

# Making a (business) case for Building with Nature

## Direct advices within the Interreg North Sea Region project

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# Colophon

## Building with Nature Business Case Direct advices

Deliverable 6 of Work Package 5 - Upscaling: business case development and opportunity mapping, part of the INTERREG Building with Nature project.

<http://www.northsearegion.eu/building-with-nature/>

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## INTERREG Building with Nature project

The INTERREG Building with Nature (BwN) project demonstrates BwN solutions that utilize natural processes to deliver flood risk and coastal erosion management whilst enhancing ecosystem services. The overall objective of the INTERREG BwN project is to make coasts, estuaries and catchments of the North Sea Region more adaptable and resilient to the effects of climate change through the use of BwN measures. INTERREG BwN creates joint transnational monitoring programmes, uses state-of-the-art analysis methods, develops improved designs and business cases for BwN solutions.

This document is a deliverable of Work Package 5 'Upscaling: business case development and opportunity mapping'. The objective of WP 5 is to: 1) show available methodologies for business case development and valuation; 2) provide guidance for BwN concepts to approach business case development; and 3) to demonstrate opportunities of BwN by giving good examples of business cases for BwN.

Project website: <https://northsearegion.eu/building-with-nature/>



## How to read this report

This report summarizes 13 of the 'Direct advices' provided by EcoShape and her contributing partners in the context of Business Case development and observations to the other partners within the INTERREG BwN-project. This listing is by no means a complete overview of the discussions and inputs provided by WP5 partners to the other INTERREG BwN project partners, but it illustrates the diversity of topics that was touched upon whilst executing the work within this Work Package.

For each advice the following sub-sections are listed:

- Setting: what was the situation, who are the involved partners and what was the context of the question and/or the advice?
- Partners' problem/issue/goal: what was needed from the partners, what was the problem or issue that needed to be resolved or what was the goal to be achieved
- Direct advice: what was the input provided by WP5-members to the partner(s).

# 1. Local influence

## **Setting:**

Field trips during the CGM are always interesting as during these trips, observations are made from different perspectives. During the CGM in Dundee in September 2018, the field trip provided insight in the coastal erosions issues that the local area was facing. A major stakeholder is the local golf club, which is national heritage. Observing the presence and potential influence of this stakeholder changed the course of the conversation.

## **Partners problem/goal/issue:**

Coastal erosion in areas that are less densely populated or areas with limited direct value to the national economy are often difficult to cover by public funding schemes. Looking for alternative financing schemes and additional values to be created is thus a key issue.

## **Direct advice:**

Bringing our theory on stakeholder involvement and financing construction to practice would entail an investigation on whether the golf club could be convinced of the effectiveness and added value of BwN solutions (sand nourishment and/or beach widening) to protect the area from erosion and potentially add value to the club via additional beach access. When convinced, the golf club might play a role in (co-)funding or leveraging coastal protection measures.

## 2. Stream restoration business case

### **Setting:**

During the CGM in Sweden in September 2016, WP5 and WP6 jointly presented the Twin Dike case to highlight potential for upscaling. The site visit during this CGM was however partially oriented on stream restoration measures. During this CGM this raised the question how the two contexts – watershed v.s. coastal areas - are linked; can they learn from each other's business cases?

### **Partners problem/goal/issue:**

The site visit of Skåne region shows that in applying Building with Nature it is important to respect characteristic scales of the ecosystem. In Skåne for instance the restoration of small streams is important. The scale of the measures, benefits and costs is totally different than those of the large scale projects along the Dutch coast (mega nourishments and Twin Dike). In particular, this raised the question at the Swedish partners, but also at the other river basin management partners, whether the business case setup is comparable or not.

### **Direct advice:**

The main messages that we derived was that the main characteristics in upscaling have the same starting point: next to basic (flood defence) benefits, all BwN measures resemble a co-benefit in ecological values, that is often difficult to quantify or find ownership for, but is significant in comparison with traditional solutions. The importance of local stakeholders and the need to take their values and wishes into account is also similar for these cases. Although the scale might be different, the setup of the business case is thus similar for all cases.

### 3. Ecological impact of mega-nourishments

#### **Setting:**

During many CGM, discussions between the INTERREG partners and the WP5 members expanded beyond business cases only. For instance, during the CGM in Stavanger, September 2019, our ecologist Simeon discussed the ecological impacts of mega-nourishments with Peter van Besien (MOW Flanders).

#### **Partners problem/goal/issue:**

Ecological impacts (to sea bed, beach and dunes) are a key boundary condition that can determine both design and feasibility of measures to be taken. Luckily, research findings deliver us insights in the underlying processes and many of the Building with Nature pilots have catalysed that information. The main question still is: are bigger nourishments or even mega-nourishments better performing in terms of ecological impact than smaller nourishments?

#### **Direct advice:**

The answer is not straightforward and can be argued from different approaches and as such no generic conclusion can be drawn as the impact is always very site specific. In either case, optimizing ecological values and avoidance or mitigation of negative impacts should be a core part of the design phase. Key elements are spatial scale of disruption and restoration time: the spatial impact of a mega-nourishment is large, but after the big impact the system gets (hopefully) a long time (decennia) to adjust and recover. In case of small scale nourishments, the system will be disturbed again after a few years.

## 4. The story behind effectivity

### **Setting:**

During a WP-leader session in November 2016, the further alignment of the work of the various Work Packages was discussed. Especially the integrating role of WP5 and WP6 was further elaborated upon and the so-called Framework was founded during these discussions. A interesting topic that was raised in this setting was the point on effectivity: apparently there are many views on what effectivity entails and what it means in a business case perspective.

### **Partners problem/goal/issue:**

Especially within WP3 on coastal systems, one of the key requirements that the business case should deliver was an insight in effectivity of the projects. This will allow to compare different alternative solutions and make the most cost-effective choice; there is an understanding between the coastal partners that most probably it will be shown that the effectivity of Building with Nature is in most cases higher than that of alternative solutions; however also learnings about the characteristics that influence effectivity are useful to improve measures and further upscale.

### **Direct advice:**

Clearly the definition of effectivity is an issue in these discussions. Effectivity is defined as an unit to determine how efficient a certain measure is to fulfil a pre-defined goal. Assessing this requires technical expertise. However, when cost-effectivity to a certain goal is the driver, both the technical effectivity must be assessed as well as (lifecycle) costs (CAPEX as well as OPEX). However, within the context of BwN one might suggests that instead of a singular goal, there is a multitude of objectives or side-benefits: only focussing on cost-effectiveness when making decision will downplay the value of these side-benefits. hindering the focus on effectivity to achieve a certain goal. Cost-effectiveness analysis is thus not the only business case tool that should be used when providing arguments to upscale BwN; social cost-benefit analyses including ecosystem service valuation is a valuable alternative or complementary tool.



## 5. Carbon sequestration in the business case of BwN?

### **Setting:**

During the Hussum, Brugge, Dundee and Stavanger meetings and in various interactions by email in the meantime on an approach for setting up a business case of the Eddleston case, carbon sequestration pops up as an important parameter in the business case of Natural Flood Management (NFM). Carbon sequestration through reforestation can deliver an enormous economic benefit, which might actually overshadow flood defence benefits in value.

### **Partners problem/goal/issue:**

The Eddleston case has a strong focus on establishing its effectivity on flood protection (see also the final deliverable for its business case). The business case, which had the purpose to demonstrate that the costs of NFM are outweighed by the benefits, must therefore find firm roots in the evidence base of the derived benefits (or avoided costs) from its effectiveness. Carbon sequestration from reforestation is however a co-benefit that, when properly assigned, might make flood defence benefits from reforestation a co-benefit instead.

### **Direct advice:**

The carbon market and the methods to monetize the carbon sequestration benefits of many BwN solutions is not trivial. Reforestation is one of the simpler activities to convert to carbon credits. From WP5 we have advised our Scottish partners to further look into the opportunity to include the carbon sequestration benefits in the business case. Potentially, it could even yield income streams via carbon credits.

## 6. Different business cases for different stakeholders

### **Setting:**

From the onset of the project, the regional water authority Noorderzijlvest has been closely involved with WP5. The work that has taken place within Noorderzijlvest to further develop the Twin Dike concept and actively look for further upscaling is very much aligned with the goals of our WP. A topic that is often discussed is the approach that Noorderzijlvest has followed to direct the business case at different stakeholders.

### **Partners problem/goal/issue:**

In order to set up the final financing scheme for the Twin Dike, Noorderzijlvest has made distinct business cases directed towards the various different stakeholders. This is also described in the in-depth business case. During the INTERREG-project, there have been good interactions between Noorderzijlvest and the EcoShape-partners regarding dealing with (potential) co-investors and handling of risks related to uncertainties in expected benefits and costs.

### **Direct advice:**

From the discussions it was clear that the motives to participate were different for each of the different stakeholders. The approach to direct a business case to each of these stakeholders is from that perspective sensible. In the end however, the total business case must be positive as to assure that all parties participate. Our advice was to be focussed on learning whether it is indeed possible and effective to work with these directed business cases to get or keep the total business case positive.

## 7. Opportunities coming from maintenance

### **Setting:**

When in the field on a site visit, regular (maintenance) activities that are observed by outsiders often raise good questions. In this way INTERREG project members inspire one another to come up with new ideas and new opportunities. During the field trip in Belgium, during the CGM in March 2019, it was exactly such a situation that triggered some ideas regarding potential opportunities. As part of regular maintenance, material was excavated out of 'het Zwin' to preserve its natural functions in a dynamic environment (sediment dynamics). "How do you use this material beneficially?", was the question asked.

### **Partners problem/goal/issue:**

Optimizing designs is often considered in the initial phases of a project. However, also during the operations and maintenance phase, it is wise to regular investigate opportunities for further optimizations, especially when materials become available from the maintenance activities.

### **Direct advice:**

Materials that come available from maintenance activities could be used to raise the ground-level at strategic locations and therewith extend the area of the nature park. Additionally, such an intervention at the same time improves the flood-protection functions of the area, to really create a win-win situation. Basically, having materials available (or even better, having a natural supply of material available like the sediment dynamics here) could bring the project back to the design board, to look for optimizations in its value creation.

## 8. The individuals' perspective on coastal protection

### **Setting:**

Within various setting, WP5 member have discussed the specific settings of the Danish Coasts with our counterparts at the Danish Coastal Authority (DCA). From the DCA's perspective it is obvious that nourishments instead of armoured shore protection is the preferred large-scale and long-term strategy to counter erosion issues. However, the Danish governance structure is set up in such way that the land-owners must be convinced as they execute the work. In the end, the elaborated business case white paper is focused on this issue, but during the project many discussions have taken place.

### **Partners problem/goal/issue:**

The Danish governance structure is hindering the large-scale uptake of nourishments as preferred strategy for coastal erosion. The DCA is looking for options to convince the land owners.

### **Direct advice:**

Our starting point has always been the stakeholders. We have looked at ways to initiate the stakeholder dialogue, technical-financial methods to capitalize investments in armour rock, look for alternatives such as the use of hybrid solutions and investigated many financial mechanisms. One thing that is striking though is the individuals perspective: for instance in places the land owners are wealthy citizens, then the cost-benefits of maintaining beaches via nourishments are to them less important than privacy benefits when there is no beach at all. Basically it comes down to influencing the individuals' perspective regarding the trade-offs to be made when deciding and designing on coastal protection. The provision of clear and concise information on the many benefits of Building with Nature and the advantages on larger scales is therefore our main advice; stay in contact and good communication.

## 9. Ecological optimization of shoreface nourishments

### **Setting:**

Optimization is often discussed as part of the business case of Building with Nature examples. In the context of ecological cost-benefits, the footprint or impact of a shoreface nourishment could be optimized. During the CGM in Stavanger, this was discussed with Quirijn Lodder (RWS, The Netherlands).

### **Partners problem/goal/issue:**

With regards to the ecological impact of a nourishment, the learnings on the differentiating effects are relatively sparse. Still, the latest insights allows to discuss optimising nourishments to this effect. As a matter of interest, this was discussed alongside a CGM.

### **Direct advice:**

The difference in ecological impact of a shoreface nourishment is depending on the placement of the nourishment along the slope. The abundance and sensitivity of benthic organisms to nourishment placement is mostly determined by the wave action and sediment dynamics in the shoreface. A nourishment will be less destructive higher up the shore, however this makes placement more challenging; hence the cost-effectiveness (cost to ecological benefit ratio) is context-dependent and in general quite uncertain.

## 10. Stakeholder consultation: the earlier the better

### **Setting:**

During the CGM meeting in Haarlem, WP5 organized a workshop to discuss the Business Case development process. Focussing on three case studies, the various stages of project (and business case) development were discussed. Notably, this exercise delivered one major learning point across all partners involved in the workshop.

### **Partners problem/goal/issue:**

When approaching a case study that some people are more familiar with than others, it is always interesting to see what the key learning points are. Coincidentally, all cases delivered the same result regarding stakeholder consultation.

### **Direct advice:**

All cases had identified that early stakeholder consultation was key to success. This led to a strong belief at all participants involved that stakeholder consultation should be as early as possible. Logically, WP5 took this on board in the Guidance documentation and highlighted that stakeholder consultation should start already in the scoping phase, and that they should be informed about the pros and cons of alternative solutions (ideally in a visual way, for instance using an infographic or a cartoon).

## 11. Valuate or evaluate?

### **Setting:**

During the CGM meeting in Lemvig in March 2017, WP5 presented its work plan and the actions that were to be taken. The presentation included, next to the main action line of WP5 some slides with some further background. One was on valuation tools for typical service (nature, landscape appreciation etc.) that are difficult to quantify. During the evening conversations this additional slide became food for discussion.

### **Partners problem/goal/issue:**

One of the main issues when a particular stakeholder, for instance an authority responsible for flood defence, sees additional benefits for a certain solution, is that it is difficult to valuate these additional benefits in the same manner as the main benefit or goal.

### **Direct advice:**

Monetization seems the most obvious method to valuate co-benefits in a similar manner (being money) as the main benefit. However, how to valuate, let alone monetarize the ecological benefits of additional nature area or quantify the biodiversity benefits of BwN solutions? There are methods available for this purpose (see the WP5 Business Case Guidance Document) and there are experts that professionally execute these types of valuations. But the question is, is this still valuating (=stating how much something is worth; relatively objective) or evaluating (=stating whether something is (functioning) good; very subjective). After a long discussion, we concluded that it was at least a bit of both.

## 12. Vertical upscaling vs. horizontal upscaling

### **Setting:**

Within the initial stages of the project in 2016, it is obvious that the various project partners and Work Packages were not (yet) aligned on the expectations of what the various Work Packages would work out and deliver. A nice example is the discussion on 'vertical upscaling' of BwN (=further use of BwN within the organisation) versus 'horizontal upscaling' of BwN (=involving/convincing other stakeholders of the benefits and application of BwN) and the role of the business case in that.

### **Partners problem/goal/issue:**

Within the discussions on scope of the project and the Work Packages, differences between the various project partners regarding the business case inputs necessary to be delivered by WP5 is highlighted. Clearly some partners require assistance in further upscaling of BwN within their organisations: business cases are necessary to convince project managers, account managers or in some cases even higher management of the benefits of BwN in comparison to traditional alternatives. Other partners see business case development as a tool to further broaden the support base on BwN over a wider community, to allow for further project acceptance.

### **Direct advice:**

During these discussions it became evident that these issues are not in contrast to one another, but rather complementary. It delivered the focal point for the approach of WP5: making the business case should highlight that the project is worth investing in (societal benefits are larger than the costs) and look at financing pathways (whom should be included to pay the bill). This approach is applicable both internally (looking within organisation) and externally (looking to (other) stakeholders).



## 13. Success factors to make a project

### Setting:

During the detailed conversations to make the in-depth business cases, learnings that are taken from the cases can often be generalized. Although some of these discussions go slightly beyond the scope of the report at hand, these generalized learnings are often most interesting. During our work on the Twin Dike in the Province of Groningen (NL), we derived such a learning together with the team there.

### Partners problem/goal/issue:

Everyone wants his project to be successfully realized. But what key factors are necessary to make a project a success?

### Direct advice:

During the conversations we derived three factors:

1. Urgency  
In Groningen this was caused by the increased number of earthquakes due to gas mining.
2. A key party that believes in the solution and shows political courage to choose a less obvious solution; 'stick their neck out' as the Dutch saying goes.  
In the case of the Twin Dike, this was the Water Board Noorderzijlvest; (note: we call this the Policy Broker)
3. Specialism in finance: knowing under which conditions what financing can be made available where.  
Knowing subsidy streams and conditions, knowing different available public funds, knowing interesting investment parties and what triggers them etc. etc. Knowing where to get which kind of money for what type of values seems basic, but is crucial to smoothly walk a the project development pathways. The Province of Groningen has made quite the effort in the case of the Twin Dike.