

Interreg 
EUROPEAN UNION

2 Seas Mers Zeeën

PROWATER

European Regional Development Fund



Participatory long-term vision building for the implementation of Ecosystem- based Adaptation measures

December 2021

www.pro-water.eu

DISCLAIMER

The authors assume no responsibility or liability for any errors or omissions in the content of this report. The information contained in this report is provided on an “as is” basis with no guarantees of completeness, accuracy, usefulness or timeliness.

The sole responsibility for the content of this deliverable lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the Interreg 2 Seas Programme nor the European Commission are responsible for any use that may be made of the information contained therein.

COLOFON

The PROWATER project has received funding from the Interreg 2 Seas programme 2014-2020 co-funded by the European Regional Development Fund under subsidy contract No 2S04-027. Interreg 2 Seas is a European territorial cooperation programme for the United Kingdom, France, the Netherlands and Belgium (Flanders).

This report represents Output 3 of the project PROWATER : ‘Spatial prioritisation tool for Ecosystem-based Adaptation measures’ (Work Package 2 - Science).

Citation: Stacey Freya, Bauer Katharina, Staes Jan, Broeckx Annelies, Vande Velde Katherine, Vermeulen Inge, Huijskens Kris, Van Der Linden Dorine, Adriaansen Iris, van Wel Maarten, Santbergen Leo (2021). Participatory long-term vision building for the implementation of Ecosystem-based Adaptation measures. Deliverable 3.2.1 of the PROWATER project, Interreg 2 Seas programme 2014-2020, EFRD No 2S04-027.

AUTHORS

Staes Jan, Broeckx Annelies
Universiteit Antwerpen, Ecosystem Management Research Group
Campus Drie Eiken
Universiteitsplein 1
2610 Wilrijk
Belgium

Bauer Katharina
The Wandle Trust / South East Rivers Trust
c/o Environmental Sustainability
London Borough of Sutton
Denmark Road 24
Carshalton
United Kingdom

Stacey Freya
Westcountry Rivers Trust
Rain-Charm House - Kyl Cober Parc
Stoke Climsland - Callington Cornwall
United Kingdom

Santbergen Leo, Van Der Linden Dorine,
Adriaansen Iris, van Wel Maarten
Waterboard Brabantse Delta
Bouvignelaan 5
4836 AA Breda
The Netherlands

Vermeulen Inge, Huijskens Kris
Provincie Antwerpen
Koningin Elisabethlei 22
2018 Antwerpen
Belgium

Vande Velde Katherine
Departement Omgeving
Afdeling Strategie, Internationaal Beleid en Dierenwelzijn
Koning Albert II-laan 20 bus 8
1000 Brussel
Belgium

DISCLAIMER

When using the water system map applied to the 2 Seas regions for the project PROWATER, please take into account the following disclaimer:

The water system maps have been produced by Dr. Jan Staes at Universiteit Antwerpen (University of Antwerp) for the Interreg 2 Seas project PROWATER. Maps can be consulted on their viewing platform as a disclosure to the general public and to local public services. The maps cannot be used for any other purpose. Any alternation or use for commercial purposes requires the prior written agreement of Universiteit Antwerpen. Anybody wanting to obtain Water System Map data for their own use should contact Jan Staes directly (jan.staes@uantwerpen.be).

PARTNERS



CONTENT

1. Introduction	4
2. Awareness raising	5
2.1 Workshops	5
Region: Southern England (South West)	5
Region: Southern England (South East).....	6
Region: Trans-boundary Flanders and Netherlands.....	8
3. Vision building.....	10
3.1. Workshops	10
Region: Southern England	10
Region: Southern England	12
Region: Trans-boundary Flanders and the Netherlands	13
Region: Trans-boundary Flanders and the Netherlands	15
4. Conclusions	21

1. Introduction

This report describes our participatory approach and key findings concerning the development of a long-term vision for the implementation of Ecosystem-based Adaptation (EbA) measures. Project partners held a number of interactive workshops across the PROWATER pilot regions; Southern England, Flanders and the Netherlands. The workshops firstly focused on familiarising stakeholders with the challenges facing sustainable water supply, as set out in the previous report '[Risks & challenges to water resources](#)'. These workshops served as the first step in the engagement process which we have termed 'awareness raising'. This involved raising the profile of the current and future water resource challenges and introducing EbA measure as a potential solution. The next set of workshops went on to explore the potential contributions EbA measures can provide to water supply challenges and what the current barriers are to this approach. These workshops formed the 'vision building' process. We have summarised the content of the workshops, the tools used to facilitate participation and the key lesson learnt across the regions.

2. Awareness raising

The awareness raising workshops focused on raising the profile of the current and future water resource challenges and introducing EbA measure as a potential solution. The key message delivered by these workshops is that climate projections for northern Europe show less precipitation in summer and increasingly erratic rainfall leading to a greater risk of both flooding and droughts. These changes put increasing pressure on water supplies alongside population and economic growth. Water industry resource management traditionally focuses on the optimal allocation of available water resources through supply infrastructure and demand management. But sustainable management of water must consider the whole catchment. To secure future resilience we need to mitigate for the historic changes we have made to our landscapes and provide practical solutions to the increasing issue of water scarcity that we face now and in the coming years. The PROWATER project investigates opportunities to increase water availability through Ecosystem-based Adaptations (EbA). These are Nature-based Solutions (NbS) designed specifically to reduce vulnerability and build resilience to the effects of climate change (IUCN).

If we are committed to a future with clean and plentiful water for all, we need to fund EbA schemes that promote a system where the landscape stores, cleans, and delivers good quality water for us. Funding measures such as wetland creation, river restoration, conversion of unmanaged conifer plantations to natural habitats and good agricultural soil management allows the natural movement of water through the landscape. This provides a steady supply of clean water for use by both people and the environment. When we view our natural resources within the context of the integrated environmental system, the benefits are not limited to the primary outcome. We can use these measures to support water resources whilst also benefiting recreation, local economies, carbon storage and biodiversity.

2.1 Workshops

Region: Southern England (South West)

Workshop: Water Resilience Summit

Audience: Local businesses, community representatives, civil society groups and professionals from across the South West region.

Format: Open conference with multiple short talks from water resilience champions across a range of sectors with opportunities for the audience to ask speakers questions. An interactive questions wall was also used throughout the event to collect general questions and comments from the audience which were then answered after the event and circulated to attendees as part of follow up correspondence. Following the live event an online information hub was created using the talks recorded on the day and multiple sources of further information and similar topics. The Water Resilience Hub & Library can be viewed [here](#). This online library was created using Thinglink software, an education technology platform for creating accessible, visual learning experiences in the cloud.

Lessons learnt:

A simple thematic assessment of these audiences' contributions revealed 7 broad questions that people wanted to receive answers to:

1. What does water resilience mean?
2. Why is water resilience important?
3. How do you measure (progress towards) water resilience?
4. How much water resilience do we have now and how much do we need?
5. What are the biggest threats to water resilience?
6. Whose responsibility is water resilience?
7. How / what actions can we take to increase water resilience?

In addition to these top-level questions, there were also several additional sub-themes that emerged that could be used to refine the top-level questions and provide a framework for more in-depth assessment. These included a focus on these questions in relation to human/community health and wellbeing, socio-cultural factors, ecological/ecosystem health and function, the roles and responsibilities of organisations such as the Environment Agency and Water Companies.

Lessons learnt on the vision-building process:

To gauge how successful the Summit was in realising its three main objectives, we performed a simple evaluation exercise during the event. Attendees were invited to answer three questions using a visual analogue scale upon their arrival at the event and then their responses to the same three questions were elicited again at the end prior to their departure.

The results of this evaluation indicate that the overall awareness of the work being done to build 'water resilience' and adapt to climate change in the South West was significantly increased and that the attendees reported level of preparedness to take practical action to build 'water resilience' or change their behaviours to adapt their lifestyle to climate change impacts was also increased.

Interestingly, while the event did provide reassurance to some of the attendees (who reported that their anxiety levels had reduced), there were also a number of attendees who reported that their anxiety levels had increased (perhaps in line with their increased level of awareness of the challenges we face). This resulted in no overall change in the level of anxiety reported. It is important to note that there are some potential negative impacts of raising awareness of issues such as flooding or drought risk – especially in relation to anticipated climate change impacts. These mainly relate to the very real health and wellbeing impacts that can occur when people knowingly live at risk of flooding (mainly triggered through the generation of fear/anxiety). This potential negative impact was mitigated through the careful design and implementation of the messages and language used during and after the event. In this way, it was hoped to ensure that the net outcome of this engagement and communication was a positive outcome for the participants and that awareness raising did represent a critical first step towards building individual and community resilience.

Region: [Southern England \(South East\)](#)

Workshop: Water Resources and Climate Change

Audience: Farmers and horticultural growers within Southeast England

Format: Day-long interactive in person workshop, broken into two sessions. In the morning, focus was put on regional impacts of climate change, starting with a presentation on the current understanding of the impacts of climate change on Kent and examples from farmers and producers in the region. In group discussions following this, the role of farming and opportunities to increase resilience to climate change on farms was discussed. In the afternoon, focus was put on incentive mechanisms and actions

to enable higher uptake of NbS, again using a mix of presentations and discussion groups. Additional information was gathered through a survey using multiple-choice questions.

Lessons learnt:

There was a high level of agreement from all participants that soil and land management had a big impact on water retention in the landscape. Almost all farmers also indicated a high level of willingness to be innovative in protecting the resilience of their business and achieving improvements for the environment. However, they also indicated that they did not always know where to get information on adapting their practices to climate change from.

- 92% farmers and growers participating have already noticed climate change impacts
- Farmers identified both opportunities and threats to climate change, with different focus for different types of growers.
- Horticultural producers saw new crops, increased biodiversity, better prices for produce and a longer growing season as opportunities, while crop failure, water shortages and extreme weather were seen as the biggest risks.
- Arable and livestock farmers identified opportunities for carbon capture and new crops as biggest opportunities, and also saw crop failure, extreme weather and water shortages as biggest risks, followed by soil erosion.
- 17% of horticulture businesses are affected by limited water supply every year
- The top two water uses of water were irrigation and crop spraying

With regards to incentive mechanisms, there was an interesting discussion of the strengths and weaknesses of PES approaches. While a positive perception of farmers due to actions benefitting the environment, a more flexible approach than existing payment mechanisms, and a focus on results were seen as strengths, the weaknesses identified centred mainly around the difficulty in competing with food production, in measuring outcomes and in accounting for local complexity.

Priorities identified were a focus on soil health and more efficient land use, as well as good advice for farmers.

Lessons learnt on the vision-building process:

A combination of informative presentations on the wider challenge of climate change and water scarcity on a European and UK level, combined with practical, farm-scale focused information e.g. on average volumes of water and specific management examples (given by a local farmer with wide expertise on the topic), seemed to build a good baseline. It seemed particularly helpful to have the detailed, technical information available to answer more probing questions, even if it was not included in the general presentation. More generally, having supporting facilitators to hand that could moderate group discussions a little, ensuring that not one voice was dominant, and able to keep track of key discussion points, meant that participants could contribute freely. Additionally, we aimed to keep people engaged throughout the process by making presentations more interactive and breaking them up with activities. Semi-structured activities worked well, but were mainly used as a guide to facilitate discussion.

Resources should be provided to follow up on topics discussed, so the momentum does not get lost. This could be either leaflets or resources online, or a programme of activities that participants can sign up to as follow on discussions.

Region: Trans-boundary Flanders and Netherlands

Workshop: “Kempische laaglandbeken: Elke druppel telt! Op weg naar een grens-ontkennende klimaat-robuste droogte aanpak” **PART 1**

“Campine lowland brooks: each drop counts! On the way to a cross-border climate adaptation plan of action” PART 1

Audience: Local authorities, Regional authorities, Umbrella organisations, Lobby groups, Consultants

Format:

This half day workshop (14 December 2020, 13.00 – 16.00 CEST) highlighted the problems and possible approaches to drought and sustainable water supply in the border area of the provinces of Antwerp (Flanders) and North Brabant (the Netherlands). The Province of Antwerp and Waterboard Brabantse Delta presented risks and challenges of increasing drought (& flooding) in the regions during a plenary session. Special attention was paid to the droughts in the years 2017 to 2020, as well as to the consequences for water quality and biodiversity. Next, we discussed experiences with drought in the Brabant-Antwerp border region in **smaller break-out groups**. **Mural online software, including a map of the region** was used to structure the open questioning: What are the greatest concerns? And what challenges are foreseen for the coming years? The mural remained online for 1 additional week to collect more input from the audience. To conclude and introduce the next workshops in this “Kempische Laaglandbeken” series, the University of Antwerp introduced the importance and potential of 'Nature-based Solutions' for climate adaptation in a plenary session.

Lessons learnt:

The **aim of the workshop was to increase awareness** on problems and possible approaches to drought and sustainable water supply in the border area. Therefore, we worked with presentations reflecting Flemish and Dutch perspectives. Participants rated the impact of the workshop on their personal awareness of the topic with a median score of 4 (1 being “no, not at all” and 5 being “yes, a lot”).

After receiving an overview of the risks and challenges of increasing drought (& flooding) in the regions during **regional presentations**, we structured the discussion in Mural software around a cross-border map of the region. Break out groups gave input on the following two questions:

1. What do you consider to be the **main problems for water management** in the border area of the provinces of Antwerp and North Brabant, also as a result of climate change? And why?
2. What do you consider to be the **greatest challenges and opportunities in a joint Flemish-Dutch approach** to these problems? And why?

The identified problems and challenges of increasing drought (& flooding), as well as the potential for NbS as part of the solution to these environmental problems, reflected the [partner's perspectives](#). This also suggests the workshop was successful in raising awareness on the topic.

Nature-based Solutions (NbS) were perceived as a crucial part of the solution to the identified problems for water management. NbS were not perceived as a single solution to the environmental challenges of drought & flooding. Complementary approaches, such as demand management and user efficiency, are also important.

Lessons learnt on the vision-building process:

The **cross-border map** depicted on the Mural software was intended to help reasoning at scale of the catchment of the Mark and tributaries. However, **workshop participants often had conceptual and overarching knowledge** rather than locally specific on the ground knowledge. Therefore, the detailed nature of the map was experienced by certain people as constraining and confusing rather than facilitating vision-building.

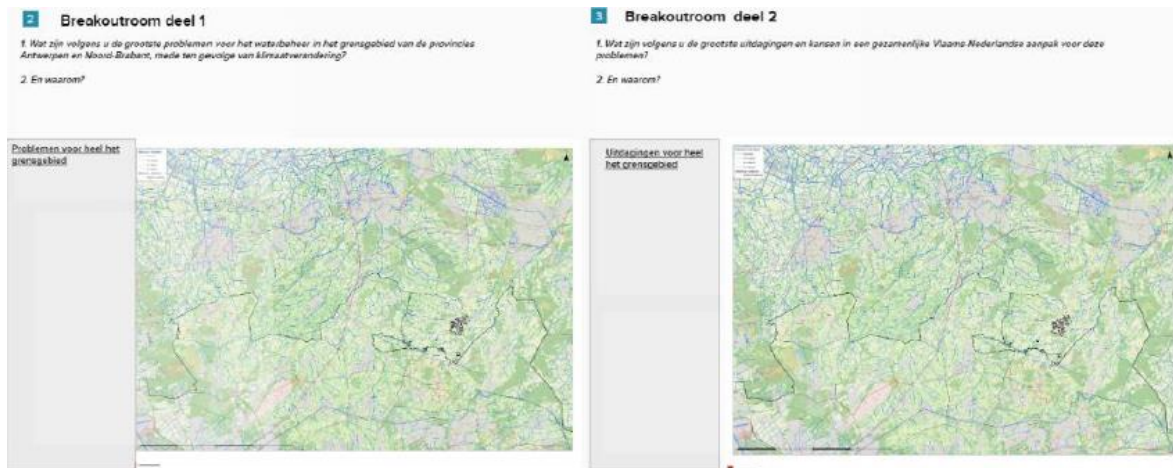


Figure 1 - **cross-border map** depicted on the Mural software

To have a **targeted vision-building exercise** on the potential of NbS for Climate Adaptation, we agreed to apply a structured approach in follow-up vision-building workshops. This formed the baseline for a framework applied in the follow-up workshop (organised on 2 March 2021). This framework would help participants frame their thoughts in function of Nature-based Solutions for Climate Adaptation in the trans-boundary region of Flanders and the Netherlands.

3. Vision building

A pro-active drought and flood strategy should not focus on building large dams, flood control infrastructure and transferring water between regions. Many examples have shown that such technical solutions have dramatic side-effects on both the supplying and receiving ecosystems. We should make better use of periods with surplus precipitation to overcome periods with precipitation deficits. Storage and slow release of water should take place very distributed within landscapes, making use of natural features to enhance retention and infiltration. If we can implement these measures at strategic locations within the landscape, we will not only achieve climate adaptation, but also improve the quality of the environment. Nonetheless, this implies a loss of land from present land uses at several locations, but there maybe also new opportunities when land use reallocation takes place which are based more on natural characteristics and features in the landscape.

A large-scale implementation of small-scale measures could be an effective strategy to combat both droughts and floods. But it is unlikely this will happen without policy intervention. These measures need to be taken on private land and while public benefits are high, the private benefits of measures are relatively low. In addition, there are currently almost no policy instruments or leverages to implement such proactive measures to drought and flood mitigation. The next series of workshops held by PROWATER partners was focused on sharing project learnings and approaches and discussing how nature-based solutions can be integrated in water resource planning going forward, and how we can work towards a 'long-term vision' of Ecosystem-based Adaptation.

3.1. Workshops

Region: Southern England

Workshop: Nature-based solutions for water resources – a water industry perspective

Audience: representatives of the regional water companies and relevant stakeholders from the Environment Agency, Natural England, and Water Resources South East

Format: This workshop was held online via Zoom due to the Covid-19 restrictions. This increased the accessibility for some participants by eliminating travel requirements and time required to attend the workshop. However, there are some limitations to running online workshops including computer literacy and technical issues with internet connections etc., that can reduce the accessibility for some people. In the workshop, participants were presented with information about and evidence gathered through the project, and were then invited to discuss the evidence laid out in detail. They were split into 2 groups, focusing respectively on the Little Stour and Beult catchments. Each group had a facilitator and a minute taker, and all sessions were recorded. The groups used MURAL software (<https://www.mural.co/>) to interact with the evidence and capture input.

Lessons learnt:

Three types of potential barriers were identified in the workshop:

1. Regulatory barriers or lack of policy/planning mechanisms that enable inclusion
2. Uptake from landowners/managers
3. Evidence on impact of NbS (of benefits and of hydrological processes that allow modelling of benefits)

In terms of policy and planning mechanisms, two systems were highlighted by participants that should be enabled through and explicitly supported by government and regulators that are not currently in place:

1. Integrated spatial plan of priorities and objectives beyond the water industry, supported by multiple stakeholders and sectors as well as government and regulators.
2. A water-industry-specific framework setting out how water companies can invest in NbS for water resources, supported by regulators like the Environment Agency and Ofwat.

A framework for investing in NbS as part of water resource planning would need to:

- Take a long-term view that is aligned with WRMPs.
- Specify the type and level of evidence that is required to make a case for investment in NbS.
- Respond to ground- and surface water specific pressures and catchments.
- Set out a wider set of environmental and water resource objectives than a focus on yield and individual pressures.
- Provide clear metrics that correspond to characteristics and resilience of natural capital.
- Allow a range of options to be included that can respond to the specific needs of the catchment and adapt to climate change.
- Align clearly with other policies and divers such as natural flood management, nature recovery networks, nutrient neutrality by providing shared spatial plans, metrics and investment opportunities.

Reasons cited for why current programs are ill-suited to delivery of NbS are:

- A narrow approach to environmental improvements in WINEP.
- Short timeframes for delivery presenting a barrier to more ambitious, catchment scale projects in WINEP.
- Insufficient regard for groundwater bodies in the RBMP.
- Lack of ambition in measures included in RBMP.
- Focus on narrow water yield changes that are difficult to evidence for NbS in WRMP.

Practical high-level actions that were identified in the workshop that could support further uptake of NbS in water resource planning:

1. Provide case studies on potential of catchment-scale delivery of NbS to engage with Ofwat and inform potential regional trials, quantifying yield wherever possible.
2. Engage in conversations with water companies, regional water resource groups, regulators and catchment stakeholders about an overall framework for the delivery of NBS.
3. Use new WINEP process to trial catchment scale approaches on a 15-year timescale and feed into regional plans.

Lessons learnt on the vision-building process:

Visual resources and detailed information were useful in guiding the discussion around specific topic areas. The semi-structured activities worked well in providing a framework, but it was important for facilitators to be clear on what activities were important to be completed, and where a wider discussion was more important than following the framework. To ensure that the discussion points were captured, recording the breakout rooms proved invaluable.

In the online setting, it was important to explicitly invite contributions from everyone, as it is easy for one person to dominate the conversation. Collecting input via virtual post-it notes mitigates this to

some extent, but a facilitator that moderates the discussion is invaluable. It was also helpful to have a person able to share their screen so that everyone had access to MURAL in some way.

In setting up the MURAL framework that participants followed in the workshop, it helped to have a clear structure and instructions on the board, and have further supporting information available but without cluttering the visual workshop outline.

Region: Southern England

Workshop: Beult – Farming for Water, Wildlife and a Resilient Future Workshop

Audience: Farmers in the Beult catchment including members of the Upper Beult and Marden Farmer Clusters and water company representatives.

Format: In-person workshop with short introductions to the project, climate change and farming in the catchment followed by site visit to PROWATER demonstration site. Informal workshop setting with facilitators recording discussion through minutes.

Lessons learnt: All participants agreed that local advice is critical to making good decisions about the types of measures that would be appropriate and the results that can be expected, and it should be used to support the planning and monitoring of measures on the ground. It should be integrated between different organisations working in the catchment, and help to link activities on the farm to outcomes and activities at a landscape scale.

Farmers want to see that what they have put in place is successful, and a set of indicators or metrics that shows the performance of measures against outcomes is the basis of outcome-based payments. It is crucial that payments make economic sense to a farming business and give long-term stability to farms, making farming as well as environmental land management attractive to the next generation of farmers. It is important to think of payments not only as a compensation, but rather something that gives a sense of achievement to farmers taking the right actions. Linked to this is the need for regulation and regulators to support those that are doing right and ensure that rules are enforced and holds those ‘not doing their bit’ accountable.

All participants expressed preferences for payment rates not based on income foregone and instead reflect the value of the public good provided (e.g. flood risk reduction to properties), so be based on outcomes, or the value of the natural asset on the farm (e.g. the condition of the wet woodland capturing water, storing carbon, ... for multiple years), so ensuring that existing good assets and practices are valued, not only improvements. Payments should include capital as well as maintenance payments.

Some outcomes are best suited to be achieved and monitored on a landscape scale. Outcome-based schemes should therefore ensure that sufficient funding across the area is available to achieve these outcomes at scale.

Combining multiple sources of funding (private as well as public) is more likely to enable a delivery at scale and with attractive payments. ‘Stacking’ of benefits (i.e. receiving funding from multiple sources for multiple benefits from the same parcel of land/asset) needs to be possible to achieve realistic levels of payments. Currently, this is seen as ‘double-funding’ which prevents private investment, e.g. from water companies, from ‘topping up’ payments where benefits are expected to be significant. Water company representatives present indicated that there were significant funds available to support farmers in a range of ways, but that often the framework to make investments was lacking.

To deliver at scale, farmers need to communicate with each other about what they are currently doing and want to do in the future. It was pointed out that historically, farmers have tended not to work in this way. Platforms like the farmer cluster and activities like guided farm walks and events are contributing to changing this, but more engagement from local farms is still needed. Mapping and associated advice highlighting connectivity between farms and the opportunities to work together, e.g. around small sub-catchments, could help to focus farmers on shared objectives on a manageable scale. In general, it is important to support farmers first in understanding what is possible and sensible to deliver on their farm first before they can think about how this can fit with others.

Lessons learnt on the vision-building process:

In this small group, the focus was on allowing free discussion between all participants around a series of questions. It was most important to be open and transparent about what we knew and what we didn't know, but wanted to find out, and to moderate the discussion so that there was not one dominant voice. Having multiple facilitators from different organisations (both NGOs as well as water company participants) was useful in giving a balanced approach.

More structured activities that were planned did not take place, and instead a wider discussion was encouraged as this seemed a better way of understanding the themes discussed, and provided more value for participants. Much of the discussion happened as part of the site visit and walk, so it was important to follow up on these in the following parts of the workshop.

Visual aids like maps and illustrations of potential habitats and printed maps of [water systems maps](#) for the area proved useful to engage landowners in understanding the potential of delivery at scale and how their farm was situated in the catchment context.

Region: [Trans-boundary Flanders and the Netherlands](#)

Workshop: “Kempische laaglandbeken: Elke druppel telt! Op weg naar een grens-ontkennende klimaat-robuste droogte aanpak” **PART 2**

“Campine lowland brooks: each drop counts! On the way to a cross-border climate adaptation plan of action” PART 2

Audience: National authorities, Local authorities, Regional authorities, Umbrella organisations, Lobby groups, Consultants, Water production companies, Land owners

Format:

This **half a day workshop** (organised on 2 March 2021) facilitated a long-term vision building process for Nature-based Solutions (NbS) targeted at climate adaptation (Ecosystem-based Adaptation) in the Mark catchment across the Flemish and Dutch border. Dr. Jan Staes (University of Antwerp) first explained [the water system map applied to the 2 Seas region](#), a spatial planning tool for Ecosystem-based Adaptation (EbA) measures. Then the following topics were discussed; what kind of measures are these EbA measure, what are their potential contribution for climate adaptation, what are possible disadvantages and how can they be taken up into spatial planning? Followed by a discussion about a feasible approach to the increasing drought (& flooding) in the Mark catchment area. Special attention was given to opportunities and bottlenecks in implementing Nature-based Solutions for climate adaptation (Ecosystem-based Adaptation measures) across borders.

For this vision-building exercise, we applied a structured approach in break out groups. The framework depicted in Figure 2 helped participants identify opportunities and challenges for EbA measures applied in different contexts of the cross-border region of Flanders and the Netherlands.

KANSEN										
EbA maatregelen die kunnen toegepast worden in de opgsomde omgevingen	OMGEVINGEN (LAND COVER, LANDBEDEKKING)									
	NATUURLIJK GEBIED		AGRARISCH GEBIED				BEBOUWD GEBIED			
	Vlaanderen	Nederland	Kapitaal intensief		Kapitaal extensief		Woongebieden		Industriegebieden	
		Vlaanderen	Nederland	Vlaanderen	Nederland	Vlaanderen	Nederland	Vlaanderen	Nederland	
Herstellen van infiltratiebekkens										
Herstellen van tijdelijke en permanente wetlands: vennen, broekbos										
Hermeandering rivieren, beken										
Permanente demping van grachten										
Tijdelijke stuwning van grachten (met stuwen, peilgerichte drainage)										
Omzetting van naaldbos naar loofbos										
Omzetting van (naald)bos naar heide/grasland										
Herstel van organische materie (groenbedekkers) in de bodem										
Vegetatie aanplanten die gecompacteerd laag in de bodem doorbreekt										

Figure 2 – Resulting framework to structure opportunities for Nature-based Solutions for Climate Adaptation. A similar framework was used to identify pitfalls. The Y-axis lists different categories of Nature-based solutions for Climate Adaptation. The X-axis lists different cross-border contexts within which the opportunities and challenges for Nature-based Solutions and climate adaptation may differ.

Lessons learnt:

Spatial planning tools, such as the water system map applied to the 2 Seas regions, are very helpful when planning NbS for climate adaptation, taking into account the biophysical context of the catchment to identify where we can best apply which measure.

However, it is crucially important to take the social context into account as well. Input during the vision-building exercise reflected on the opportunities as well as challenges for Ecosystem-based Adaptation in different social-ecological contexts of the cross-border region of Flanders and the Netherlands. Can a joint Flemish-Dutch vision be deduced from this?

The input from workshop participants was translated into [53 actions in 6 different impact categories](#):

- Nature-based Solutions for climate adaptation – structural approaches (8 actions)
- Nature-based Solutions for climate adaptation – strategic approaches (5 actions)
- Spatial planning and policy impacting forestry and agriculture (10 actions)
- Spatial policy and policy – Broader than only forestry and agriculture (11 actions)
- Increase support for Nature-based Solutions targeted at climate adaptation (10 actions)
- Increase support for adaptation policy and regulations (9 actions)

Lessons learnt on the vision-building process:

The large number of actions should then be prioritised to identify which of these actions can be taken up in short-term vs. long-term vision for Ecosystem-based Adaptation in different social-ecological contexts of the cross-border region of Flanders and the Netherlands.

This was taken up via a [survey](#) of which preliminary results were presented at the final workshop of this vision-building workshop series (organised on 22 June 2021, 13.00 – 16.00 CEST).

Region: Trans-boundary Flanders and the Netherlands

Workshop: “Kempische laaglandbeken: Elke druppel telt! Op weg naar een grens-ontkennende klimaat-robuste droogte aanpak” **PART 3**

“Campine lowland brooks: each drop counts! On the way to a cross-border climate adaptation plan of action” PART 3

Audience: National authorities, Local authorities, Regional authorities, Umbrella organisations, Lobby groups, Consultants, Water production companies

Format:

The third workshop, which followed the workshops on the 14th December 2020 and **2d March 2021**, was based on translating the results of the previous workshops into 53 recommended actions (by workshop participants) divided into 6 impact categories, in the Mark catchment area.

As a result of this 3rd concluding workshop, we wanted to **prioritise** the large number of actions. In this way, we aim at building a vision for Ecosystem-based Adaptation, composed of short term and long(er) term actions. Everyone could contribute to this by completing a [survey](#) in advance. **Preliminary results were discussed during the workshop.** After the workshop, the questionnaire was open for additions by other participants.

Participants of the survey rated actions along **scales of both desirability** (how successfully do the actions contribute to Ecosystem-based adaptation) **and feasibility** (how easy is it to implement the actions). If 50% or more of respondents listed the action in their top three of most feasible action, the action is considered feasible. The same threshold was used for desirability. The **short-term vision** can be composed of actions that were highly desirable and feasible. The **long-term vision** can be composed of actions that were highly desirable but less feasible (more difficult to implement).

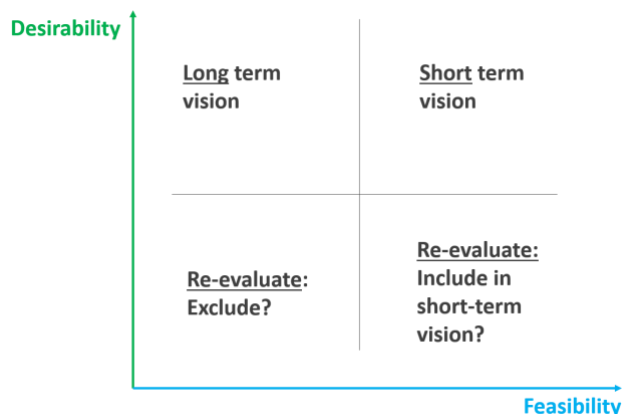


Figure 3 - Participants of the survey rated actions along scales of both desirability (how successfully do the actions contribute to Ecosystem-based adaptation) and feasibility (how easy is it to implement the actions).

Preliminary results of the survey were discussed jointly by Iris Adriaansen (Waterboard Brabantse Delta) with the help of Sli.Do software (interactive survey software) to visit the following questions:

- To what extent are these objectives already applied?
- What is needed to make these objectives feasible?
- Which organisation(s) are initiating the objectives?
- Within what timeframe can we implement these objectives?

Plenary presentations by Kris Huyskens (province of Antwerp), Leo Santbergen (waterboard Brabantse Delta) were given on the **current long-term visions** applied by the provinces of Antwerp (Flanders) and North-Brabant (the Netherlands) at the regional and municipal level.

Jan Staes (University of Antwerp) concluded the workshop with a plenary presentation on the **prospects for quantification of ecosystem services** within the Interreg 2 Seas project PROWATER. This impact assessment tool applicable to the 2 Seas region will be released in 2022 and is expected to **help the vision building process in catchments**.

Lessons learnt:

The following recommendations are the summarised results of the survey as well as additions from the plenary discussions by workshop participants. The attitudes and opinions included are meant to be interpreted within the context covered by the survey, workshop and the stakeholders reached by those two approaches.

After prioritisation of objectives by the survey respondents, the six impact categories of the previous explorative workshop could be reduced to three larger strategic objectives for successful Ecosystem-based Adaptation in the cross-border Campine lowland rivers in the Mark catchment.

Strategic objectives after prioritisation:

- Adequate (cross-border) regulation and control
- Stimulate climate adaptation
- Successful implementation of ecosystem-based adaptation measures

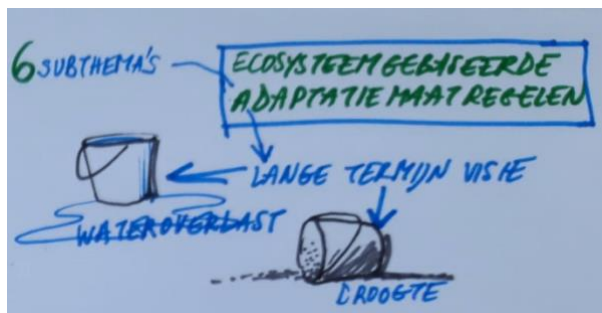


Figure 4 - Working towards a short term and long-term vision on Ecosystem-based Adaptation. Live illustrations were drawn and exposed at the end of the event (illustration by Britt Biermans, Provincie Antwerpen).

Adequate (cross-border) regulation and control

Water policy and regulations should be aligned at the level of the river basin, backed by the most recent knowledge on the water system in that river basin. A river basin is the logical hydrological and ecological nature-based unit for climate adaptation (Fig. 5, “[From a local tree to the river basin, and reverse](#)”). This alignment across borders can be done with the help of shared set of prioritisation and spatial planning tools, e.g. [the water system map applied to the cross-border region of Flanders and the Netherlands](#). Actions included herein (cf. successful implementation of Ecosystem-based Adaptation) can still be executed at the level of the municipalities, but should be aligned as much as possible at the level of the river basin as a hydrological and ecological unit (including groundwater-surface water interactions). Overall, it would be good to create an overview of those cross-border catchments, to let local and regional governing bodies and actors decide on a common set of spatial planning tools, Ecosystem-based Adaptation measures, conditions for water extraction restrictions in case of drought and criteria for (impact) monitoring.

During plenary talks, it became clear that Flanders and the Netherlands already use similar baseline principles to retain water in an area much longer and for smart reuse and closed cycles. The desire is to **translate this into a fully aligned vision and approach for the catchment area of the Mark**, including the Campine lowland brooks. **The water system map developed by the University of Antwerp and applied to the 2 Seas area, including the cross-border region** is a promising shared baseline for such a borderless approach. The water system map is an opportunity map (spatial planning tool) that determines the most suitable locations in the landscape for applying specific ecosystem-based adaptation measures that maximise water infiltration and/or water retention.

Implementation of Ecosystem-based Adaptation is challenging as it crosses different departments and levels: national, regional, provincial, municipalities. Everyone is starting to believe in the **importance of wet landscapes**. The visions are already going in the right direction. Now what remains is to **implement a shared vision in the cross-border catchment**.

When it comes to **financial support for implementation of a cross-border EbA vision**, 43% of workshop participants considers a joint Flemish-Dutch fund the most desirable option. 22% would prioritise the solicitation for European funding. Only 4% considers it most appropriate to have Flanders and the Netherlands finance the measures on their side of the border within the catchment. This low support may be due to the need for a disproportionately higher amount of EbA measures (and thus higher costs) on one side of the border (rather in the upstream part of the catchment in Flanders) for adequate restoration of the water infiltration and retention capacity and successful climate adaptation in the whole catchment.

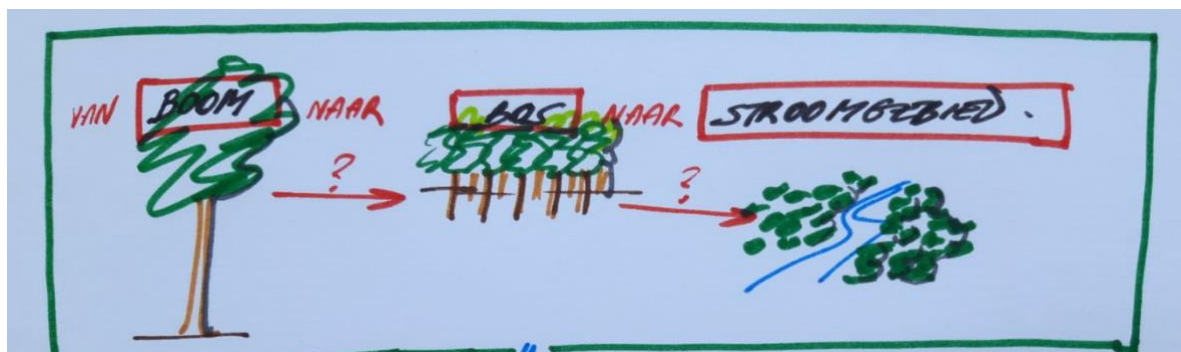


Figure 5 - “From a local tree to the river basin, and reverse”. Eventually (on the long term) we should adjust policy at the level of the (cross-border) river basin in function of climate adaptation, based on the water system map. The water system map is an opportunity map that determines the most suitable locations in the landscape for applying specific ecosystem-based adaptation measures that maximise water infiltration and/or water retention. (Illustration by Britt Biermans, Provincie Antwerpen).

Spatial planning, including land (use) re-allocation / land swapping, is necessary to allow adequate implementation of Ecosystem-based Adaptation. This includes, as much as possible, the **grouping of various measures within a catchment**, to increase positive impact on the water system and climate adaptation. This is better than applying smaller scattered measures across several river catchments for the same budget, but with no measurable impact as a result. Moreover, **besides the crucially important rural and natural areas, the built-up and industrial areas should not be overseen** when it comes to implementing Ecosystem-based Adaptation.

Adequate spatial planning across the catchment landscapes will **require bold choices and adequate convincing** of land owners and managers. Some first steps to be taken **on the short term** include:

- Raising general **awareness of persistent droughts and falling groundwater levels** (as well as flooding!) as an incentive to increase support for ecosystem-based adaptation measures.

- Communicating to **landowners and site managers** about the most appropriate Ecosystem-based Adaptation measures according to the location in the landscape. This can be in the form of trainings/workshops, demonstrations in the field, presentations, etc. Kris Huyskens and Jan Staes (keynote speakers of the province of Antwerp and University of Antwerp) as well as respondents to the 'live poll at the workshop recommended **drawing inspiration from the existing organisation 'Bosgroepen' (<https://bosgroepen.be/>) in Flanders**, who advise forest owners of often fragmented parcels on best practices to increase (ecological and/or economical) value and guard a certain vision across the organisation's jurisdiction. Other important actors include **government institutions** at the **local (municipality) and regional (province) level**.
- **Communicating about measures that require less legal and administrative work** and can therefore be implemented more quickly (such as measures that do not require land consolidation or that do not take up much space). However, during live poll at the workshop, caution was given to this recommendation. We should not do things too hastily to avoid unexpected negative outcomes and the focus on quick fixes rather than a **lasting transition to EbA**. We need to find a good **middle ground where we don't lose excessive time on administration expected positive outcomes are high and expected negative impacts are low, but still allow for proper impact analysis and communication to local stakeholders where necessary**.
- Prioritising **Nature-based Solutions (such as Ecosystem-based Adaptation measures)** over technical solutions with hard infrastructure. During a live poll at the workshop, participants stressed that this requires (more) knowledge and communication on effectiveness of Ecosystem-based Adaptation to increase the carrying capacity across stakeholder and actor groups. It also requires political will and courage.

Where possible, **multiple environmental challenges should be addressed by the same implemented Ecosystem-based Adaptation measures**. This requires more research on the interlinkages between ecosystem services. However, based on our current knowledge we can already on the short term:

- Communicate to **landowners and site managers** about the most appropriate ecosystem-based adaptation measures according to the location in the landscape, taking into account the aim to address multiple environmental challenges (e.g. water quantity, water quality, biodiversity, etc.)
- Raise general **awareness of persistent droughts and falling groundwater levels** (as well as flooding). This keeps the environmental challenges of drought and flooding on the political agenda, increasing uptake across other environmental dossiers.

Stimulate climate adaptation

We should invest in monitoring effectiveness of Ecosystem-based Adaptation. Communication about effectiveness will strengthen support and uptake of Ecosystem-based Adaptation. This requires time and capital investments.

This is especially important to convince stakeholders on the necessity of less popular measures, e.g. the conversion of (often degraded) coniferous plantations to nature that allows more infiltration and water retention, such as peatlands, heath or deciduous forests.

During plenary discussion and keynote presentation by Leo Santbergen (waterboard Brabantse Delta), **the need was expressed for attractive business cases for investment in Ecosystem-based Adaptation measures**. Investing in demonstrations of **payment for ecosystem services ('outcomes based')** and

strengthening those with existing best practice financial incentives can help. This should be explored more for a larger-scale implementation of Ecosystem-based Adaptation. On the **short term**, we can already:

- Raise general **awareness of persistent droughts and falling groundwater levels** (as well as flooding!) as an incentive to increase support for ecosystem-based adaptation measures.
- Communicate on how ecosystem-based adaptation measures work differently at different locations in the landscape (depending on the current biophysical properties, land cover and land use). This can **convince stakeholders of the sound scientific reasoning backing certain recommendations**.
- **(Continue to) only grant subsidies to municipalities if they have a rainwater and drought plan**.
- During plenary discussion, a suggestion was made to **link conditions for additional water infiltration and retention to water extraction permits**. This is partially already implemented but should be strengthened. This would motivate land owners to implement the most effective measures (best cost-benefit in terms of infiltration and retention) in compensation for the water they extract. However, according to Lore Van Looveren (regional consultant for the Farmers union 'Boerenbond' in Flanders) caution should be given to this approach, as there is a large financial pressure on land owners to innovate their land management practices up to high technical standards. This may not leave budget for additional measures to increase infiltration and retention capacity.



Figure 6 - It is both desirable and feasible to increase knowledge dissemination to landowners and site managers about the most appropriate ecosystem-based adaptation measures according to the location in the landscape. (Illustration by Britt Biermans, provincie Antwerpen).

Successful implementation of ecosystem-based adaptation measures

During plenary discussions of the workshop it became clear that when it comes to drought (& flooding), everyone agrees that there is a problem that needs to be worked on. It is easy because there is consensus, but on the other hand, there is no single solution for drought. A whole range is needed. **The water system map developed by the University of Antwerp and applied to the 2 Seas area, including the cross-border region** is a promising shared baseline for an aligned vision on opportunities for Ecosystem-based Adaptation measures in the catchment.

According to survey respondents, the **grouping of Ecosystem-based Adaptation measures within a catchment** should be stimulated to increase the impact of the measures at the catchment level. This is preferred to the scattered application of smaller scattered measures across several basins.

Respondents consider certain measures to have a **larger impact on climate adaptation**. This included the restoration of **wetlands** such as marshes and fens as well as the **restoration of natural stream valleys** (e.g. by re-meandering straightened water courses).

However, **certain measures are (administratively/financially) easier to implement and should already be taken up** where possible. This includes:

- **Not mowing/clearing watercourses in summer**, unless flooding is expected.
- Making **small water courses and ditches wider and less deep** to reduce drainage and increase water-buffering capacity during downpours.
- Introduce **level-controlled drainage** in agricultural areas in a proper way (i.e. scientifically substantiated and at the right location in the landscape) **on a larger scale** and **monitor** properly.
- Improve the **permit system for the extraction of groundwater and surface water** and lay it down in regulations. Enforce the regulations as well.
- **Generally: measures that require less legal and administrative work** and can therefore be implemented more quickly, such as measures that do not require land consolidation or that do not take up much space. This **can differ from municipality to municipality**, depending on the local land-use and land cover.

Lessons learnt on the vision-building process:

The workshop series contributed to the **uptake of practices across borders**. The waterboard Brabantse Delta is currently working on a revision of the framework on extraction bans of surface water, inspired in part by the province of Antwerp framework with explicit (rather than implicit) ecological criteria.

The **word clouds created via Sli.Do software during the workshop involved every attendee**. When someone sent in an unexpected answer or when an answer was given multiple times and stood out, there was enough time to ask that person for more input.

Combining the results of the **questionnaire, the Sli.Do word clouds and plenary input** from the workshop participants resulted in a good mix of input gathering and sharing information.

There wasn't enough time in the workshop to ask for everyone's individual input. Certain people only gave input through the Sli.Do word clouds. But those participants may not necessarily see that as a problem, not everyone wishes to be as active in a workshop.

We did not yet manage to attract local landowners within this workshop series. As follow-up, we need to translate and communicate the lessons learnt with them (and other stakeholder groups) with the help of practical, local examples ("from tree to river basin and reverse"). This can be organised through live demonstrations at the PROWATER investment sites, targeted at landowners and land managers, as it seems the online format may form a barrier for those stakeholder groups.

Overall, developing a cross-border river basin vision strategy and implementation plan with multiple stakeholders is an adaptive explorative process in itself. A positive aspect of the **online meetings** applied is the opportunity to test and combine several instruments for active participation of attendees.

4. Conclusions

This conclusion outlines the lessons learned from the engagement process of creating a long-term vision for Ecosystem-based Adaptation (EbA) and our recommendations for repeating these approaches. Several different styles-methods of workshop were used during this engagement process. The planning and delivery of some of these workshops were influenced by the COVID-19 pandemic. Pre-covid workshops were held in person and post-covid workshops were held online. This variety of formats allowed project partners to explore different methods of presenting information and gathering input from attendees.

Format

Online workshops increased the accessibility for some participants by eliminating travel requirements and the time required to attend the workshop. However, there are some limitations to running online workshops including computer literacy of attendees, when using additional software, and technical issues with internet connections that can reduce the accessibility for some people. It can be difficult to have group discussions unless participants are split into much smaller groups, such as via the 'breakout room' features on most video conferencing programmes. Even in small groups, it is still possible for discussions to be dominated by a few participants and it is not guaranteed that everyone's views will be heard. A successful way that we have navigated this is to pair online workshops with interactive workspaces, such as via the MURAL and live polls (e.g. using the Sli.Do software). In the MURAL platform all participants can access an online 'board' which is designed by the hosting organisation to fit the workshop format. This allows everyone the opportunity to add their own input via sticky notes that are added to the board, as well as vocalise their input in which case the breakout group facilitators can take note of it on the board. Participants can interact with content and add contributions at their own pace and some people may feel more inclined to submit their input via writing rather than orally. The audio from the session can be recorded via the video conferencing software to allow for accurate minutes to be taken. Setting up a MURAL board for a specific workshop allows the addition of supporting information to be displayed alongside the question being covered. This can help to provide context and stimulate discussions and responses to questions.

In person workshops allow for a much more natural communication and provide many more opportunities for information sharing and personal connections to be made. Presentations may be more engaging and have longer lasting effects than digital ones. Including site visits and coffee breaks can provide more time for social interactions that can facilitate more engagement in group discussions resulting from greater social connection within the group. The location and timing of workshops can limit who is able to attend which may therefore bias results and not allow full representation.

Audiences

Understanding the audience of the workshop is key to determining the level and balance of the messaging required. When engaging with water users, whether it be members of the public or individual business, stark facts and worrying predictions do better paired with examples of hope and practical solutions to problems. This helps to portray challenging messages without causing despair and inactivity but instilling a level of preparedness and willingness to act. Workshops focused at local authorities and other local stakeholders responded well to examples based on areas within their remit. They're knowledge of the landscape and local issues paired with a familiar context help drive discussions and highlight barriers. National or even regional stakeholders can sometimes have more of a conceptual and overarching knowledge rather than locally specific on the ground knowledge.

Therefore, focusing on specific location dependant examples can be limiting as opposed to general examples.

Resources

Visually engaging resources are very useful for encouraging participation. Distilling key concepts into graphical depictions can help present lots of information without having text heavy presentations. They can also help keep topic summaries easily to hand when conducting exercises and encourage participation during online sessions when there can sometimes be more distractions than when attending workshops in person. Maps are a key element to the PROWATER engagement, both in the context of landscape scales but also in the specialised planning of measures within the hydrological context of catchments. Selecting the appropriate scale and level of detail presented on maps will determine their usefulness as a resource during sessions. Using very detailed maps of specific areas with national stakeholders, such as government officials, consultants can become constraining confusing rather than facilitating vision-building process. Matching the spatial scale with the experience level of the group may therefore elicited better results. Stakeholders with on the ground experience such as farmers, land management and conservation organisations may respond better to maps with higher levels of detail at smaller spatial scales. When using model outputs, such as the water system map applied to the 2 Seas regions, it is important to provide adequate explanation of what is being shown. With more technical audiences it is also beneficial to provide an explanation of the process in which the output is created and the limitations of its application.

Evaluation

The evaluation of workshops is an important step in monitoring the effectiveness of engagement approaches and enables the development of the next stages of the process. Simple questionnaires at the end of a session with target questions capture the audience's experience, the impact of the content delivered and the desired outcomes of the workshop. This can help to develop the next stages in the engagement process.

For more information on approaches to evaluation of participatory processes, please refer to the project's [communication strategy](#). PROWATER will continue evaluating its progress and impact across all work packages, as it nears the end of its duration in February 2023. This will be communicated via the [PROWATER website](#) and will highlight and motivate additional uptake of the latest project outcomes into ongoing and novel projects and processes.

