

CASE STUDY

THE ROLE OF EXPERIMENTATION IN GOVERNANCE: LESSONS FROM A BUILDING WITH NATURE EXPERIMENT

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1. Introduction

In 2009 the implementation started of 'sand engine experiments' in front of the Frisian coastline of Lake IJssel. Sand engines are spatially concentrated shore nourishments, and as such potential adaptation measures for a coast under the influence of rising water levels, e.g. due to climate change. The implementation is governed by a coalition of regional and national actors, led by It Fryske Gea¹. The Building with Nature innovation program² initiated the process as part of its strategy to develop and introduce innovative coastal management principles, based on a maximum use of ecosystem potential and accommodation of multiple interests.

The aim of this paper is to describe the Frisian experiments from a governance point of view. Based on the experience of this case we propose seven practical lessons for successful implementation of experiments.³

1 It Fryske Gea is the Frisian Landscape Management organisation.

2 Lulofs K. Smit M. Vikolainen V. (2011) *Innovatie op de Grens van Land en Water: Bouwen met de Natuur*, in: *Water Governance 2*: 23-27).

3 This case description is based on the results of a governance monitoring project (Smit M. Lulofs K. (2011) *Monitor Building with Nature in the IJssmeer Area*. Ecoshape. Dordrecht) and two earlier publications:

1. Van Slobbe E. Lulofs K. (2011) *Implementing Building with Nature in Complex Governance Situations*. *Terra et Aqua* 124: 16-24;

2. Van Slobbe (2010) *Ecodynamic Design as a Boundary Object. A case study in Fryslân*. ERSCP-EMSU Conference paper. www.erscp-emsu2010.org (December 2011).

And on unpublished research material from the

2. The Building with Nature pilots

The context of this case is the discussion on future water level rise in Lake IJssel as a proposed measure to cope with climate change impacts. Actors in the coastal zone management are: the Province of Fryslân, the Water Board Fryslân, municipalities, Rijkswaterstaat and It Fryske Gea, all of which participate in the experiments.

2.1 Window of opportunity, vision and conflict

The experiments were initiated during a workshop in August 2009. Representatives of Frisian governments met with Building with Nature experts. At this workshop two different initiatives were linked. The first was a future visioning process in the province of Fryslân called 'Atelier Fryslân'. The aim of this initiative was to develop innovative ideas to revitalize the Frisian landscape. One of the ideas that emerged was to develop semi natural flood plains in front of the Frisian coast of Lake IJssel.

The second initiative originated from a request from the Ministry of Infrastructure and Environment. The Building with Nature consortium was asked to start an experiment in Fryslân. In order to cope with expected maximum sea level rises it was proposed to raise the lake level up to a maximum of 1.5 meters in the coming one hundred years. One of the reasons the Frisian parties disagreed with this propo-

sal was that the lake coast has large unprotected flood plains. These plains will be submerged by rising water levels, which will potentially destroy high-value areas (nature, industry, recreation). Irritation and a sense of conflict characterised relations between the ministry and Frisian authorities at the time. In this context Building with Nature was asked to initiate experiments hoping to find innovative solutions for coastal protection and ease relations.

2.2 Dealing with different expectations

The initiators of the experiments were aware of the challenge to deal with conflicting interests. The table below presents an inventory of interests and expectations of participants at the Stavoren pumping house meeting.

Especially the debate between the ministry (in favour of water level rise policy) and provincial parties (against lake level rise policy) asked for careful manoeuvring in the initiation phase of the project. Three purposefully implemented strategies proved helpful. First, clear definitions and representations were avoided. By keeping concepts open and vague, potential partners were allowed to translate their own interests into the plans and early clashes on end results were avoided. The second strategy was to produce a short movie with decision makers expressing the importance of a building with nature approach for Fryslân. This movie proved important, as it showed support from high-ranking officials for the experiments therefore providing informal legitimization. As such the film facilitated negotiations. A last important factor in getting stakeholder support, was a series of visits of high-ranking officials like the Delta Com-

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Figure 1. Location of the Building with Nature experiments (in purple)

Figure 2. Concept of the Workumerwaard sand engine. Sand is nourished on the foreshore. Waves transport sand to the coast in a semi natural sedimentation process, creating a new foreshore.



missioner, his Royal Highness the prince and the Parliamentary Commission for Infrastructure and Environment. These visits were organised by the province of Fryslan.

2.3 Financial engineering and translation of interests

At the start of the project the available budget came from the Building with Nature consortium. However, these funds were insufficient to cover all costs. In collaboration with regional partners a project plan was formulated. Applications for subsidy resulted in successful acquisition of a total budget of two million euros. Three main financial contributions were received: 1) Building with Nature (see www.ecoshape.nl) 2) subsidy from the climate buffer program (see <http://klimaatbuffers.testingserver.be/> (2 dec. 2011) and 3) subsidies from the Province and the Water Board. A project team and a steering committee with local representatives, regional officials (It Fryske Gea, Water Board, province) and national officials (Rijkswaterstaat, Building with Nature, consultants) was set up to manage the project and monitor expenditures.

As the financiers had specific objectives, it was decided to implement sand engines at three locations. Every location would focus on different spatial functions. One, in the coastal zone of the Workumerwaard, aims at revitalising a nature area. The second, at the coast of Hindeloopen, aims at improving beaches for recreation. And the third, in the coastal zone of Oudemirdummerklif, aims at creating a shallow foreshore to absorb wave energy as an alternative to dike reinforcement.

Table I

Inventory of participants, interests and expectations in August 2009.

Participant	Interest	Expectations
Ministry of Infrastructure and Environment	Implement national policy to adapt lake level rise following sea level rise	Find new strategies to mitigate impacts of lake level rise to Natura 2000 areas
Building with Nature	Implementation of building with nature experiments. Active search for experiments in the Lake IJssel region	Generating knowledge on designing and implementing eco dynamic projects
Province of Fryslan	Renewal of landscape and land use along the Frisian coast. Opposition against national lake level rise policy decision	Multi-functional innovations and integrated coastal planning
Water Board Fryslan	Parts of Lake IJssel dikes need reinforcement with lake level rise. Opposition against national lake level rise policy decision	Finding new cost effective flood defence strategies
It Fryske Gea	Protection of bird habitat and other nature values on flood plains. Renewal of habitats.	Learning about policy developments and revitalise flood plains

2.4 'Simple' implementation; the Workumerwaard

First step in the project plan was to implement a sand engine at the Workumerwaard. This experiment was consi-

dered easiest to implement, because the area is owned by It Fryske Gea and as a Natura 2000 area no other interests are at stake. The basic idea was to deposit sand 200 meters offshore in shallow wa-

ter. Waves will transport sand towards the coast where a new foreshore will develop in interaction with the emergence of pioneer vegetation.

Legal permits (nature protection law,

municipal construction and water) were acquired without trouble and in the summer of 2011 the sand engine was constructed.

2.5 Taking time to learn

A Building with Nature community of practice (CoP) involving twenty experts in the field of ecology, hydraulic engineering, dredging, governance, policy development and local stakeholders visited Workum during planning of the experiment. A full day was taken to visit the site (see figure 3) and to reflect on

the experiment and its risks, monitoring and communication. Discussions proved constructive and important and resulted in several adjustments to design and process. Perhaps the most important result of this day was the acknowledgement that communication with local stakeholders needed more attention.

Multi stakeholder discussions and scale problems in Hindeloopen

Initiative and planning of the second sand

engine in Hindeloopen proved more difficult and complex. Hindeloopen was selected as second location as a result of a request of a local camping owner, who wanted to improve beach conditions. However, another group of recreational entrepreneurs tried to prevent authorities to grant the required permits. In a meeting it appeared that the protesters framed the experiment as 'sand suppliers to the coast' based on the already implemented Workummerwaard sand engine, where 27.000 m³ of sand was supplied. These

Figure 3. Networking in Workum. A Building with Nature community of Practice (CoP) visited the Workumerwaard.



Figure 4. Ceremonial initiation of construction; provincial deputy, municipal Alderman, hitting the first pole



entrepreneurs considered additional sand suppletion to be a threat, as the coast was already too shallow for swimming and (kite) surfing. Even though there was agreement among local entrepreneurs that action had to be taken, the course of action was disputed. It was decided that Building with Nature would analyse the problem and propose improvement strategies. Expert studies did not find easy innovative solutions at the scale of the Hindeloopen beach, making a larger scale analysis of sand transport along the Frisian coast necessary. Subsequently the municipality expressed the need to

integrate potential experiments in the master plan process for the Hindeloopen and Workum coast. Based on the fact that this master plan is encompassing a larger area, together with the impossibility to find easy solutions for the beach itself, it was decided to cancel the Hindeloopen experiment.

By December 2011 only the Workumerwaard experiment has been constructed (figure 5) and monitoring of ecological and morphological effects is in progress. The proposal for the design of the Oudemirdummerklif experiment is submitted to the municipal council. The dike requires

reinforcement, in case water levels of Lake IJssel are raised. A new shallow foreshore may be an alternative to dike reinforcement, as it would absorb part of the incoming wave energy. The location of the projected sand engine is chosen to serve as a divide between a nature protection area and beaches for kite surfers. Negotiations in Hindeloopen on alternative approaches continue.

3. Lessons learned

What lessons on governance can be learned from these experiments? Seven lessons emerged, on planning and im-

plementing experiments and on the importance of experiments in governance of climate adaptation.

1. Use windows of opportunity

The plans to change the water level management of Lake IJssel opened a window of opportunity. The situation forced the existing regime of coastal management to rethink their practices, which created an opportunity for experimentation. It was fortunate that Atelier Fryslan and Building with Nature had prepared new potential strategies. At the 2009 workshop these strategies were directly translated in concrete proposals for the Frisian coast. The time was right to start experimenting in Fryslan.

2. Manage expectations and acquire political support

In the first sand engine experiment the strategy for voicing and shaping of expectations was to avoid clear definitions

and representations of the end result. This approach created optimal conditions for actors with conflicting interests to cooperate. This approach could not be applied in the second experiment, as the first experiment at the Workumerwaard was already taking shape. According to the Hindeloopen entrepreneurs, the result was not the right answer to their problems and protests led to a change of design of the Hindeloopen experiment.

For the case in general the support from high ranking officials was mobilized at first by the making of a movie. The impact of the video was striking, as it showed the support of authorities. The visits of high ranking officials to the Workumerwaard site helped to create an image of powerful support too.

3. Manage financial engineering

Securing enough funding for the experiments proved to be a difficult process. In the end the full budget was acquired suc-

cessfully from different sources. Objectives from financiers were carefully integrated in the design of the experiments. The advantage of this arrangement is that important stakeholders share a sense of ownership of the experiments and can organise implementation.

4. Manage multi-stakeholder complexity

The governance of the Workumerwaard was relatively easy as almost no local interests were affected. The Hindeloopen experiment, however, touched upon the interests of several local entrepreneurs in lake recreation and the elaboration of a master plan for the municipality. Translating these interests into an executable and innovative design proved difficult and the initial experiment was cancelled.

In this case, multi stakeholder involvement asked for:

Figure 5. Sand engine Workumerwaard (October 2011)



- Skilful process management (communication, timing, boundary spanning, translation of interests in designs);
- Need for detailed arguments on content and need of experiments;
- Longer planning and implementation processes;
- Negotiations on negative impacts and risk management;
- Dealing with unexpected governance feedbacks (f.i. protest letter of Hindeloopen entrepreneurs).

5. Take time to reflect

The visit of the community of practice to the experimental site proved useful. The CoP functions as a so called 'shadow network' whose members are not under scrutiny and obligations of their agencies or constituencies and are free to develop new innovative ideas. From the field study interaction important lessons on communication with local stakeholders were learned.

6. Select the right scale

The discussions in Hindeloopen were partly about the choice of scale. The selection of the beach as experimental location did not fit into the larger scale master plan process of the municipality. The intention to negotiate with local stakeholders did create friction with the municipality's ambition to plan for the whole coast. Also larger scale sand transport processes in front of the Frisian coast were not sufficiently understood.

7. Experiments are important

The experiments - although only one is operational at the time of writing - have played an important role in the gover-

nance of adaptation of the Frysian IJssel lake coast to climate change. Firstly the experiments served as a boundary object between national and regional authorities. It allowed parties to maintain conflicting positions, while at the same time creating an atmosphere of collaboration and good will. This dualistic attitude became apparent during visits of high-ranking officials at the experiment site; both the intention to collaborate and the debate on strategies were discussed. Secondly, the experiments facilitated learning, not only on physical and ecological aspects of the coast, but also on each other's positions vis à vis coastal management and possible futures. This was necessary because the coastal zone had long been neglected by authorities and therefore governance positions, competences, and management tasks needed a refit. The management of the experiments created the right conditions to call in experts and to learn about the coast in general in a protected environment. Thirdly, the building with nature concept was introduced and by now is well known and part of the future developments of the Frisian Lake IJssel coast.