

NIDO/KSI Appendix F – Examples of Testing Grounds

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In this Appendix a couple of testing grounds (PT) of 4 practice organisations are presented in short. The testing grounds are much more extensively described in the Bsik programs submitted by the practice organizations. In principle these testing grounds are open for cooperation with NIDO/KSI. A final choice will be made after a new consultation with the practice organisations and with the parties who are involved in these testing grounds.

1. System Innovation of the Use of Space (Bsik Program)

1.1. Testing Ground cluster multiple space use with water

Task and breakthrough

In order to counter the threat from floodwater or, in fact, turn the threat into opportunities, water must acquire more space to breathe on the land. The task lies in the spatial integration of water and the combination of the new blue function with red and green functions. Multiple water use as a spatial task can turn the threat of water into an opportunity. Financing is very well conceivable through a combination of blue, green and red functions, thereby offering the possibility of beneficial public-private partnerships. A breakthrough lies in the actual realization of new combinations of functions, new arrangements for cooperation, new financing constructions and new (water) landscapes.

Knowledge questions

There are hundreds of ideas for multiple water use. Two contests organized in 2000 and 2001 ('Amphibian Living' by South Holland Province and 'Water Landscape of the Future' by Habiforum and the Ministry of Transport, Public Works and Water Management) made an important contribution to this. But a nationwide study conducted by Habiforum shows that there are considerable obstacles between idea and realization. The obstacles must be resolved if the ideas are to progress in the **idea-investigation-plan-realization-use** development sequence. The following, in sequence of importance, are major obstacles in the perception of those interviewed and those who responded to written questionnaires.

1. No effective cooperation between governmental bodies in (strategies for) implementation;
2. Failure to realize integral financing of integral projects; parties withdraw to their own fortresses and appeal to their core activity;
3. Intentional or unintentional non-effective use of available (plan) instruments; however, parties can always produce a plan from which an idea appears to be unsuitable.

General knowledge questions are connected with the search for solutions to these obstacles. An umbrella project and a number of reference projects are prepared to reach a solution. Specific knowledge questions, divided into concrete practical projects, refer to content, process, management and communication.

Project cluster: process approach and duration

The multiple space use project cluster consists of an umbrella project and six practice projects called reference projects. The umbrella project starts in 2003 and focuses on solving obstacles in financing,

in anticipation of the realization phase of the reference projects. The first reference projects started in the course of 2001 and 2002 within the context of the Habiforum program (ICES/KIS-2).

Through the concrete task of multiple space use and application of developmental urban and regional planning, the reference projects focus on solving the obstacles in cooperation, financing and instruments. Connections are made between the umbrella project and the reference projects, so that they can learn from one another.

Parties involved

Public and private parties, non-governmental organizations and community-based organizations participate in the umbrella project as well as in the reference projects. Associations of end users and Projectbureau Belvédère can be added to the reference projects. Projectbureau Belvédère falls under the Ministry of Agriculture, Nature Management and Fisheries. Its objective is to firmly secure or promote cultural history in spatial developments. The financing is arranged differently for each project. However, in all cases, substantial co-financing from Habiforum is involved. See the appendix for an overview of involved parties.

1.2. Explanation of project levels

A. Umbrella project

The umbrella project focuses on knowledge production for financing multiple water use, initially with a view to realize reference projects and in second instance to realize comparable projects. A colorful group, whose members are willing to contribute their specific knowledge free of charge and to make their knowledge available for the future of the Netherlands, provides the intended knowledge production. Amongst the members are a project developer, a manager of protected areas people who work at a bank, a construction company, a university, various governing bodies and a political committee.

B. Horstermeerpolder reference project

The Horstermeerpolder (600 ha) is situated in the Vechtstreek within the Municipality of Wijdmeren, between Weesp and Hilversum. Approximately 30 million m³ must be drained annually to keep the area inhabitable. Centers such as Kortenhoef and Ankeveen, which are situated along the polder, have too little storage capacity to absorb heavy precipitation without damage. The task consists of developing alternatives in terms of content and process, to turn problems with water into opportunities. During the investigation, the inhabitants are the leading players, acting within the frameworks and conditions that were identified earlier by the responsible governmental bodies. The final picture consists of a structural solution for lingering problems with water in and around the Horstermeerpolder. While preserving existing social cohesion, the current inhabitants receive an alternative residential location in or on the polder. The stalemate between administrators with various portfolios and perspectives is breached in society's favor.

C. Overdiepsepolder reference project

The Overdiepsepolder and adjoining upper bank (730 ha) is situated on the southern side of the Bergsche Maas, east of Geertruidenberg. The polder is located in the search area for space for the Maas with a view to top off peaks in drainage. The polder is also situated in the planning area of the *Revitalisering Landelijk Gebied* (Revitalization Rural Area) project. Inhabitants, organized in a tenants' association, work with the various governmental bodies on alternatives in which temporary water storage is integrated with the use of space. It appears possible to combine the preservation of living, working (17 agrarian companies and homes) and recreational functions (yacht basin and shipyard). The final picture is space for the Maas in case of emergency, without structurally interfering with living

and working in the polder. Administrators and citizens have learned how to tackle a complex problem like the one in question and carry it out differently.

D. Dotterlandschap reference project

The Dotterlandschap (10,000 ha) is planned in the area between Gouda and Utrecht and between the Oude Rijn and Hollandse IJssel rivers. Within a water management context, the problems accumulate, partly because a large part of the area consists of peat grassland that keeps declining due to level reduction. Water storage is also needed to keep dry in the surroundings.

The task lies in developing alternatives for the area, so that the good elements are retained, problems are solved and new sustainable elements are added. The final picture is a new residential location with 7,000-8,000 homes, integrated in an area with a lot of space, relatively speaking, for (temporary) water storage while maintaining cultural-historical and scenic elements. By giving the current end users (inhabitants of the rural area and agrarian entrepreneurs) and future inhabitants a major role in the process, a large degree of involvement is created in the living and working environment.

E. Volkerak Zoommeer reference project

The Volkerak Zoommeer (6,000 ha) is a body of water, created in 1987, consisting of the northern Volkerakmeer (the former Krammer Volkerak), the southern Zoommeer and the connecting Eendracht. Originally, it was salt water. After the Oesterdam and the Philipsdam were completed, it became fresh. The water quality is far below par and unsuitable for agriculture, recreation and fishing. Economically, the region is below average, but there are ample opportunities for recreation. Parties are now in complete agreement that the time is ripe for substantial intervention. The task lies in developing sophisticated combinations of blue, green and red functions, so that the lake can appear on the map as a pearl instead of a problem. The final picture is a clear water lake, with housing on part of the shore and high-quality recreational facilities. The local economy receives a substantial boost through the new design. This contributes to inhabitant involvement in the quality of their environment.

F. Roermond reference project

Roermond is a bottleneck for both the Maas and the Roer, which are expected to drain away an increasing amount of water due to climatic change. There is a potential basis for a recreational area of international allure, but the design leaves something to be desired. Agriculture is the main function around Roermond. For further development, Roermond needs space for residential construction and industrial estates. The task lies in developing alternatives for the design of Roermond and environs, so that increased drainage by the Maas and Roer passes without effort. The final picture is a location that no longer forms a bottleneck for the water from the Maas while utilizing the economic and socio-cultural opportunities of the lakes in the direct surroundings. The investments make a positive contribution toward putting the area on the international map.

G. Krimpenerwaard reference project

The Krimpenerwaard is situated south of Gouda, between Rotterdam and Utrecht. As part of the Green Heart, the main function is agriculture. Various problems are accumulating, which demand an unorthodox solution. An unorthodox spatial picture of the green area, as part of the Deltametropool, can tap the energy that is needed to make progress and experience the future as a challenge once again. The final picture is a polder, in which inhabitants and users would like to reinvest. New functions and combinations of functions respect the characteristics of peat grassland areas, without writing off the area as sinking marsh unable to bear long-term management costs. The project breaches a deadlock between the insight that it needs to change and the desire to retain what was built up in the past.

2. Transition to Sustainable Agriculture (Bsik Project Plan)

The various social parties, companies, governmental bodies, knowledge institutions and special interest groups have indicated their willingness to participate in all the projects described below.

2.1. Greenhouse horticulture sector as an energy source

Reason, nature and objective

Greenhouse horticulture uses an extremely large amount of quantity of fossil energy, mainly natural gas. In the process, CO₂ is released, which is partly used in the greenhouse, but largely emitted. The use of fossil energy and the CO₂ emission needs to be drastically reduced if greenhouse horticulture is to become a sustainable sector and contribute to the climatic objectives. With the 'greenhouse as energy source', the objective is to realize a transition in the energy supply in greenhouse horticulture with sustainable energy sources.

Central knowledge questions

Greenhouse horticulture as a potential energy source leads to entirely new knowledge questions:

- The effective utilization and storage of natural energy in a greenhouse in a year-round energy system with the guarantee of essential energy and production functions; improvement in energy quality;
- Redesign of the greenhouse system (greenhouse, greenhouse cover, operations) assuming sustainable energy;
- Design of *energy webs* from local and regional energy providers and users within and beyond horticulture.

2.2. Horticulture Cluster Academy

Reason, nature and objective

The knowledge infrastructure of horticulture is strongly developed from production. This structure is no longer satisfactory due to radical changes in the environment:

- The managing role of production will be taken over by market demand: management is shifting from the greenhouse to the cash register. Work relationships are now much more vertical and market-based;
- Individualization means that knowledge exchange between competitors is not self-evident;
- Society is placing more emphatic demands on products and requiring contributions from horticulture to the quality of life of its citizens.

This means that the orientation of horticulture is changing and taking place much more outside the horticulture cluster than within. Entrepreneurs appear to be willing to acquire joint insight into strategic developments with the international market and society as a source of inspiration. This demands an active approach by entrepreneurs and their actual participation. The traditional supply concepts such as Research, Information and Education are making way for active verbs such as Discover, Investigate and Develop. This has created a new setting and renewal of the classical knowledge infrastructure, resulting in an initiative for a Horticulture Cluster Academy: to gain strength by learning from one another and from the outside. The objective of this proposal is to realize the Horticulture Cluster Academy.

Intended result and contribution to the ICES-KIS program

The proposed Academy is an investment from the horticulture cluster in the knowledge infrastructure and its dynamism and change. It adds a number of new elements to strengthen the innovative capacity of the sector:

- a) New forms of cooperation between entrepreneurs and with experts (e.g. from knowledge institutions) by considering strategic issues;
- b) Trans-disciplinary knowledge development, the joint (with entrepreneurs from within and outside the cluster) generation of new knowledge for complex system innovations;
- c) Development of international 'renovation' networks beyond the sector.

2.3. Flor-i-log / Logistic renovation in flower growing

Reason, nature and objective

The supply of flower shop products from horticulture companies to collection areas for (inter)national transportation and distribution is still performed by the horticultural entrepreneur himself or his transporter. It is known that a very large number of transportation movements are the result. There are signs that efficiency can be greatly improved, the number of transportation movements significantly limited and timely delivery improved if a switch were to be made from an individual to a joint approach. The purpose of this Flor-i-log proposal is to develop a more sustainable system of collection, transportation and distribution in flower growing through better control and chain optimization. This system can be expanded both domestically and internationally.

Intended result and contribution to the ICES-KIS program

The result is a significantly more efficient and sustainable system of collection of fresh production for (inter)national trade. The system designs and the actual implementation of logistic innovations in practice strongly affect current operations and the behavioral patterns that have been developed. The project provides new technical knowledge, system knowledge and new knowledge about group processes in a complex system innovation. The management of these complex change processes is an important knowledge and skills component that strengthens the infrastructure of the horticulture cluster.

2.4. Fresh parks at multimodal junctions in Europe

Reason, nature and objective

Over decades, the Dutch horticulture cluster has built up a strong position in production and international trade, trade, transport and distribution of fresh products (vegetables, flowers and plants). The Netherlands fulfils an international turntable function. Developments show that this turntable function may be fulfilled in another way in the future. While there are doubts about the inconvenience due to excessive highway transport, it is becoming increasingly easier (as physical flows are uncoupled from information flows) to lead international flows more directly to major consumer centers in Europe. This could lead to the creation of a 'network of turntables, junctions or fresh parks' in Europe. The creation of such a European network can have major consequences for the structure of the Dutch cluster and for the way in which parties operate within it. Initiatives are already visible at a number of locations in Europe. *The objective* of this project is to analyze the consequences of creating a network of fresh parks, to develop a concrete concept and to form consortia of market parties that invest in it.

Intended result and contribution to the ICES-KIS program

The first result is a sharp image of the favorability of the 'fresh park' concept as a junction of product flows at European population centers. The second objective is to form international consortia to develop fresh parks. The Dutch knowledge infrastructure will internationalize in this area and is likely to create new knowledge alliances. Efficient logistic contributions are expected to lead to a more sustainable system.

2.5. Agro Eco Park Horst: Linking of operations at agroproduct parks**Reason, nature and the objective of the project**

With Agro Eco parks, an attempt is made to integrate various objectives: space pump, closing circuits, developing chains to networks, heightening cooperation for market-oriented production, linking knowledge interchanges with production interchanges, linking agroproduction with non-agroproduction. This requires intensive cooperation between companies and linking of flows. The support base from the quadrangle (companies, NGOs, governmental bodies and knowledge infrastructure) is also critical. The objective of this project is to attain an Agro Eco Park, in which joint venture agreements between companies are developed, circuits are closed and multi-functional space use is developed.

Intended result and contribution to the ICES-KIS program

Objective of the project:

- Detailed pilots that can serve as examples of the concept;
- Knowledge about process approach reduces costs of trial and error elsewhere;
- Better social embedding of spatially concentrated economic activities;
- Toolboxes or expert systems which include generic knowledge about organization and links.

2.6. The A1 protein corridor: Agribusiness parks in the A1 region**Reason, nature and objective**

One of the options in improving spatial quality and accessibility is to cluster primary production companies in animal protein production. Various objectives with respect to environment, scenic quality, quality of life and economic opportunities should also be realized. The prospect of advantage to the various parties is important to the supporting base of clustering. This project intends to contribute to knowledge development on how to attain system innovations that are needed for the clustering of the primary companies. A step can be made from theoretical model development to practical applicable public administration and organizational concepts, thereby reducing the costs that are coupled with trial and error for comparable initiatives.

Intended result and contribution to the ICES-KIS program

The project intends to offer new fervor and growth perspectives to the animal food chain along the A1 through the formation of agroproduction parks at junctions. More specific objectives are:

- Space pump (clustering agro-production in or around junctions, reducing spatial stress);
- logistic innovations, shortening the chain and optimizing the chain;
- relief from intricate infrastructure; transport savings;
- new economic activities at a cluster;

- spatial organization for cluster innovations (*utility sharing*, also new utilities to be developed jointly; utilizing residual flows).

2.7. Agriculture and green for a healthy society

Reason, nature and objective

The overall objective is the optimal contribution of agriculture and green to the social, mental and physical welfare of the inhabitants (citizens and companies) in the urban area. The project will be conducted in and around Amsterdam, Rotterdam and Deventer. A large number of parties in and around these cities would like to make better use of agriculture and green and bring about renovations. Often, these parties do not know each other yet, since they come from different worlds. In order to bring about the innovations in the sector, business and organization, a number of actions will be taken to remove barriers to innovation:

- Designate, manifest, quantify, substantiate, distribute and establish the values of green and agriculture in and around the city;
- Connect networks and expertise, link experiences, professional and scientific knowledge from concrete projects (break through established ways of thinking, create interesting meetings, develop new knowledge);
- Develop visions and options for the optimal use of green and agriculture in and around the city for the health of society.

An innovation network, which works on the desired transition, will be formed. This will take place, among other things, through the joint search process, the formulation of the innovation agenda and the start of innovation experiments. As a result, the parties involved should be able to realize the innovations, while forming an example for other areas.

Intended result and contribution to the program

- developing sustainable, socially embedded, multi-functional agriculture forms, such as intended with the program;
- breaking through established ways of thinking, focusing on combinations of sustainability principles;
- setting up innovation networks from companies, social organizations, knowledge centers and policy (nationwide, provincial and local level; care, agriculture, welfare);
- setting up a European scientific and practical network.

3. Transition to a Sustainable Energy System

3.1. Testing ground “ Introducing the concept of sustainable entrepreneurship in Energy Project Office practices”

In the Netherlands, several regional/provincial Energy Project Offices exist that aim to stimulate the uptake of renewable energy and energy efficiency measures at the local level. Since transitions start as hopeful trials in a local context, the Energy Project Offices could play an important role in a transition to a sustainable energy future. Project Offices staff have developed much tacit knowledge on the practical barriers and aspects of implementing new and renewable energy options. As yet there is no structured way of capitalizing on this knowledge stock. On the other hand, there is also a limited influx of general (academic) knowledge to the staff of the Project Offices about implementation barriers and how to possibly remove them.

An issue that might deserve attention is that the Project Offices in their search for sustainability are often bench-marked by their financiers and peers against only one dimension: CO₂-reduction. This leads to a tendency to choose large projects that are relatively easy to implement. Even though these projects might lead to system optimization, it deserves reflection whether other projects might be a better initiation to a real system change, i.e. a transition.

All observations above show that it would be important and helpful for Energy Project Offices to develop their own learning and knowledge infrastructure and that it is important for them to connect to existing knowledge infrastructures to be able to tap relevant information.

Project description

One of barriers most experienced by the Energy Project Offices is the pay-back time of the implementation of many sustainable energy options that are perceived as ‘too long’ by decision makers in local enterprises. ‘Pay-back-time’ is then defined in a rather one-dimensional way (just the ‘Profit’ part of the People-Planet-Profit triangle used in the concept of Sustainable Entrepreneurship). More knowledge about the concept of Sustainable Entrepreneurship, its success stories, and ways to communicate these to decision makers in enterprises at the local level could contribute to an enhanced rate of success in the implementation efforts of the regional Project Offices.

During the Testing ground Project, researchers from the KSI network knowledgeable in the concept, practices and success stories of Sustainable Entrepreneurship, will study how the Sustainable Entrepreneurship could play a role in the practices of Energy Project Offices.

3.2. Bsik BIOFEED Proposal: Green diesel for Waddenzee fishermen

In this Bsik proposal strong cooperation will be sought with the NIDO/KSI network. This will be done partly by sub-contracting the network directly for activities to be proposed. For this sub-contracting of NIDO/KSI 500 000 Euro will be reserved. An activity that would fall within the needs of the BIOFEED consortium and relates to the development of experimental markets to create a necessary output area for (future) sustainable biomass products is the project proposal described in the NIDO/KSI program as "Green Diesel for Waddenzee fishermen".

Background: The transition to a bio-fuel transport system

One of the major challenges to attain a transition to a bio-based energy and materials society is formed by the massive introduction of biomass fuels in the transport sector. The amount of bio-fuels

needed in the transport sector based on biomass, will be massive. Looking at the whole chain of production and use of transport fuels, we see that, in principle, all the technologies to be used are known. However, current prevailing practices, system dynamics and economics prevent sustainable biomass fuels to find a place in the market. A massive introduction of bio-fuels in the transport sector would mean a fundamental change in land use, (international) logistics, and fuel production processes. User perspectives could be especially important as a driver (or blocker) of initiating the transition process.

Testing part of the system by cutting the chain (temporarily)

With a situation as described above, it is impossible today to test the delivery and user aspects of bio-fuels in relative smaller niches, while keeping the whole chain intact. However, as natural gas-based diesel from Fischer-Tropsch installations is available today, the aspects with regard to delivery and use of a diesel, that in its physical appearance is exactly the same as future bio-mass derived diesel, can be submitted to experiments today. This means that part of the system (from the diesel production facility to its use) can be tested, which is made possible by cutting the chain (temporarily).

A test in a specific user context: The case of Waddenzee fishermen

In deliberation with the Provincial Energy Office of the Province of North Holland, SDE has selected the case of the provincial Waddenzee fisherman for a desk study in order to make a 'blueprint' for the use of green diesel by them. This blueprint will be an important input in the pilot project that will serve as the first energy Testing ground in KSI.

Deliverables

The project is expected to deliver insights to relevant actors in the total system aspects of the delivery and user phase of green diesel. This will include technical aspects, environmental aspects, logistic aspects, but also the enrolment of the relevant stakeholders, symbolic and cultural meaning and learning how to develop a market for green diesel.

This project could act as a pinch bar to construct a broader market and/or could function as a prototype to develop green diesel markets in other sectors. When a large market for green diesel has been constructed, efforts to match sizes of production technologies in the chain of bio-diesel production will materialize more easily.

Specific questions to KSI:

1. How can a constructive process be set up that includes all relevant stakeholders and guarantees a maximum chance of success for the Testing ground pilot?
2. What can be learned from other pilot processes in this respect? What is known from empirical research and/or theory?
3. What can be learned from the development of other 'green markets' (such as the early green electricity market a decade ago)?
4. How can learning opportunities best be seized during the pilot?
5. How can added value be created for the users of green diesel? What is the role of Societal Responsible Entrepreneurship in this respect?
6. How can the societal embedding of a product as green diesel be influenced best? Which tools and strategies can a project manager of a pilot (one of the important system innovation managers) deploy to achieve this?
7. How can lessons learned during the Testing ground project best be used in other contexts?

4. Transition to a Sustainable Traffic and Transportation System

4.1. Distrivaart project

Distrivaart is a project that focuses on the transportation of pallets by inland shipping. Normally speaking, the pallets are transported exclusively by truck. Logistically, transportation by ship has been a virgin territory thus far. The purpose of the project is to develop an inland shipping network, making use of waterways in the Netherlands, so that a type of fixed route (in ring form) can be developed in which freight and return cargo (packaging) can be unloaded or loaded in the interim. The purpose is to achieve logistic profit.

The project uses the Riverhopper, a ship that is suitable for pallet transport. An examination will also be made into the extent to which ship propulsion can be brought to a state-of-the-art level. Therefore, an improvement in energy efficiency is involved as well.

Transition management question

In starting both processes (the logistic process and the propulsion process) the latter process must not thwart the former. From a logistic standpoint, it is extremely important that the process proceeds beyond the pilot (development and upscaling). Only then can the propulsion approach succeed as well; it is dependent on the success of the pilot. The concern that both processes come off the ground successfully can be seen as a problem of transition management. It should also be stated that the propulsion process should be placed within a broader framework (not just Riverhopper).

Taking the Distrivaart theme as a research object of Transition Management means that management (adjustments) of potential transitions can be examined in advance. This is more attractive than merely looking retroactively.