Vier- und Marschlande sind für Hamburg das Projektgebiet. Im Fall von starken Niederschlägen sei das Gebiet potenziell einer erheblichen Hochwassergefährdung ausgesetzt. Neben einer komplexen und manuellen Steuerung der wasserwirtschaftlichen Anlagen wie dem Tatenberger Siel untersucht Reconnect ebenfalls die Möglichkeit, die Wasserstandssteuerung innerhalb des Grabensystems zu optimieren, um auch bei Trockenperioden Mindestwasserstände gewährleisten zu können.

Übergeordnetes Ziel des Projekts ist es, naturbasierte Lösungen zu finden, um den Wasserstand im Gebiet und des Grabensystems zu verstetigen.

Projekt läuft bis August 2024

Das Projekt läuft noch weitere zwei Jahre bis Ende August 2024. Es wird begleitet von einer sozialwissenschaftlichen Untersuchung, die in Dänemark entwickelt wurde. Dabei soll die Meinung der Vier- und Marschländer zum Thema Hochwasser- und Gewässerschutz abgefragt werden.

Voraussichtlich ab Ende Juli oder Anfang August sollen Fragebögen in 1500 Postkästen im Landgebiet verteilt werden. Zudem soll es auch die Möglichkeit geben, die Fragen online zu beantworten (<https://www.survey-xact.dk/LinkCollector?key=63S7G1SESN> CP). Im September oder Oktober will das Projekt erneut Interessierte einladen und den Fortgang des Projekts vorstellen, kündigte Christian Ebel an.

Aktualisiert: Mi, 13.07.2022, 06:28 Uhr

Mehr Artikel aus dieser Rubrik gibt's hier: [Vier- und Marschlande](#)

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