INNOVATIONNETWORK

SYSTEM INNOVATIONS IN RURAL AREAS, AGRICULTURE, AND NUTRITION, 2000-2005

GRASOL
INNOVATIVE SPACE USAGE
NEW VILLAGES
NEW RIVERS
SAND PARTNERS
TEMPORARY NATURE
NEW CONCEPTS FOR LANDSCAPE MANAGEMENT
COUNTRYSIDE EXCHANGE
3DZ
LIVING WITH WATER
COWMUNITY
COURAGE
THE ‘BUURDERIJ’
AGRIPARKS
QUALITY OF LIFE AS THE FOCUS OF SOCIAL PERCEPTIONS
INTERNATIONAL MARKET-DRIVEN SERVICE NETWORKS
THE GLASSHOUSE AS A SOURCE OF ENERGY
HORTICULTURAL SECTOR INNOVATION FUND
HORTICULTURAL SECTOR ACADEMY
MULTIPLE SPACE USAGE IN GLASSHOUSE HORTICULTURE
NETHERLANDS GLASSHOUSE HORTICULTURE INNOVATION FOUNDATION
THE TRANSFORUM FOR AGRIBUSINESS AND RURAL AREAS
SALTY PERSPECTIVES
SEAWING
AGROPOLIS
ROBUST LIVESTOCK
MANAGEMENT CONCEPTS AND INFORMATION RELATIONSHIPS
INNOFISK
TASTE LESSONS
THE ‘GRUITSJOP’
FOODICONS
SYSTEM INNOVATION KNOWLEDGE NETWORK
The first five years of InnovationNetwork's existence have shown a marked dynamic. In 2000, a new type of organization came into being. Its purpose was to facilitate 'system innovations' in three key themes: rural areas, agriculture and nutrition. The new InnovationNetwork was based on inspired theories about system innovations and how they could be made possible. By the late 1990s, it was widely recognized that radical innovation was indeed necessary. However, it remained unclear exactly how this could be achieved, and what resources would be required. The foundation of Innovation Network should be seen in this context.

During the past five years, InnovationNetwork has developed to become an organization which strives to introduce radical system innovations in its own pioneering way. Its main activities are devising radically new concepts with a view to sustainable development, and putting those concepts into practice. The concepts themselves represent 'points of departure' from which innovations involving various new directions in thought and action will emerge. InnovationNetwork develops these concepts in association with various partners. The private sector has come to play an increasingly important role in recent years, and may be seen to be crucial to the implementation of the innovative ideas.

This publication describes 32 concepts on which InnovationNetwork has worked during the past five years. It offers a dual perspective, with an account of each project being provided by a member of the InnovationNetwork staff and an external partner involved in the actual implementation of the project. We have not attempted to 'cover up' any of the tensions or obstacles which may have emerged. After all, the road to truly groundbreaking innovations is long and winding. Nevertheless, we believe that we have now made some significant steps towards the objective of achieving more sustainable rural areas, agriculture and nutrition.

It is for you, the reader, to decide whether this belief is well founded.

Ger Vos, Sjeng Kremers,
Director Chairman of the
InnovationNetwork
Board of Innovation-Net
work
INNOVATION NETWORK
Disposing of waste grass costs money. However, that could soon change because grass can be converted into oil. ‘This may mark the start of large-scale processing of biological waste flows to form liquid fuels.’

Where there’s smoke, there’s oil

Let us start with an example. Staatsbosbeheer (the Dutch Forestry department) has recently acquired a substantial acreage of former agricultural land. The land has to be mown. Sometimes the grass is converted into compost or ecological feeds, but that is an expensive process so the grass is often simply dumped as waste.

That’s life, eh?
Yes, but it may be possible to turn the costs into returns if a way can be found to re-use the ‘waste’ product.

As cattle feed?
No. It is technically feasible to convert the grass into oil by the process of pyrolysis. That is a complicated word for a relatively simple procedure. In pyrolysis, you do not burn the waste flows, but you ‘smoke’ them. Think of a barbecue: that produces a lot of smoke, but the meat doesn’t (or shouldn’t) actually catch light. If you then cool that smoke, the condensation will produce oil.

And you can then burn that oil to generate electricity.

The perfect solution?
Yes. Mown grass is no longer a worthless waste product or a very low value raw material, but a valuable commodity as a source of sustainable energy. The aim of the ‘Grasol’ project is to convert grass into oil which can be used to power the vehicles used by the nature management agencies, thus closing the cycle. We also hope to do so without calling on any subsidies.

Has the project already started?
At present, the pyrolysis technology can only be used for very small quantities. However, anything that is possible on a small scale can be expanded onto the large scale. We are now working on this expansion. The nice thing about this project is that it brings together several groups who have never worked alongside each other before: Staatsbosbeheer, the National Investment Bank,
The Foundation for Sustainable Chemical Development and the Biomass Technology Group, which has the knowledge required to derive energy from biomass. The cooperation between them is entirely new, but it is necessary if we are to assemble enough expertise, funding and raw materials to convert grass into oil.

What approach have you adopted?
First we had to determine whether pyrolysis is the most appropriate way of re-using grass. Then we started to look at ways in which the pyrolysis technique can be ‘scaled up’ so that the existing equipment can be used to process one hundred times more grass than is currently the case. The next step was to determine whether the conversion of grass into oil is economically viable.

And?
According to the National Investment Bank, the process will be financially and economically viable in time, but the scaling-up process brings certain risks. Nevertheless, Staatsbosbeheer, which is the country’s largest nature management agency, remains enthusiastic about the possibilities of ‘Grasol’. It intends to build and run a trial installation. We shall continue to help in the background, seeking funding, clearing the way forward and acting as a discussion partner.

Has there been interest from other quarters?
The people who produce large quantities of waste grass would like to see a sustainable way of processing it implemented as soon as possible. This project could mark the start of large-scale processing of biological waste into liquid fuels. Perhaps it will also be used to deal with the large quantities of grass mown from roadside verges. At present, this generally finds its way into landfill sites.

What sort of quantity are we talking about?
According to our calculations, we can process 700,000 tons of grass into oil each year. When used as fuel oil, this is enough to keep Amsterdam’s largest electricity generating station operational for a full year.

InnovationNetwork has worked alongside a number of partners on this concept. They include: Staatsbosbeheer, Agrotechnology & Food Innovations BV, Biomass Technology Group, NIB Consult, the Ministry of Economic Affairs, Foundation for the Development of Sustainable Chemicals (DCO).
EVERYDAY PRACTICE

The conversion of grass into fuel would represent a technological revolution. And welcome relief for Staatsbosbeheer, the Dutch forestry department. 'In the Drentse Aa region alone, we have 25,000 tons of grass.'

Forestry department wants to start grass processing

'In the Drentse Aa region, we have an enormous surplus of grass. Some of it is compositional, while some is artificially dried to form the raw material for ecological animal feeds. However, both processes are expensive, which is why we went in search of an installation that can process the grass as biomass. The most appropriate technique seemed to be pyrolysis, a sort of huge smoking barbecue from which you can distil the vapours to become oil.

The Biomass Technology Group based at Twente University has recently developed and supplied a pyrolysis reactor to Malaysia. It actually processes biomass which is even more complex than grass. If it works as hoped, the technology will have proven itself. We shall then purchase a similar reactor. Because the quantity of grass to be processed is huge, a similarly huge reactor has been proposed. That is not a problem: it can be assembled in four sea containers.

Once we have the installation, we plan to start grass processing in northern part of the country. In the Drentse Aa region alone, we have a stockpile of 25,000 tons of grass which could be processed in this way. Although this is an almost unimaginable quantity, the proposed reactor could actually deal with even more. It is therefore possible that other nature management and road management agencies will supply grass.

As yet, we are not entirely certain what we shall do with the resultant oil. The current assumption is that it will be used to fire a power station. However, there are other, even more attractive options. Perhaps it could be used to fuel a neighbourhood heating system. That would be very much more lucrative.

As yet, we are not entirely certain what we shall do with the resultant oil. The current assumption is that it will be used to fire a power station. However, there are other, even more attractive options. Perhaps it could be used to fuel a neighbourhood heating system. That would be very much more lucrative.

Proper management requires that the land is laid fallow, which means that the mown grass has to be removed. Otherwise the soil would become too fertile and certain types of plant would proliferate at the expense of others. The land that we mow is wet and extremely vulnerable. There are sections that can only be accessed by tractors on caterpillar tracks. Their capacity is limited and they are therefore expensive in use. A process which would convert the grass into a sustainable fuel that we can use in our own tractors would be particularly welcome. However, Staatsbosbeheer does not pretend to be a technological pioneer. The process has to be tried and tested before we will consider adopting it.

Our overall aim is twofold. We wish to ensure the continuity of grassland management by achieving cost reductions, and we also wish to contribute to a production objective. We already do so with our wood. We harvest the highest quality wood wherever possible. The biomass it contains is supplied to power plants. If everything goes according to plan, we would be able to start processing grass by pyrolysis in 2006 or 2007. The necessary reactor can be assembled relatively quickly, and the technology can be implemented at various sites in the Netherlands. I believe that grass oil is likely to make a substantial contribution to our sustainable energy requirements.'
THE CONCEPT

There are many claims on our limited space. Businesses, private individuals and public authorities are literally getting in each other’s way. Time for an innovative approach to space usage. ‘Administrators, farmers, researchers and the public must arrive at a common vision.’

We still don’t take enough time to learn from each other

‘Innovative space usage?’ Is there anything wrong with the old approach?
Yes. The current spatial planning policy in the Netherlands is known as the ‘admission planning system’ because it is subject to considerable government control, relying on set ideas as to what is ‘admissible’ and what is not. That stands in the way of creative solutions to the growing number of claims on our space and the very many different interests at stake. Unless we adopt a new approach, before long it will be impossible to do anything at all.

What does that new approach entail?
Rather than the ‘admission planning system’, we now speak of the ‘development planning system’. That is a form of policy whereby the government does not attempt to direct social developments ‘from on high’, but tries to accommodate the other stakeholders who wish to put ideas into practice.

That sounds a little vague.
It certainly hasn’t been fully defined as yet. That is the objective of the ‘Innovative Space Usage’ programme set up by Habiforum, InnovationNetwork and six universities. We are focusing on knowledge development in three specific domains within space usage and area development: practice itself, which is largely the responsibility of private sector organizations and local authorities, research, and policy, particularly at national level. It is important to achieve better cooperation and coordination between those domains, which is why we are trying to resolve the crippling fragmentation between them. Currently, research is split into countless different disciplines, there is strong ‘departmentalization’ within policy, and practice is also divided into several separate areas.

How will you resolve the fragmentation?
Let us consider the practice domain. At present, local authorities rarely take the time to learn from each other, even though they often face the same issues, such as providing greenery. The Amstelscheg district
is an example: this provides Amsterdam with important green amenities. It is currently managed by farmers, as a ‘sideline’ to agriculture. Agricultural activity is currently under enormous pressure. How can Amsterdam ensure that its greenery remains in place and well managed? If the Amsterdam city council finds a good solution, it should share its new-found knowledge with other local authorities.

OK, suppose the fragmentation can be resolved. Is that the end of the programme? No. The groundbreaking aspect of ‘Innovative Space Usage’ is that we are trying to bring the three knowledge domains together. Currently, it is the policy domain which makes the rules that so restrict the practice domain. Moreover, neither policy nor practice can adequately define the questions for research to answer, and neither makes adequate use of the knowledge that has already been developed.

Are defragmentation and cooperation the essence of the development planning approach? Yes, provided everyone works together to find new solutions to spatial issues. For example, how do we combine the residential function, agriculture and water management if the government designates an area as a flood catchment area?

That will be difficult. It will if the three levels of government – national, regional and local, simply try to direct the plans from above. However, if you encourage practice – residents and farmers – to cooperate with administrators and researchers, you can arrive at a vision which will enjoy broad support. The development of that vision will also involve the people who actually have to implement it, to ensure that no impossible ambitions are formulated.

The objective is to achieve real breakthroughs in a number of major projects, such as the Zuid As (Southern Axis) and the New Holland Water Line, in the sense that our involvement will greatly accelerate the projects and/or achieve a visibly better result. This has already been achieved in the Overdiepse Polder project. It would be marvellous if such breakthroughs eventually become the norm, whereupon we will become ‘surplus to requirements’.

InnovationNetwork has worked alongside a number of partners on this concept. They include: Habiforum, Erasmus University Rotterdam, Delft University of Technology, University of Utrecht, University of Amsterdam, Vrije Universiteit Amsterdam, Wageningen University and Research Centre.
EVERYDAY PRACTICE

‘Good idea,’ is often the official response when members of the public come forward with a plan. The plan then disappears into a desk drawer, never to see the light of day again. Habiforum supports social initiatives. ‘As an independent organization, we give all stakeholders the opportunity to propose solutions’.

We bring all the willing people together

‘The Overdiepse Polder district includes fifteen farming businesses and has a population of almost one hundred. A few years ago, the farmers were told that the area had been officially designated as flood catchment area and would be used for water storage. The farmers themselves started to think about the design of their own district, developing an initiative which enjoys the support of Habiforum. A project has been launched in which local farmers have a key role in the redesign of their district. Alongside the administrators and officials of the Province of Noord-Brabant, the Ministry of Transport, Public Works and Water Management, and the local authority (Waalwijk), they have arrived at a promising solution. The existing farms will be dismantled and new farming businesses will be created on new raised areas. Calculations by the researchers of the Department of Public Works and others reveal that this is the most effective solution and the cheapest. There will be fewer agricultural businesses in the new situation, which will render farming more economically attractive for those farmers who decide to continue. In this area, we can thus combine economic activity with water management. This multiple form of space usage serves to prevent the area becoming economically unattractive due to the possibility of regular flooding. Without Habiforum, this project would not have gone into development at all. True, the initiative came from the farmers themselves. However, this sort of idea is usually choked to death by bureaucracy. Some civil servant will say, ‘good idea’, and file it away in a drawer, never to see the light of day again. As an independent co-director, Habiforum offered the stakeholders – the farmers and the authorities – the opportunity to work together within an innovative process and thus to arrive at the most effective solution. There was some urgency, and great personal involvement in many cases. There was one member of the regional council, Jan Boelhouwer, who saw the promise of the farmers’ plans for the Overdiepse Polder. His successor, Lambert Verheijen, also became a keen supporter. A ‘Water’ review group was also set up under the chairmanship of Neelie Kroes, and included representatives of both the public and private parties. Ms Kroes, a former minister of Transport, Public Works and Water Management, has an extensive network and commands considerable respect. She enlisted support for the farmers’ initiative from the current State Secretary. As an independent organization, we attached great importance to conducting an efficient informal process, with public meetings and information evenings, which greatly supported the official decision-making process. In most cases, the government will devise a plan and then ask the public’s ‘permission’ to implement it. If it fails to attract the popular vote, the government will propose an alternative. In this case, the plan was arrived at by a joint process of consultation. It met with the government’s approval, and the scientific field was able to confirm that all the demands of water management were met.

A formal planning study has now commenced, being the next step in the process of creating raised areas for the new farm businesses. However, they are not in place yet, which is why we shall remain closely involved in the implementation of the plans.’
THE CONCEPT

Dutch agriculture is going through a difficult time. This affects the entire rural area. There is rising unemployment, young people are migrating to the cities, while the older residents are forced into inactivity. ‘The ‘New Villages’ concept is a metaphor which enables us to take a candid view of the problems of the rural areas.’

‘New Villages’ will make the rural areas attractive

‘New Villages’ is based on the revolutionary idea that the benefits of building in rural areas can actually outweigh the disadvantages.

‘New Villages’ – isn’t that just a nostalgic term to hide the fact that you are going to smother the countryside in new buildings? First the facts, then the accusations, please!

OK, you’re right. Please explain.
The first fact is that the Netherlands is about to undergo considerable spatial development of one sort or another. During the next ten years, we have to create one million new homes. That’s one hundred thousand a year, while current production is only sixty or seventy thousand. A report published by the Spatial Planning Bureau states that there will be great demand for homes in the rural areas. In order to meet that demand, we shall have to build between 70,000 and 130,000 additional units.

Just because demand exists doesn’t mean you have to meet it, surely? I haven’t finished. The second fact is that space in the Netherlands is already in short supply. Land is expensive. Agriculture, which accounts for just a few per cent of Dutch employment opportunity, claims sixty-five per cent of the available space.

And that is a cause of tension? Of course. A sector which produces so little in relation to the amount of space it occupies is likely to run into great difficulties. We are starting to see that already. Every day, ten Dutch farmers decide that enough is enough and close their business. Young people are migrating to the urban areas. That creates a number of problems – economic, social and physical.

And you think that ‘New Villages’ can solve those problems? Yes, but only if you can address problems in tandem, adopting an integrated approach.
Take economic development in the north of the country, for example. At one point we moved the Dutch national post and communications company there in order to create new jobs. That didn't work, and the firm moved back to the Randstad region. Economic development is better served by building new houses. For every three families moving into an area, one new job is created.

But the people have to want to live there. Of course. We cannot force people to move. We now know that this type of ‘social engineering’ is impossible. But you can try to make the ‘new village’ particularly attractive. One means of doing so is specialization, or branding. You could build a village around the theme of horses and equestrianism, with meadows alongside the houses and shops selling riding tack. There would also have to be a vet, dedicated bridle paths, and perhaps regular gymkhana and other ‘horsy’ events. The village then has a unique selling point which will undoubtedly attract people from various other regions. You could also create a village especially for artists, as indeed has already happened in the Leidsche Rijn district. You could build houses especially for people who wish to telecommute, or especially for senior citizens.

What happens when the senior citizens can no longer live independently? Are you going to send them all back to the cities? No, because the whole system of care would also be organized differently. This has already happened in Trynwälden, where the aim is to allow the elderly to remain in their own homes for as long as possible. When a new director of social services was appointed, he simply asked himself what was needed in order to do so. He decided that the answer was a day centre for those who cannot remain at home alone all day, transport services, and facilities such as alarm systems to call help in the event of a fall or other emergency.

That’s all very expensive. Certainly, this approach could prove more expensive than centralized care in nursing homes. But then the director hit upon the idea of combining various activities. If there is already a bus to transport the elderly to the day centre, why should it not also be used to take young children to nursery school? Having established various links of this kind, he has managed to provide decentralized care for 8,000 elderly residents, spread over nine districts, just as cost-effectively as any alternative. Most importantly, the senior citizens get to stay in their own familiar surroundings.

So, it is not just a question of stacking bricks?
No. ‘New Villages’ is a metaphor which helps us take a fresh, impartial look at the problems of the rural areas. If the solution entails re-structuring an existing village, that’s fine. The solution could even be in the form of a major new housing development, provided the problems are being addressed in an integrated way.

InnovationNetwork has worked alongside a number of partners on this concept. They include: Dantumadeel District Council, Actors Process Management, Bert Kisjes and Carin Giessen (Cultural Villages), Bureau PAU, DLA+ Landscape Architects, H+N+S Landscape Architects, Motivation, STORRM CS, Grootsie and Penning.
EVERYDAY PRACTICE

Of course there must be ‘new villages’, believes Wim Derksen, director of the Spatial Planning Bureau. ‘This plan shows that the Dutch citizen’s housing preferences are being taken seriously. During the twentieth century, there was far too little concern for what people actually wanted.’

With an eye for people and history

‘To me, the term ‘New Villages’ suggests that careful thought will be given to how future villages will be designed and built. That is progress, since we have long failed to do so even though the older towns and villages in our country have such an individual character. Take the Hoekse Waard region, for example, where the villages nestle on the edge of the dike in a particularly attractive way. In Drenthe, houses are often clustered around the village green, while Zeeland has traditionally preferred the linear, ribbon form. There are often extensive views from the village centre, looking out onto the surrounding meadows. At least there are if you do not build too many houses in the way, which unfortunately is so often the case.

Since the Second World War, we have been ruining our villages. We tack great social housing developments onto them, completely obliterating the original structure. Or we build up-market bungalow parks, according to a standard ‘one-size-fits-all’ pattern. The villages are becoming so lacklustre and devoid of character due to the half-hearted policies we have adopted. We designate a ‘Green Belt’ on which nothing may be built, but then do nothing else. And four years later, we come back and find to our amazement that someone has built on it after all.

Of course we must build new villages. They must be well designed, interesting, and must have an eye for history. That is the essence of the ‘New Villages’ project. Unfortunately, the word ‘village’ evokes a misplaced idea of nostalgia. That we wish to build the new villages shows that we are taking the housing preferences of today’s Dutch citizens seriously. During the twentieth century, this was all too rarely the case. Various surveys have shown that many people wish to live in a semi-rural setting, within easy reach of urban amenities. Of course, there are also people who prefer the city lifestyle, and those who wish to live in an entirely rural area, miles from anywhere. But the intermediate group is the largest.

At the same time, I am not so keen on the idea of building a new village in an area such as Dantumadeel. I mention this district in Friesland because I know that InnovationNetwork has conducted a study into whether there is any demand for a new village here. I do not believe there is. The existing villages are being deserted as people move to work in the Randstad region. I don’t think there is a demand for any new villages. The demand comes from the people who wish to live in a rural area, but within easy reach of urban amenities. It would therefore be far more realistic to site the new villages, and even new towns, within the Randstad. A new village must also be allowed to develop organically. We must conduct further research to determine the essence of village life. Is it that people feel safe and secure? Is it the conviviality of knowing your neighbours? Once we have answers to these questions, we can get down to work. A new village within the green belt – that is an interesting idea.’
THE CONCEPT

River = high water = enemy. The ‘New Rivers’ concept breaks away from these traditional associations. River = attractive housing, good recreation and enjoyment of nature = friend.

New Rivers

It would be wonderful to live alongside a ‘new river’

What is the problem, exactly?
The rivers in the Netherlands have to cope with an increasing quantity of water, both from rain and from melting ice nearer the source. By 2015, the Rhine system will have a throughflow of 16,000 cubic metres per second at high water. At the moment, we can officially cope with 15,000 cubic metres per second. The government has therefore reserved 2.2 billion euros for new measures.

So the government has already solved the problem?
No, the government has promised funding. At present, its plans for the river areas are largely concerned with ensuring that the existing rivers can cope with the increased flow. If this idea is taken too far, it will result in severe damage to the landscape. Moreover, government officials are unwilling to admit that the Rhine system may well have to deal with 17,000 or 18,000 cubic metres of water per second in the longer term. However, this is indeed the case and we therefore know that the measures currently in preparation will eventually prove inadequate.

You're thinking beyond 2015?
It seems highly unlikely that climate change will stop in 2015. Apart from that, building dikes or extending catchment areas merely addresses the threats. Water also presents many opportunities.

Opportunities?
Innovation Network commissioned Bureau Stroming, a consultancy specializing in nature management and landscape issues, to elaborate the idea of a ‘new river’. They chose the Betuwe region as the reference area, examining the idea of creating a waterway which branches off from the Pannerdens Canal at Doornenburg, flowing past Elst and Zetten and into the River Waal via the Ochtense Buitenpolder - a total distance of 34 kilometres. It would be wonderful to live alongside a river like that. And it would be attractive for water sports, since it would not be heavily used by
inland shipping. A new river could also help to check urban sprawl and ensure that Arnhem and Nijmegen do not grow into each other. Apart from water management, the New Rivers concept is concerned with spatial and ecological values. There will be room for erosion and sedimentation, for fish to spawn and for birds to breed.

Is it technically feasible?
Yes. What’s more, the initial calculations for the example in the Betuwe region are very encouraging in that it also seems affordable. That is why we now wish to join other interested parties – the local and provincial authorities, residents’ and users’ associations – in examining whether the idea can be implemented at various locations in the Netherlands. We then hope to do so.

But at low water, the view will just be an empty, dirty riverbed. And those fish will not be able to spawn if there are major fluctuations in water levels. The intention is that there will be a permanent flow. At high water, there would be a broad river with a flow of approximately one thousand cubic metres a second. When water levels fall, the river will recede into its summer bed, which is much narrower, just like that of the Vecht. A throughflow of only 20 cubic metres per second is enough to maintain a good current.

Where will the permanent water come from?
The new rivers will draw their water from the main river, in this case the Waal.

So in the summer the Waal will be full of grounded boats?
Of course, the inflow into the new river must be designed so that inland shipping on the Waal is not inconvenienced. That is possible with a sharp gradient up to entrance to the new river.

The new river would cross existing countryside. Will the landowners cooperate?
It is possible that nature organizations, farmers, the government and private owners will wish to contribute their land for nothing, since they will benefit from the new river. Natural values will be enhanced. There will be more tourists and more customers for services such as boat rentals. However, it would also be possible to finance the project by selling plots for luxury houses alongside the river.

What happens if the Germans also start to dig countless new rivers?
Not a problem. They will be able to enjoy the benefits too. But the Netherlands will remain the delta region into which all the water will eventually flow. That’s the nice thing about water: you can enjoy it so many ways and in so many different places.
EVERYDAY PRACTICE

The ‘New Rivers’ concept is intended to give the water more room, while also improving the landscape. It is a very promising plan. But what do the public want? ‘If enough people are in favour of a new river, it will be created.’

There is a flood of ideas about water

‘To meet various safety norms, we must find ways to increase the water transport capacity of the Rhine and its various tributaries – the Waal, Nederrijn, Lek and IJssel. The ‘New Rivers’ concept is one possibility, repositioning the dikes further away from the major rivers is another. ‘New Rivers’ seeks to create more room for the river, while also addressing new market mechanisms, topographical quality and support from local residents. In practice, achieving that support could be difficult, but that applies to all the solutions designed to create more room for the rivers. In most cases, the objections relate to the financial consequences rather than safety or the attractiveness of the landscape.

The idea of a new river in the Rijnstrangen district, part of the Rhine’s natural catchment area, has been mooted. There are currently some fifty houses located here. Because it is a catchment area, the planning procedures for a new river may well be simpler than at Kampen, for example, although the support for a new river is somewhat greater here. According to the thorough analyses produced by InnovationNetwork, the Rijnstrangen plan seems both technically and financially feasible. But it must also contend with Staatsbosbeheer (the Dutch forestry department) and local residents. Those residents are suffering from ‘planning fatigue’. It is therefore not appropriate for a small think-tank to devise a plan, no matter how promising, which is then presented as a fait accompli.

An alternative way of involving local residents in the planning process may well prove more successful. The ‘Joint Planning Approach’, as developed and used during the European ‘Freude am Fluss’ project, seems very promising. It entails enlisting the assistance of the public as intellectual equals, rather than trying to impose wisdom from on high. The first stage is that of information and education: many people are unaware of the workings of a river and how other space claims, such as housing and forestry, can place constraints on the water. Next, you describe the problem and present the various alternatives for the area in question without declaring any preference. You can then arrive at a joint design, based on what is possible and desirable based on the input thus far. It is extremely likely that the design as it now stands will be that of the new river that is eventually created, since it has been produced by all parties working as a team.

That is not to say that the current plans should be consigned to the bin. After all, the idea is a good one. However, it will be far too difficult to persuade everyone of their merit. Moreover, there are other initiatives which demand our attention. There is a veritable flood of spatial plans concerned with water. Perhaps dike relocation and by-passes will serve water management policy just as adequately as the more drastic New Rivers concept. Certainly, a new river does present additional advantages, but will require more effort to gain the support of the local population. Once that has been achieved, the politicians will automatically follow. This is an alternative innovation process, which seems to me to be something which InnovationNetwork would be interesting in pursuing. Although geared towards devising good ideas, InnovationNetwork is also expert in starting and monitoring good processes, even if the likely outcome is not entirely clear. If enough people are in favour of a new river, it will certainly be created.’
Text: Peter Henk Steenhuis en Tigrelle Uijttewaal, www.tekstinstijl.nl
Editor: Claudi Hulshof
Concept and art-direction: Dietwee communication and design, Sybren Kuiper and Ruben Pater
Design: Dietwee communication and design, Ruben Pater
Print: drukkerij MART.SPRUIJT bv
www.agro.nl/innovatienetwerk
THE CONCEPT

There is a substantial demand for sand for use in concrete and cement. Enormous demand means enormous production. And enormous unsightly quarries. There is an alternative. ‘With ‘smart’ sand production, you could surround a town with an attractive nature area.’

Where there's sand, there's brass!

Sand extraction need not entail large-scale excavations. Rather than using huge digging machines which are not even permitted to use the main highways, sand can also be dug in phases, using smaller equipment. The process can then function as an economic motor, leading to enhanced natural and topographical values, perhaps ‘tidying up’ the ragged urban fringes.

Why are the fringe areas of towns so unattractive?
Because they are waiting for the next urban expansion. The area is often in an impasse. There are pressure groups which oppose further construction. Residents wish to protect their view, environmentalists wish to protect rare flora and fauna, while others demand space for recreation and relaxation. They can sometimes delay the project developers, but usually only temporarily. At the same time, the value of the land rises rapidly leading to widespread speculation.

And no one proposes a plan for a nature area?
Too expensive. Because everyone expects the area to become built up within the foreseeable future, the land price continues to rise.

Residents then have no chance of better green amenities?
They do if there is enough industrial-grade sand to be found in the subsoil.

Sand?
Certainly. If sand extraction is made a factor in the plans of all parties, it is possible to create a sustainable green area for the residents to enjoy. ‘Smart’ sand extraction can help to achieve social aims while also answering an economic need: the demand for sand.

But sand extraction just results in more unsightly areas, surely?
The current system does, yes. Each year, twenty million tons of industrial sand has to be produced, but no region wants the quarries....
in their backyard. The government therefore designates certain extraction sites, being those which are likely to cause least damage and likely to draw least opposition.

The unattractive areas become even more so.
Exactly, which only serves to increase opposition to all sand extraction.

Unjustly?
Yes. If the government and the sand industry were to take a different approach to the process, sand extraction could actually be a solution to a number of the ‘hot issues’ affecting our human environment, including the degeneration of the urban fringe areas. Moreover, effective sand extraction can help to realize the desired national network of nature areas, the ‘Ecological Main Structure’ as it is known. In that case, sand extraction would no longer be an end in itself, but a means of achieving various social objectives.

A motor for positive developments?
Indeed, but this calls for the industry, local authorities, pressure groups and project developers to adopt a different view of their activities. A focus on sand extraction alone cannot stack up against the high price of the land. However, if you also consider the social demands for water storage, nature, recreational facilities, attractive locations for housing, you see that sand extraction has a significant contribution to make. ‘Smart’ extraction can help to surround and delineate an urban area with an attractive nature area. It could create a natural transition between the most recent urban expansion and the surrounding green.

Can the industry be encouraged to make this turnabout?
We saw much the same situation in relation to clay extraction, which faced massive social opposition during the 1980s. Having adopted a new approach, the brick manufacturing industry, which is largely located in the riverside areas, now makes a significant contribution to the development of new nature areas, to river safety, and to space for recreation. We now believe that the sand industry could do likewise.

InnovationNetwork has worked alongside a number of partners on this concept. They include: Ark, Bureau Stroming.
EVERYDAY PRACTICE

In the past, social organizations would vehemently oppose any plan likely to change the face of an area. In the past... 'We now know that our landscape can only be maintained if we can find an economically viable plan. Sand extraction offers opportunities in this regard.'

Dig quarries and fill them with water – voilà, a lake!

For years, we have been fighting to keep the area between Malden and Molenhoek open. It has been difficult, since there is a strong desire for urban expansion into this rural oasis. Although a sort of moratorium has been declared on part of the area, the politicians are maintaining a stony silence about its future. No one wishes to commit themselves. Unless something is done, there will be houses here within the next ten years.

That is why my society has adopted a different approach. We have developed our own initiative for the area. While we used to oppose any activities that would change its appearance, we now know that the only way to conserve the topographical and ecological values is arrive at an economically viable plan.

Once we realized this, we went in search of organizations which could help us. We found them in the form of Bureau Stroming and InnovationNetwork. By happy coincidence, they were looking for a social organization willing to become involved in their project, 'Sand Partners'.

From the sketches we had produced, it was obvious that some form of physical intervention was necessary to make any future construction impossible. Sand extraction would be ideal, whereby one or more quarries would be dug and later filled with water to create artificial lakes. Sand extraction is an economic activity which can also make sustainable nature development possible.

The area in question includes raised sand deposits forming part of what the geologists call a 'lateral moraine', as well as the lower-lying riparian landscape of the Maas Valley. Part of our plan is to create a waterway which rises in the higher areas and meanders gently down to the lower area. This will feed a large recreational lake close to the river forelands.

One important effect of this plan will be to make the urban fringes less well-defined. At the moment, there is a very sharp dividing line between the built-up area and farmland or nature area. Our plan will make the transition more gradual and more interesting. Not all aspects of the plan have received a warm welcome from the society's members. The idea of the quarries did not meet with any great objections, but the suggestion that housing should be allowed, even on a very small scale, was certainly opposed. We have always vigorously opposed any form of construction, based on the belief that 'if you give someone an inch, they'll take a mile'. However, InnovationNetwork has since been able to persuade us that sand extraction alone will not produce sufficient revenue. Project developers, who currently own much of the land in question, would obviously like to see plans which include some residential construction.

We can now rely on the support of a much larger national conservation association, the KNHM, as well as InnovationNetwork of course, through its 'Sand Partners' project. During the coming weeks and months, we shall be talking to various other stakeholders: project developers, politicians and local residents, including the owners of a stabling yard. 'Sand Partners' will have to develop the plans further, since we do not have the necessary knowledge or expertise to do so.'
Large areas of the Netherlands are currently barren wasteland, waiting to be given a long-term function. Why not make them nature areas, at least for the time being? ‘The ‘Temporary Nature’ idea is radical and attractive. However, landowners are afraid that ‘temporary’ will become ‘permanent’.

Flora and fauna ‘pack their bags’ and move on

The aim of the ‘Temporary Nature’ concept is to encourage nature to develop on land that is currently used for nothing else, or which is subject to regular changes of function.

So you’re going to create nature, only to destroy it again later?
Not entirely. Nature is mobile. The gains that the concept entails will be permanent, both for people and for the environment. Certain species will have a chance to reproduce and strengthen their populations, enhancing their chances of long-term survival. They are also likely to spread to adjacent areas.

How can you be sure?
This is the finding of an ecological study we commissioned. Almost all species will benefit, and there are none which will suffer any reduction in their survival chances. The ‘pioneers and early settlers’ will benefit most from temporary nature areas: the plovers, the common tern, the natterjack toad, the marsh cudweed, the common cudweed and the bee orchid, for example. They will be quick to establish themselves, will use the land for a short period, and will disappear again as natural succession continues — often before the bulldozers move in.

You’re looking for long-term benefits?
Yes, but not exclusively. In the Netherlands we have some 50,000 hectares of land which has been purchased by local authorities or project developers for housing, infrastructure, commercial use or other purposes. Often, the future designation has already been decided and is laid down in the local area development plans, but it can often be many years before the work begins, either because the funding is not available or because the land must be prepared.

Before construction takes place, there is a ‘window’ in which nature can be allowed to develop. All sorts of unusual flora and fauna will establish themselves. Think of the colonies of terns around the IJburg development in Amsterdam, or the natterjack toads which
live alongside the new Betuwe railway, or the orchids in the Maasvlakte district near Rotterdam. Of course, it is not nice when these delicate natural assets disappear under the bulldozers, but a few years of pleasure is better than no pleasure at all.

**If it is such a good idea, why hasn’t it already been done?**

The benefits are enormous, but there is one great problem to be overcome. Until the land is actually built on, owners currently do their best to keep nature away by regular ploughing or by renting it out for agriculture. That is because once a protected species establishes itself, further development can be delayed or even prevented by all sorts of legal procedures. Alternatively, the owners can be required to compensate elsewhere for the loss of the species, which entails extra costs. There are large areas that have been barren for many years, waiting for their final designated usage.

**Is that such a problem?**

The Netherlands is a dynamic delta region in which thousands of species of flora and fauna come and go. They establish themselves quickly, and after a few years they ‘pack their bags’ and move on. For them, ‘temporary nature’ is the very essence of their existence. And in any case, those wasteland areas are not particularly attractive, are they?

**Will landowners cooperate?**

Although society as a whole will benefit greatly from temporary nature areas, few landowners will accept the idea in the current circumstances because the risks outweigh the benefits. Our project therefore seeks ways to resolve this situation and make ‘temporary nature’ more attractive to landowners.

**Are you proposing changes to the way in which protected species legislation is applied?**

That is one major challenge which we will now have to take up. Allowing flora and fauna to use an otherwise barren site, albeit temporarily, is clearly in the interests of conservation even if the nature in that particular spot is to be destroyed eventually. However, the landowners must be given a cast-iron guarantee that they will be allowed to reclaim their property in due course, and will not fall foul of the conservation laws when they do. This could be in the form of an official dispensation or exemption.

---

I InnovationNetwork has worked alongside a number of partners on this concept. They include: Bureau Stroming, Port of Rotterdam, Ministry of Agriculture, Nature and Food Quality (LNV), Ark.

---

**HENK DE BRUIJN**  
HEAD OF CORPORATE DEVELOPMENT,  
PORT OF ROTTERDAM AUTHORITY
EVERYDAY PRACTICE

Nature can be managed, as Port of Rotterdam Authority knows. ‘We like to do whatever we can for nature. But we also wish to be able to use our land for harbour activities when we want.’

Plants amid the storage tanks

‘We firmly believe that nature should be given an opportunity to thrive in the harbour district. We manage over ten thousand hectares of land, throughout which the relationship between water and land is important. For nature, that relationship is extremely important. Moreover, the harbour is, of course, on the coast. There are many ways in which we can give nature a helping hand.

And nature has gladly accepted that helping hand. Plants are springing up between the storage tanks and there are many quiet areas of the site which are rarely visited by people. Here one can see many exotic plants which have grown from seeds brought to this country on foreign ships. They flourish in the harbour. We think of the flora and fauna as our ‘second nature’. Our first nature has to remain our concern for business, for the effective functioning of the harbour and its industry. We are more than willing to cooperate with nature and environmental organizations in creating ‘temporary nature’, but we must be able to reclaim our land when we need it. That means giving up the temporary nature. It need not disappear altogether: relocation is an option. After all, nature has a tendency to be nomadic anyway.

The problem is that there are already many rare types of flora and fauna on the site, some of which appear on the ‘red list’ of endangered species. If this becomes widely known, there is a risk that the fences would go up and we would not be able to use the area at all. We would then be the victims of our own benevolence, and our concern for nature may well take a dent. The ‘Temporary Nature’ concept may help to resolve this situation.

I am often asked how nature can be developed in the harbour district. Nature often develops whenever and wherever it pleases, irrespective of any direct or indirect human intervention.

Last year, the Port of Rotterdam Authority published its ‘Nature Plan’, in which we make clear that there are certain zones which we wish to reserve for future business activities, and certain zones that we are willing to give over to nature. However, the results of a study reveal that any valuable biological discovery is likely to have serious legal consequences. We are therefore afraid that our concern for nature will pose a threat to our primary business. This has been seen before: think of the natterjack toad.

We are also willing to work on natural solutions. There is a large seagull colony on the nearby Maasvlakte which creates considerable nuisance. The birds produce a huge quantity of guano, to use the polite term. We have introduced horses to the area and their presence discourages the gulls from nesting. It is a successful approach and proves that nature can indeed be managed.

We are interested in creating ‘temporary nature’ not only on land but also in the water. The fish population of the harbour is now increasing. Following the creation of a separate dredging spoil depot and the implementation of emission control measures, the quality of the surface water has improved dramatically. We intend to do all we can for nature on our land. However, we must ensure that our efforts do not restrict our future business opportunities. That is why we believe that the ‘Temporary Nature’ concept deserves further development so that we can do our part with an easy mind.’
NEW CONCEPTS FOR LANDSCAPE MANAGEMENT
The Concept

An increasing number of Dutch farmers are discontinuing their businesses. Who will then manage the landscape? And how? 'We have to make the landscape a ‘primary product' and ensure that its many qualities are in keeping with the wishes of its users.'

City-dwellers find peace and quiet in the countryside

Agriculture is not the only means to ensure an attractive cultural landscape. If we consider the quality of the landscape to be important – but agree that this does not mean that absolutely nothing must change – other forms of landscape management present themselves. It is now time to explore and test these alternatives.

Are you against agriculture?
Not at all. That is not the point. We are merely trying to find other landscape management options. If we conclude that there are no alternatives, this will only strengthen the position of the current system, relying as it does on the farmers. Indeed, this would provide even more reason for the government to implement proper remuneration for the farmers’ landscape management activities.

How will you devise new forms of management?
We do not actually devise them at all. We are just combining three innovative visions. Firstly, we base our approach on the potential quality of the landscape, not on its current form. We thus create room for changes. Secondly, we do not assume that the quality depends on the value that current landowners attach to the
landscape. For them, the primary value is that they can grow crops or graze animals on it. For the city-dwellers however, the primary value of the landscape is as an escape, a source of peace and quiet, an opportunity for quiet recreation. These two values are not mutually exclusive. Thirdly, we believe that the individual benefits derived from an attractive landscape by local residents and businesses can be combined with the benefits for others, such as tourists.

How will you organize landscape management in that situation?
It requires an entirely new approach. At present, the landscape is managed free, gratis and for nothing, as a by-product of agriculture. However, this approach is not ‘market-led’: it takes no account of the wishes of the users. If an area is to attract visitors, they must be given what they want. We have to create a situation in which the landscape and all its various qualities form the ‘primary product’, designed to address the requirements of its users. Of course, this also entails paying for the landscape in one way or another. We are now developing this concept with specific reference to the Amstelland area, just south of Amsterdam.

How will the financial aspects be arranged?
In the case of Amstelland, we are now exploring the idea of setting up a ‘landscape bank’ which will buy up agricultural land as and when it becomes available, and will be responsible for landscape management and development. The bank would be financed and administered by several parties, including the various urban stakeholders, farmers’ and residents’ organizations, the various levels of government (local, regional and national, based on their responsibility for spatial planning) and, last but not least, a ‘Friends of the Amstelland’ Trust. The trust would be important not so much in terms of any major financial contribution, but by virtue of its vested interest in the maintenance and development of landscape quality.

Is this a realistic plan?
We believe so. The official Amstelland Area Commission is certainly very much in favour of the proposed system, because it now realizes that agriculture alone is not enough to secure the future of the district.

InnovationNetwork has worked alongside a number of partners on this concept. They include: The City of Amsterdam, Arcadis, Amstelland Area Commission, DoTank, WING (Wageningen University).
EVERYDAY PRACTICE

The City of Amsterdam is involving itself in the large green areas surrounding the city. Its interest is not prompted by any desire to build yet more houses, but with a view to providing recreational facilities for the urban population. 'All our projects are based on the cultural and historic landscape of the Amstelland region.'

Since when has Amsterdam interfered in farmers’ business?

'When I first met with the farmers of the Amstelland district, they were very suspicious. What is this city-slicker doing here? Since when has Amsterdam interfered in farmers’ business? Well, we have done so since we launched the 'Future of Amstelland' project. Partly thanks to government funding for green amenities in and around the cities, Amsterdam is now able to take an active interest in the nearby rural areas. Amstelland represents an important recreational 'extension' to the city, but most of the area actually falls within other local authority areas. Nevertheless, the City of Amsterdam has decided to invest beyond the official boundaries of the city itself. We had to determine how the investments could best be made to address the interests of sustainability and quality.

To answer that question, I approached my counterparts in the neighbouring local authority areas, such as Amstelveen, Abcoude and Ouder-Amstel. It quickly became apparent that we could only achieve results with the cooperation of the farmers, and that is how I came to meet with those farmers. Although sceptical at first, by the end of the evening the majority were enthusiastic about the 'Future of Amstelland' project. Once we had the farmers behind us, the local authorities soon followed suit. To get the project off to a good start, we asked a theatre group to act out four possible scenarios for the future of the district. In the first, we would let Amstelland develop just as it has in the past, with no involvement on the part of the city. In the second, we explored what would happen if the farmers were given an entirely free hand in determining the future. The third scenario assumed that agricultural activity was no longer economically viable, but that the character of the peatland meadows was to be retained. The fourth and final scenario was one in which Amstelland could be maintained as a 'going concern', with only minor additional investments.

We then discussed the four scenarios in depth but none was chosen as the way forward. Instead, the participants decided that the future of the region should be determined by its cultural and historical landscape, that the agricultural function should be retained, and that the ties with the city and its residents should be strengthened. The participants were then invited to devise specific projects which would address these aims. A total of 133 project proposals were submitted, and sixteen of those were selected for immediate implementation. The first two projects have now been completed: a book about Amstelland and a recreational map of the area. Research revealed that most people in Amsterdam know about the Amsterdamse Bos (the woodland area to the south-west of the city) but are not familiar with Amstelland. The book and the map have been produced with a view to rectifying this sad omission, and are now in the shops. Another proposal which is to be adopted is for a waterborne 'bus' service. The 'Amstelboot' will sail from the city centre and serve various stops along the river Amstel, eventually arriving in Amstelland itself. There will also be two new ferry services, platforms for birdwatchers, better canoeing and skating routes, and footpaths for walkers. In addition, a number of agricultural projects have been started to boost the farmers' income while making Amstelland more accessible to visitors. All these projects are being funded by the City of Amsterdam, central government (including InnovationNetwork) and the European Union under its SAUL programme. However, we hope that the initiatives spark wider interest so that even more of the original 133 project proposals can be put into practice.'
Text: Peter Henk Steenhuis en Tigreille Uijttewaal,
www.tekstinstijl.nl
Editor: Claudi Hulshof
Concept and art-direction: Dietwee communication and design,
Sybren Kuiper and Ruben Pater
Design: Dietwee communication and design, Ruben Pater
Print: drukkerij MART.SPRUIJT bv
www.agro.nl/innovatienetwerk
countryside exchange
Only when you show a visitor around your home town do you realize how attractive it really is. Similarly, if you present a problem to a complete outsider you are likely to hear a novel solution. ‘That is why ‘Countryside Exchange’ will invite experts to examine an area with which they are thoroughly unfamiliar.’

Looking with someone else’s eyes

‘I jumped out of the box!’ It would be difficult to describe Countryside Exchange more succinctly than this statement by one of its team members. The project involves an exchange of experiences and insights, whereupon firmly entrenched ideas and beliefs can be shaken loose, and alternatives identified.

It is always useful to open up your own preconceptions to discussion, but do you really need other people to do so for you? Yes. People are inclined to take a blinkered view. Most people have experienced the revelation that comes when you show a visitor around your home town. Only then do you realize just how attractive or interesting it is. The same applies to other areas: problems are problems and will remain problems. We always try to solve them in the same way. This is why a complete outsider can often offer very surprising insights.

But it is easier for an outsider to see what is attractive or interesting about an area than to recognize its structural problems. Of course. We are asking experts to help, not tourists. The crux of ‘Countryside Exchange’ is that experts will spend a week examining the special features and possibilities of an area in minute detail. Based on their findings, they will then produce recommendations which can be discussed further.

That demands a degree of self-awareness, since if you do not know the nature of the problems, you do not know which experts to approach. OK – so we must develop that self-awareness. Every ‘Countryside Exchange’ project will follow a set pattern. Local residents will be asked to identify a key issue or question which we can then use as the basis for selecting the team of national and international experts.
This sounds extremely expensive.
No. For the hosts, it will cost somewhere between five and eleven thousand euros in the year preceding the exchange, and between thirty and fifty thousand during the week of the exchange itself, when the experts are actually in the area concerned. It will also be necessary to recruit a group of volunteers to act as the Local Organization Committee. Between them, they will devote about 130 days to preparation and organization.

Do these amounts include the experts’ fees?
There are no fees: the experts will work pro deo.

In that case, you will attract only second-rate experts.
Not true. This method offers the experts the opportunity to expand their knowledge and experience in such areas as rural development, water management and nature management. They too will be learning, and the new knowledge gained will be useful in their other work. Top experts from the United Kingdom and the USA have already volunteered to take part.

But you must come up with the right question first time.
Absolutely – the ‘key issue’ forms the basis for the entire week’s programme. We know that residents are already busily brainstorming to formulate exactly the right questions. During their sessions, they discover that not only the question is important, but also a clear delineation of the area concerned. If that is too large, the question itself will be too general.

Some participants will be businesses with a vested interest in a certain type of solution.
What makes you think that? This is all about the general public: private individuals who accept responsibility and take initiative. Businesses and politicians will only be involved if they wish to implement the ideas that the experts come up with.

It sounds a lot of work.
We do have to find enough people who are willing and able to help with the preparations and the programme itself. However, anyone who is committed enough to organize the exchange is also likely to be committed enough to do something with the results. Otherwise, it would all be a waste of time and effort.

What about the cynics who dismiss every solution out of hand?
Cynics will not be taking part, since they will think it’s all a waste of time from the outset. That is a good thing, since there will be a marked sense of solidarity between those who do become involved. Just as important, new leaders will emerge. They will be able to introduce close cooperation between sectors which would normally have no contact with each other. This is why the Countryside Exchange programme is likely to lead to major breakthroughs.

InnovationNetwork has worked alongside a number of partners on this concept. They include: Ministry of Agriculture, Nature and Food Quality (LNV), ECT Leusden, National Network for Rural Development, Noord-Beveland.
EVERYDAY PRACTICE

‘The experts arrived and we organized a week of interesting outings for them.’ Noord-Beveland has already held a ‘Countryside Exchange’ and the locals certainly have no regrets.

‘What will you do with your National Park?’

‘Our identity in Noord-Beveland relies on tranquillity, space and openness. We wish to maintain that identity, but we also wish to achieve economic development. We must not lag behind the times, which has been the case in the past. This is why we found ‘Countryside Exchange’ to be such an excellent opportunity. Innovation Network approached us and asked if we were interested in having specialists examine the problems which are specific to our region. We then held some brainstorming sessions to arrive at relevant questions, whereupon we were selected by the ministry as the location for a trial project. This is when things really started to happen. The brainstorming was intensified: sometimes there would be more than twenty people at a meeting. One would know all about water, while another might be interested in ‘liveability’ and local amenities, and another would contribute ideas about the economy. Eventually, we formulated six relevant questions concerned with prolonging the tourist season, agriculture in general, and the problems of groundwater salination. The ETC Bureau then identified experts from all over the world who could answer our questions. The experts came and we took them on a week of interesting outings. It all involved a lot of organization, since they had to have somewhere to stay and had to be fed. We had to provide guides and in some cases, interpreters. Everything relied on volunteers. It is not an easy undertaking, but because you are so committed, there is considerable motivation to actually do something with the experts’ suggestions. And the experts did indeed make suggestions. They did not propose ready-made solutions, which you should not expect from a project such as ‘Countryside Exchange’, but they did offer pointers. For example, an expert from Ireland was particularly struck by the physical location and topography. Noord-Beveland is an area surrounded by water: the Veerse Meer, the Oosterschelde and the North Sea. It is part of a National Park.

‘What do you do with your National Park?’ asked the Irishman. ‘Not a lot,’ we were forced to reply, since the Oosterschelde is rarely used for sailing, fishing or swimming. ‘In Ireland,’ we were informed, ‘people fight for the privilege of living in a National Park. Even the milk produced there sells at a higher price.’ We had regarded National Park status as a hindrance rather than an opportunity. We did not realize that our milk was suddenly worth more. We then set up a workgroup, which included the local mayor, to investigate the restrictions and possibilities. And there were indeed more possibilities than we had imagined. This was true of other areas as well. Farmers’ markets, for example. That idea wouldn’t work here, we thought. Joe, a man who has set up no fewer than 28 farmers’ markets in New York, persuaded us that the idea was also viable in Noord-Beveland, albeit on a smaller scale. Next summer, there will be ten farmers’ markets in our region. We shall begin at the Zeeland Agricultural Fair, and during the high season we hope to combine sales of regional produce with fresh fish markets. The next objective was to prolong that high season. Noord-Beveland has a resident population of seven thousand. During the tourist season, the number rises to 45,000. Apart from the eight weeks of summer and the spring bank holiday weekend, the hotels, guesthouses and campsites are virtually empty. Through the ‘Countryside Exchange’, we have now invited artists to conduct mid-week and weekend ‘master classes’. Learn to paint in four days – that sort of thing. Special ‘health weekends’ are another idea. Now that a couple of years have passed, we realize that the ‘Countryside Exchange’ was extremely valuable. The first six months were the hardest. We did not have the right workgroups with the right people. As an organizer, your instinct is to throw in the towel. However, we now have the feeling that we are about to reap the rewards of all our efforts.’
THE CONCEPT

To improve the quality of the landscape while also providing a boost to the economy. ‘To achieve that, you must come up with some remarkable plans, helped by remarkable people. Young people!’

The ‘Dynamic and Sustainable Zeeland Delta’ concept is intended to develop the regional economy while also improving the spatial structure.

Everyone wants that.
Of course. But not everyone can succeed in doing so.

But you will?
We’ll try.

How?
By focusing on the wishes and preferences of the local population. Of course, that can only work with good, concrete projects. You first have to find the right approach. This will mean identifying promising economic developments which also contribute to spatial quality, perhaps directly but more often than not indirectly. In many cases you must work alongside various parties, preferably those with something special to add.

Such as?
Young people. They are rarely consulted on the spatial design of a large area. However, because they are its future users, their ideas are particularly interesting.

Do young people think differently from others?
Yes. They don’t worry about what the existing zoning plans say about spatial development, or about the historic relationships between parties. They tend to take a less linear approach, preferring networking to a series of phased steps. They explore various avenues which sometimes influence each other and sometimes do not.

This is the principle upon which the ‘Dynamic and Sustainable Zeeland Delta’ project (3DZ) is based. Together with Hogeschool Zeeland (the regional college of further education) and the Stichting Maatschappij en Onderneming (Society and Enterprise Foundation; SMO), we involved young people in the discussion about the spatial design of their own...
province. They were invited to describe their ideas, wishes and preferences during a three-day workshop.

And the ideas were immediately put into practice?
No, that would be impossible. However, the participants then took the results of the brainstorming session and elaborated the best ideas further. They were asked to reformulate those ideas to form firm project proposals, which were later presented at the ‘Market of the Imagination’.

Nice name!
We thought so. The purpose of this session was to interest representatives of the Zeeland community in the young people’s ideas. Of course, we hoped that they would ‘buy’ the ideas, whereupon the projects would actually be implemented.

Can you give an example?
One of the groups proposed a project that would develop a new healthcare economy based on the peace and quiet which typifies the region. There would be small scale residential care facilities for the elderly, together with holiday accommodation for their families. The facilities would be located by the sea, alongside a lake, or on new country estates. They would then give the rural areas a new economic basis. This type of activity benefits from an attractive, green setting. There are also opportunities for other types of healthcare service. The young people behind the idea foresee amenities on a human scale which are appropriate to the Zeeland landscape. It would be possible to give disused agricultural buildings a new use, for example.

What happened next?
The next step was a working conference at which the young people split into five groups and discussed their ideas in detail with members of the regional authority and potential commercial partners. In almost all cases, a firm date was set for the first ‘construction meeting’.

InnovationNetwork’s role is that of facilitator. We must not become the initiator of this sort of project. However, because we are always interested in whether a project has been successful, we shall shortly join Hogeschool Zeeland in examining what the direct and indirect results of ‘3DZ’ have been.

InnovationNetwork has worked alongside a number of partners on this concept. They include: Hogeschool Zeeland, Society and Enterprise Foundation, STOAS, various companies, social organizations and regional councillors from Zeeland.

ANJA DE GROENE
LECTURER
PIETER VOLLAARD
ASSOCIATE LECTURER IN SUSTAINABILITY AND WATER AT HOGESCHOOL ZEELAND
Zeeland invited young people to contribute ideas about the future of their province. It has been an effective approach. ‘We brainstormed, and eventually plans were presented at ‘the Market of the Imagination’.’

Young people open politicians’ eyes

‘Several years ago, we said that we would only be completely satisfied once the designs for ‘3DZ’ had been implemented. That has yet to happen, but we now see the influence of the project in various areas. ‘3DZ’, short for Dynamic and Sustainable Zeeland Delta, is a project which encourages young people to contribute ideas about the future of the Province of Zeeland, particularly in terms of its spatial structure. We brainstormed, and eventually the plans and wishes were presented during the final evening, the ‘Market of the Imagination’. One of the suggestions was for a project entitled ‘Sustainable Dining’, whereby a catering college would be established in the province to raise its culinary culture onto a higher plane, while also encouraging sustainability by such means as separating waste and buying biological produce wherever possible. The project would also promote the use of regional produce in order to strengthen the identity of the area. The catering college has not yet materialized, and seems unlikely to do so in the foreseeable future. But has the idea been consigned to the bin? No. The project also prompted a discussion about aquaculture in Zeeland. The province now wishes to make the production of fish and shellfish a spearhead of its economic strategy. Similarly, it wishes to encourage the cultivation of edible seaweeds such as lava and samphire on the brackish land of the polders. The question then becomes: how can you give aquaculture an added economic value so that it also becomes interesting to tourists? Another InnovationNetwork publication describes the ‘taste lessons’, developed by chef Pierre Wind and now being given in Rotterdam schools. Why should this idea not be adopted in Zeeland, perhaps becoming part of teacher training courses? Surely it will not be difficult to incorporate aspects of the regional culture as well?

Another plan goes by the name of ‘The Chameleon’ and proposes combining educational, recreational and care facilities for the disabled at a single location or ‘campus’. This campus would be on the site of the current Hogeschool Zeeland. The Chameleon and the various educational institutes involved would benefit from each other’s proximity, and would be the only educational facilities specifically catering for disabled students and researchers. Although clearly an excellent idea, The Chameleon has also yet to get off the ground. A group of youngsters recently contacted us to remind us of the plans. ‘It is too good to abandon without a struggle,’ they said. They now intend to investigate whether the idea is indeed feasible. Perhaps not on the intended site, but in Vlissingen. There, the shipping industry has largely withdrawn from the harbour district, but all the buildings and docks are still intact. Youth participation has become part of Zeeland’s official policy. ‘3DZ’ has served to open the politicians’ eyes. Various workgroups and focus groups of young people have now been set up at provincial level. Young people’s ideas and opinions are now taken much more seriously, as are the ways in which they can contribute to the life and image of the province.

In consultation with InnovationNetwork, it has now been decided to investigate whether the concept can be introduced in other colleges. It is, after all, particularly appropriate to the ‘New Learning’ approach which strives to promote practical knowledge and hands-on experience. It is an approach which has proven very effective. As one of the participants in 3DZ remarked, ‘I have learned more in a few days here than I did in a whole year in the classroom’.
INNOVATION NETWORK

LIVING WITH WATER
THE CONCEPT

Water levels are rising, land levels are falling. Much of the groundwater then becomes saline, or 'brackish'. Technological solutions are not enough to answer all the issues. 'The 'Living with Water' programme will gather knowledge with regard to how we in the Netherlands can approach water differently.'

Everyone has a different view of water

'Living with water'? We have been doing that for centuries.
True, but in future we shall have to do so in a different way. We have always wanted to hold back the water. That principle is reaching its limit. Simply raising the height of the dikes is pointless, since the sea levels are rising too quickly. It is also financially unviable. Moreover, it is absolutely impossible to continue controlling the sea using traditional approaches, since land levels are falling and groundwater will continue to become brackish. Socially, spatially and financially, we have reached the boundary of the old approach.

Will 'Living with water' step manfully across that boundary and cut through the dikes?
No. The programme is intended to lead to a renewal of the knowledge infrastructure with regard to water.

That is a mouthful!
In short, we shall gather knowledge about how we in the Netherlands can take a different approach to water. This will avoid the necessity for major investments which are not sustainable over time.

Is the knowledge exclusively related to coastal water management?
No. We wish to promote knowledge across the board: the urban areas, rural areas, coast and rivers, and both for the low-lying regions of the country and the higher regions. This is essential, because everyone in the Netherlands is involved with water in one way or another. Some like to sail on it, others are worried by the flooding that occurs every winter. Everyone has a different view of water.

Why should the public be interested in this new knowledge?
For a long time we thought that it was none of the public's concern. In the water sector, it was technological expertise that mattered, and the research institutes and universities decided the approach to take. That is no longer...
appropriate. Society has become too vocal.
How tall should the dikes be? Where should they be extended? Where should water levels be artificially lowered? Which areas should we flood to create storage areas? Where can we afford to take greater risks? These are all issues on which the public has much clearer opinions.

And those opinions will count in ‘Living with water’
Definitely. We have a total of 45 million euros to spend on projects. Almost half – 22 million – is in the form of government funding, and the other 23 million will be provided by the private sector, research institutes and public sector clients. Every project supported by ‘Living with water’ is concerned with the relationship between science and practice, and with communication with the public.

This is why we are also focusing on non-technological areas of science such as psychology, governance and sociology.

Even those types of knowledge can become trapped in an ivory tower.
That is true. You must ensure that the knowledge is applied appropriately, which is only possible if the issues to be addressed by the projects are proposed by society itself.

We have therefore appointed two committees to evaluate project proposals. One will determine whether the plan brings science and practice together in an effective way, while the other will decide whether it addresses all the relevant types of knowledge. The two committees will advise the central project committee, which includes InnovationNetwork and which will decide whether the project is to go ahead.

To fund or not to fund: that is the question?
No, the assessment is not so clear-cut.
There may be a plan which is interesting in its own right but which devotes too little attention to communication with the public. If the project leaders can improve the plan in this regard, it may still be eligible for funding.

Are private sector parties eager to invest in projects?
We will only approve the projects for which all participants, including the private sector, have signed a formal ‘Declaration of Intent’ with regard to their continued support.

So, approval is not the same as handing over the money.
The cash has to be found during the next phase. It will indeed be a difficult phase, but an exciting one, serving to define the project more closely and make it more attractive. Only then can we sign the actual contracts.

Have any contracts already been entered into?
In November 2005, some fifty projects were awarded a grant under the ‘Living with water’ programme. There will be a further allocation round in the spring of 2006.

---

InnovationNetwork has worked alongside a number of partners on this concept. They include: Living with Water programme bureau (including representatives of the Federation of Water Management Authorities), RIZA and several knowledge institutes and private sector organizations, the Foundation for Applied Water Management Research.

---

PETER GLAS
CHAIRMAN OF DE DOMMEL WATER MANAGEMENT AUTHORITY
EVERYDAY PRACTICE

For centuries, the Dutch pushed the water back. During the 1990s, the water decided that enough was enough, and the Netherlands saw substantial flooding. ‘We now know that there is little point in trying to hold back the water. Technical solutions alone will not be enough. We have to ‘think with’ the water.’

Thinking with the water

‘Our grandparents who lived in the low-lying regions of the Netherlands can still remember the extremely wet winters. It did not rain any more than it does today, but vast swathes of the countryside were flooded each year. Rivers would frequently burst their banks. We then started holding the water back, keeping it off our land.

Today’s generation of water managers can barely remember a time in which there was ‘water, water everywhere’. Except the 1990s, that is. Suddenly, there was widespread flooding once more. The water had proven more powerful than we had thought. We now realize that there is little point in trying to hold the water back; technical solutions alone will not be enough. We have to learn to ‘think with’ the water in various ways. We must find ways in which to make better economic use of water. We must devise ways in which to improve communication with the public. We must find means to allow the water to occupy the space it needs, while still being able to build a sufficient number of new homes for ourselves.

These issues, which are certainly not primarily concerned with technical solutions, are the domain of the ‘Living with water’ programme. I myself have spent many years thinking about water management. I started my career at the Water Cycle Laboratory in Delft, and most recently I have been chairman of the ‘De Dommel’ water management authority. Some authorities still use the historic title ‘Dike Reeve’ for this position, but I am officially known as the ‘Water Reeve’, since our focus is on the water rather than what is alongside it. Learning to live with the water entails significant changes, not only in terms of the coast and the major rivers, but also for the regional water systems which are managed by organizations such as mine and the local authorities.

During the next few years, Dutch water management authorities must find 400,000 hectares of land suitable for water storage. That is an area the size of the entire province of Zuid-Holland. To buy that much land would cost around 16 billion euros, which is clearly impossible. We must therefore find areas which can be used for other purposes most of the time, but on which we can ‘park’ water when necessary.

Perhaps the farmers will provide the solution. There will still be costs involved, of course. No doubt flooding will occur just as the harvest is ready to be gathered. We would then have to offer compensation. Or perhaps we will have to enter into ongoing contracts. At what price? Do the nature managers actually want our excess water? No, it is too dirty. How do we arrive at an ecologically responsible balance? In addressing this sort of question, it is also useful to look at what other countries are doing. We Dutch think that we are the world experts in water, but other delta regions have come up with some remarkably innovative solutions. Japan and the United States are two good examples.

‘Living with water’ supports projects which address these issues in a sustainable way. For example, we in the Netherlands have a problem disposing of dredging spoil. The harbours and rivers have to be dredged to maintain a navigable depth and an adequate flow, but where do we put the spoil? One proposal is that it should be neatly packed and stored in depots sited on the inner, convex bank of a river. From there, it can be taken to be used to raise land for new homes in the low-lying areas. The initial reaction may be that this sounds rather hazardous. But the benefits are clear: cheap land, large plots and houses with absolutely idyllic views. I certainly want to know more.’
Text: Peter Henk Steenhuis en Tigrelle Uijttewaal
www.tekstinstijl.nl
Editor: Claudi Hulshof
Concept and art-direction: Dietwee communication and design,
Sybren Kuiper and Ruben Pater
Design: Dietwee communication and design, Ruben Pater
Print: drukkerij MART.SPRUIJT bv
www.agro.nl/innovatienetwerk
THE CONCEPT

The diary sector has reached an impasse. Revenues are falling, while costs continue to rise. In the dairy farming regions of other countries, we now see a rapid expansion of scale. ‘If the Netherlands wishes to remain competitive, a similar expansion of scale is unavoidable.’

Expansion of scale will not happen by itself

Expansion of scale has been going on for decades? Why do we suddenly need a new approach?
Because the sector is now losing its international competitive edge as the result of rising costs and the development of alternative business structures elsewhere.

So what? We can drink all the milk ourselves.
No we can’t. We have to export over half of our milk production. If the Netherlands wishes to remain competitive, expansion of scale is unavoidable. However, anyone wishing to implement such an expansion has many hurdles to overcome. Those with herds of just a few hundred cows can continue to grow within the current system. Where the holdings are larger, the system begins to crumble. The capital requirement, employment organization, technology, the layout of the premises and spatial planning are all subject to restrictions. Significant system innovations are required on all these fronts in order to render further growth possible.

There are bound to be protests.
Social acceptance has to be one of the main criteria for this growth. And indeed, it is by no means certain that the systems developed in other countries would be appropriate or accepted here. We have to ensure that the expansion of scale does not push the sector beyond the bounds of the socially acceptable.

Surely, the farmers themselves must take the lead?
That’s right. An expansion of scale does not happen all by itself. But again, it is often a condition of survival. If a farmer wishes to expand his business or acquire another business, he will often find it difficult to raise the necessary finance. Having a larger business also entails certain changes in terms of legal structure and employment conditions. It may be required to specialize in certain products. Moreover, this new large company must fit into the landscape, comply with various environmental requirements, and contend with various social prejudices.
There are clearly many difficulties. How do we arrive at innovative solutions?
In the past, these problems have always been addressed individually. In this project, we attempt to solve them as a cohesive, integrated set of issues, even though the solutions may sometimes appear mutually exclusive. To achieve our aim, we are working alongside a small group of businesses on a concrete design in which those businesses will be willing to invest. The issues and the obstacles will then become clear, whereupon we shall be able to devise creative solutions.

Give an example.
We are currently investigating whether it is possible to undertake large-scale agriculture within a small-scale landscape. One thousand cows in the fields: but how? Do you divide them into groups? Do you use portable milking machines? We do not yet have answers to many of these questions, which is precisely why we have started this project.

Have there been any results yet?
In 2003, the InnovationNetwork commissioned Alterra, a research consultancy based in Wageningen, to produce a report entitled ‘Large-scale dairy farming’. Based on an international survey and extensive desk research, it became possible to present several models for large-scale dairy farming. In 2004, we started to develop one of these models – the ‘Cowmunity’. Alterra remains involved, now acting as project manager.

What does the ‘Cowmunity’ entail?
We shall soon publish a report containing a number of possible designs for ‘Cowmunities.’ The next step will be to conduct a detailed feasibility study and calculate the costs. That feasibility study will then form the basis for a firm business plan with which a ‘Cowmunity’ could actually be set up.

What about the longer term perspective, say, in twenty years?
By then, the nostalgic image of dairy farming will have faded somewhat. In addition to multifunctional, relatively small-scale dairy producers, there will be modern, large-scale businesses which will be accepted and will even command some respect.

Respect?
Yes, because their production methods will be completely transparent and they will meet the very strictest requirements. I don’t just mean with regard to product quality, but also aspects such as assimilation into the landscape and animal welfare.
EVERYDAY PRACTICE

Mere expansion of scale is not enough to guarantee the farmer’s future. He has to make a ‘quantum leap’ in scale. ‘In the Netherlands, dairy-farming businesses will only be viable if they are ten times bigger than they are today.’

A businessman in an animal park

‘Thanks to the ‘Cowmunity’ project, I could soon become a ‘new entrepreneur’. New in the sense of new to the Dutch dairy sector, that is. A dairy farmer with stringent requirements in terms of employment organization, structured work protocols, financing and efficiency.

‘Cowmunity’ is an attempt to achieve an expansion of scale within the dairy farming industry. A new approach is needed because the traditional method of business expansion is no longer effective. The farmer has a farm, buys another building, acquires more land, builds a new barn, and so the business gradually grows. That was the old success formula, within a protected market, with the farmer and his immediate family as inexpensive labour. All university research and all market developments were based on this business structure. However, a business which grows in this organic way will not be able to achieve the full benefits of scale. If today’s farmer was able to start all over again, he would certainly not opt for the gradual growth scenario.

So what would he opt for? That is the main question that we are trying to answer through ‘Cowmunity’.

Looking at the current position in terms of technology, management, knowledge, capital, labour and land availability, it would seem that large-scale dairy-farming businesses will only be viable in the Netherlands if they are ten times bigger than is currently the case. That means having a herd of over one thousand cows. That may seem a lot, but there are businesses in the United States with 2500 cows, all milked four times a day. A number of problems have to be overcome before such a massive expansion can be achieved. Social acceptance, for example. In the Netherlands, both farmers and the general public have rather set views about agriculture: ‘large-scale’ equates with bio-industry and factory farming, and hence with poor animal welfare. You must take such standpoints into account. Perhaps it will be possible to create the new business in the style of a large animal park, so that cyclists, walkers and local residents can actually see that the cows are perfectly content.

Another problem is that of labour. In the old-fashioned farm business, the entire family was involved and labour costs were low. No one had to be paid by the hour. In the new business, labour has to be paid at the going market rate. We must then ask whether it will be better to introduce full automation, or to ensure maximum efficiency of human labour. And what about worker participation, ownership, responsibility and liability issues. These are all points which have to be researched. Apart from all that, there is nowhere in the Netherlands where we can simply start up such a business overnight. There are always other potential land uses to compete with. However, if we look at the maps showing soil type and fertility, climate, water management and demographics, somewhere in the northeast of the country would appear to be the most suitable location.

Once we know more about the whys and wherefores, we intend to present a rough sketch for just such a ‘mega-business’ later this year. This will set out the preconditions for realizing an actual ‘cowmunity’. The details will then have to be thrashed out so that we arrive at a firm business plan by the end of 2006. In early 2007, we will have to make the go/no-go decision. Do we proceed or do we forget all about the idea? That will be a very exciting moment.’
Text: Peter Henk Steenhuis en Tigrelle Uijttewaal, www.tekstinstijl.nl
Editor: Claudi Hulshof
Concept and art-direction: Dietwee communication and design, Sybren Kuiper and Ruben Pater
Design: Dietwee communication and design, Ruben Pater
Print: drukkerij MART.SPRUIJT bv
www.agro.nl/innovatienetwerk
THE CONCEPT

Without innovations, the dairy farming sector has no future. But innovations cost money. Too much money. 'Courage' will help farmers push back their boundaries.

'Courage' shows dairy farmers the way forward

'Courage' is a network organization which encourages radical innovations in the dairy sector, as well as practical support. After all, without innovation, the dairy-farming industry has no future. It is currently trapped between the requirements of the market on one hand, and those of society on the other. The 'Courage' initiative has been launched by two agricultural federations - LTO Nederland and the Netherlands Dairy Organization (Nederlandse Zuivelorganisatie) in association with the Innovation-Network's Rural areas and Agriculture division. Financing has been secured in part from Rabobank Nederland, through the LTO.

'Trapped between the requirements of the market and those of society'. What does that actually mean?
The market is now in a process of deregulation and liberalization. The Dutch dairy industry must compete with that in other countries, where the costs of land, labour and the milk quota are much lower. This competition forces Dutch dairy farmers to produce at a low cost price, as efficiently as possible using intensive methods. On the other hand, society has strict demands in terms of product quality and safety, conservation, landscape, the environment and animal welfare. These requirements force the farmer to produce at a higher cost price, using an extensive farming approach. In short, the farmer falls between two stools.

But that is only a problem for the dairy farmers themselves.
No, it isn’t. Without cows, we simply couldn’t afford to maintain our cultural landscape. Moreover, dairy farming helps to define the socio-cultural quality and identity of the countryside. If you see a meadow, you expect to see cows. The sector also provides considerable employment and makes a substantial contribution to the nation’s economy. Overall, agriculture accounts for approximately ten per cent of the Netherlands’ domestic product – that is over forty billion euros – and ten per cent of its jobs. The dairy sector contributes over three billion euros.
How will ‘Courage’ help dairy-farming out of its current position?
‘Courage’ will identify the innovations that have to be implemented now in order to ensure that the Dutch dairy sector enjoys a strong position in the year 2025. Boundaries must be shifted; new, radical concepts introduced, far-reaching changes must be tested, and new coalitions of farmers, industrialists, scientists, politicians and the general public must be formed.

What is the purpose of these coalitions?
They are necessary to arrive at a new business approach which addresses consumer requirements. That may not necessarily be exclusively agricultural: think of campsites, care facilities, nature education, a crèche, landscape management. But at the same time, new forms of cooperation between agriculturalists are necessary in order to improve efficiency and to achieve specialization.

If there is a production cooperative with one thousand cows and limited land, its members must form a coalition with arable farmers who will provide the feed and will make use of the manure produced.

What boundaries does ‘Courage’ hope to push back?
Firstly, the boundaries that define the concept of ‘dairy farming’. A business stands or falls by the quality of entrepreneurship and management. Traditional skills, such as being able to milk a cow or grow crops, are no longer enough to survive as an independent dairy farmer. Success now relies on the willingness to learn, to take risks, to innovate, to take decisions, to network and to understand how the market works. These are the required skills. Moreover, the dairy sector need not confine itself to producing milk. A dairy farm has unique opportunities to produce energy from the sun, wind and biomass. It can undertake landscape management. By shifting back boundaries in this way, the dairy sector can create a broader economic basis and can increase its social acceptance.

Why does the dairy sector in particular need radical new concepts and innovations?
To escape from its current position. Purely economic or technological innovations, such as fully automated milking, are not enough to save the Dutch dairy sector.

Is it really necessary to set up a separate foundation for this?
Yes. ‘Courage’ has its own project fund enabling the foundation to implement its own projects without having to go ‘cap in hand’ to other institutes or stakeholders.

What is the advantage of that?
This independence makes it far easier to inspire the dairy farming sector to change. Funding would be difficult to come by otherwise. ‘Courage’ is not a funding body: it will not merely hand out subsidies. It will take a proactive part in all the projects in which it invests, and this enables it to monitor progress towards the set objectives. Not every issue that we face today is relevant in terms of the sector’s position in twenty years’ time.

What does this mean in real terms?
The ‘Courage’ programme was launched in 2004 and will run until the end of 2006. The intervening period will be deemed successful if we have developed four pioneering innovative concepts, of which at least two can be evaluated by means of a practical trial.

InnovationNetwork has worked alongside a number of partners on this concept. They include: LTO Nederland, Netherlands Dairy Organization.
EVERYDAY PRACTICE

LTO Nederland is closely involved in the changes taking place in the Dutch dairy farming sector. 'It is a question of finding ways of staying friends with society without harming the economy.'

Dairy farming: more than milk

'As chairman, I am very much involved in deciding what 'Courage' will do and what it will not. That very much depends on three factors: the nature of dairy farming itself, society and the market. In terms of the changes to the sector, there is already a fairly firm proposal in the form of the 'Cowmunity' project, devised by InnovationNetwork and 'Courage'. Given the changes that will soon be seen in the dairy sector – expansion of scale and diversification – we have to start working on our relationship with society now. Otherwise, the process will be seen purely as one of industrialization and intensification.

Even with 'Cowmunity', our intention is not to discover whether it is possible to have a herd of one thousand cows within one business. We already know it is, because it happens in countless other countries. If you want to milk a thousand cows, you can buy a huge concrete shed in East Germany and do it. It is not difficult, and it is certainly not innovative.

It is actually all about finding ways to 'stay friends' with society without harming the economy. Can the expansion of businesses be reconciled with the interests of the country-side, for example? After all, the Dutch people like to see cows in fields. Can the expansion of scale be used to improve sustainability? That is always a popular aim. Is it possible to solve all the problems of animal health and welfare in one fell swoop? In the long term, social acceptance is not enough. Social desirability is far preferable.

Once 'Cowmunity' moves from business plan to actual implementation, we shall hand the project over to the participants and the investors. If they then come up against problems which are related to social acceptance, we shall be on hand to help resolve those problems with money, manpower and energy.

We are already at an advanced stage of a project which addresses sustainability for the benefit of society itself. Dairy farms are able to produce energy from manure: the fermentation technology is already well established. But can you also produce hydrogen from manure, and is there any advantage, financial or otherwise, to doing so? The sun also represents new opportunities for solar power generation. We have long wanted to make use of the huge surface area of cowshed roofs, but fitting standard solar panels would be far too expensive. The scientists have now developed a sort of foil which you simply stretch across the roof and which does exactly the same job. A cheap and smart solution. We also have to consider the added value of milk itself. Currently, it is the processing industry doing all the innovation in this regard, introducing new consumer products such as various types of yoghurts (which actually differ only in the number of strawberries they contain). And yet milk of greater value can be produced on the farm itself, by altering its composition for example. Various factors such as fat content and flavour are determined by the way in which the dairy cows are kept. Cows who spend their days in the open fields produce milk which contains certain substances known to promote human health. The feed and even the pedigree of the animals also influence the composition of the milk. How? We don't know exactly, which is why 'Courage' will study these aspects further. After all, if you can be certain that an innovation will be successful, it will be readily adopted.'
Text: Peter Henk Steenhuis en Tigrelle Uijttewaal,
www.tekstinstijl.nl
Editor: Claudi Hulshof
Concept and art-direction: Dietwee communication and design,
Sybren Kuiper and Ruben Pater
Design: Dietwee communication and design, Ruben Pater
Print: drukkerij MART.SPRUIJT bv
www.agro.nl/innovatienetwerk
**THE CONCEPT**

A new type of rural business: the ‘buurderij’. The concept is new, as is the name – a portmanteau word made up of the Dutch for ‘farm’ and ‘neighbour’. In short, it is a farm business which is fully involved in the life of the local community and to which the government can confidently leave the management of the local environment.

The ‘buurderij’ involves local residents

‘Buurderij’ – good word!
Yes. It is a new word but to anyone who speaks Dutch it is immediately apparent that it refers to two related concepts: the farm (boerderij) and the neighbourhood (buurt). It is a neighbourhood farm: a new type of rural business.

Do we need a new type of rural business?
Yes. Agriculture in the Netherlands is embarking upon a process of major change. Many agricultural businesses will seek further expansion of scale and reduction of cost prices so that they can compete in the international arena. Others will concentrate on the ‘socialization’ of agriculture.

Surely every farm is part of society?
Indeed. We use the word ‘socialization’ to indicate that the businesses are more than mere economic units, concerned only with food production.

Is agriculture purely an economic activity?
No. If agriculture disappears from a region, we lose far more than jobs and a contribution to the balance of payments. Nevertheless, food production is the core activity, while aspects such as management of the green areas is a sort of by-product. Currently, a farming business which wishes to diversify to provide residential care, produce regional products, run a camping site or whatever, faces a number of legislative constraints. It will also face a loss of income. Farms have already lost a number of other important functions due to the emphasis on economic activity.

What is lacking?
Traditionally, farms were the focus of social cohesion in rural areas. They contributed greatly to the quality of life. They also provided a continuity of knowledge and expertise, often passed down from father to son. These functions return in our ‘buurderij’ concept. School lessons in biology and social studies will become more relevant if they are given in this type of interactive setting. There will be opportunities for expression, perhaps with...
art and crafts studios. The ‘buurderij’ will also be involved in landscape and nature management, and could even provide appropriate services, such as the maintenance of greenery, to the local authority. In short, the ‘buurderij’ is a rural business to which the government can confidently leave the management of the local environment.

Is it affordable?
Certainly. But the concept does call for new forms of financing. At present, the costs and returns of rural activities are unevenly divided. Building houses, for example, is far more profitable than creating and managing green areas. This has to change. One system under consideration would make investment in nature and other social functions a requirement of planning permission for housing development. Another idea is to introduce what we term ‘reverse planning impact’, whereby anyone whose property enjoys an unencumbered view of the countryside will pay an annual contribution towards its upkeep.

How does the concept combine ‘farm’ and ‘neighbourhood’?
The ‘buurderij’ will attempt to involve the public in agriculture. That public may indeed be the local community, but could also include visitors from the urban areas further afield. The people responsible for our human environment must be given a face once more. If the landscape is not attractive, to whom should you complain at the moment? Nature management agencies, regional authorities, parliament?

Is this radical innovation?
Definitely. You could say that it is an excellent example of ‘new government’, and is very much more salient than asking whether mayors should be elected or appointed. The responsibilities will be allocated between the public and private sectors in a completely different way, and the financial arrangements must also change. People will once again be more directly responsible for their own human environment and will be able to call each other to account if the responsibilities are not adequately addressed.

Has the first ‘buurderij’ already been built?
No, we are still in the design phase. Two possible designs will shortly be available, whereupon regional trial projects can be started.

Does the project have a weakness?
Reallocating responsibilities in a heavily regulated country such as ours will not be easy, and will take time. Moreover, not everyone will welcome the new division of tasks and responsibilities.

How do you see the situation in twenty years?
There will be a new public administration system. Individual citizens will once again bear greater responsibility for the management of the human environment, with less reliance on legislation and market forces, neither of which can provide satisfactory solutions to the problems of the rural areas.

InnovationNetwork has worked alongside a number of partners on this concept. They include: Various farmers and members of the public, Bureau Buiten, Centre for Agriculture and Environment, Het Vierde Gewas (Haarlemmermeer), local and regional authorities, Letsbureau, various social organizations, the Rudolph Foundation, Sociocratie, Church and Land Trust, Autarkie, Lunters Estate Trust, Syntens, Vrije Universiteit Amsterdam.

DRIEK VAN DE VONDERVOORT
MAYOR OF BOEKEL (BRABANT) AND CHAIRMAN OF THE DUTCH RURAL ALLIANCE
EVERYDAY PRACTICE

The public, not government authorities, should decide what is good for them. This is the principle observed by the mayor of Boekel, who is a fervent supporter of the ‘buurderij’, or neighbourhood farm. ‘Small businesses, run by young people, will be given their own responsibility.

‘Whatever our residents want, we shall do’

The ‘buurderij’ is a good idea because we must establish new economic and social vectors in the rural areas. Economic activity remains important, because everything costs money and subsidies are not inexhaustible. It is also important to have activities with a social focus, to halt the erosion of the social structure of rural areas.

The ‘buurderij’ is a proposal for a new type of rural business which might, for example, sell home-made products and regional goods. Farmers who actually produce something will work alongside people who do not, but who nevertheless have a contribution to make in the form of, say, lessons to schoolchildren. Besides being a production location, the ‘buurderij’ will then have a part to play in local tourism and recreation.

In recent years, I have noticed an erosion of the social structure in rural areas. That is partly due to individualization, and partly to the political climate created by recent governments. We are now slowly beginning to realize that people must be given responsibility for the quality of their own human environment. This is particularly true now that the traditional pillars of the rural community – the farmer and his family – are being displaced due to expansion of scale in the agricultural sector. This has a marked impact on local social activities, since the farmer’s family were often the leading lights of clubs and associations.

We have already established that this situation is not unavoidable. My local authority area includes the village of Venhorst, which has a population of approximately 1,700. Two years ago, we asked the villagers to devise their own plan for the future of the village, and to put that plan into practice themselves. We would provide the necessary facilities. A professional was appointed to guide the process. Some meetings were attended by as many as two hundred people. We now see all sorts of initiatives getting off the ground. There is a multifunctional community centre, for example. There is new housing specifically for young people. The local community did all this themselves; they accepted responsibility and they fulfilled that responsibility. Now we can once again see young people who are concerned about the quality of life in their village. They are interested in local politics and are keen to be involved in whatever way they can. This is clearly a good thing, since otherwise the parish council would become the exclusive domain of a few dodderly old fogies. Now that residents are allowed to take the initiative, we see a return of the old social structure.

This experience can provide a good example when setting up a ‘buurderij’. Small businesses, run by young people, will be given responsibility for the project. They will decide which products to make and sell, whether and to whom education will be offered, and whether there will also be recreation on the site. If InnovationNetwork wants to start a trial project, they can come to me. I can find plenty of people willing to take part. However, in a heavily regulated country such as ours, anyone who wants to try something new faces all sorts of constraints. The government must repeal or amend unnecessary laws. It would be ridiculous if we knew a way to restore a good social structure, but were unable to do so because central government stands in the way. We will not let that happen here. We like to follow our own rules and we apply the motto: ‘whatever our residents want, that’s what we shall do’. If there are rules and regulations which stand in the way, we shall just discard those rules and make new ones. Our approach is based on opportunities and successes: the problems are invented in The Hague.’
AGRI PArkS

INNOVATION NETWORK

CO₂

Diagram showing a cycle involving plants, a pig, and CO₂.
THE CONCEPT

The ‘Agripark’ is a new type of mixed business, with intensive arable and livestock agriculture, horticulture and even fish-farming all under one roof. The advantage? ‘It reduces transport requirements and pollution, provides easier logistics and enhances animal welfare.’

AGRIPARKS

The ‘agripark’: a new business based on an old principle

So, you’re going to build multi-storey pigsties?
No, we are creating combinations in a new type of mixed business. In the past, farmers had fields of crops, and they had pigs. They used the pig manure to fertilize crops, and they used some of the crops to feed the pigs. A simple ecosystem or cycle. That cycle was then broken by specialization in agriculture. We intend to restore the cycles by bringing together the various sectors – arable and intensive farming, glasshouse horticulture and fish-farming – at one location. At present, manure is transported long distances from pig farming areas to arable farming areas. That would not be necessary if the businesses were closer together. That entails creating a spatial concentration of businesses, perhaps on separate storeys of one and the same building. It was the press which sensationalized the idea by referring to it as ‘tower blocks for pigs’.

Is this just more bio-industry?
It is not our intention to create the ultimate in factory farming, but to build something that will actually benefit the animals. They will have more space in which to forage, more light and fresh air. They will spend longer in their social groups, perhaps with access to outdoor areas and daylight. In the most intensive set-up, they will have to remain behind glass, but the pigs will not mind that. The point is that it is an entirely closed system: there will be no smell or ammonia going out, and there will be no veterinary diseases coming in. Animal welfare can be greatly improved, even behind glass.

So we’ll hear whoops of delight from the animal rights lobby?
They take the view, ‘we’ll believe it when we see it’.

Why is the intensive form such a key part of the concept?
The ‘Agripark’ is an answer to the current
intensive forms of agriculture. It is not so much concerned with cows, which are usually kept in the open fields. Rather it is concerned with the chickens, pigs and fish which are now farmed by intensive means which do not necessarily require a rural location. Glasshouse horticulture even less so.

An ‘Agripark’ could be created on an industrial estate, for example, in a docklands area, or alongside a major river, motorway or railway. There would then be no more huge juggernauts harrying along narrow country lands, no unpleasant smells, and no discharge of contaminants in the fields and meadows.

The sites could also include waste processing plants, fertilizer factories, power stations and oil refineries. The residual heat produced by the power plants and the carbon dioxide from the refineries can be used to heat the glasshouses and ensure good plant growth. Pig manure can be supplied directly to the nearby fertilizer factory, while it is uneconomical for the small businesses of today to undertake any processing of the manure they produce. Wherever several such ‘flows’ converge, this form of agriculture is highly appropriate.

What is so innovative about this?
The concept of re-closing the cycles. That key idea has ramifications in all sorts of areas. It reduces the transport requirement and hence pollution. It facilitates transport, enhances animal health and welfare, produces a cleaner countryside. It improves the environment and will probably do much to improve farmers’ working conditions too. There are countless rules and regulations governing businesses sited in rural areas, and the farmers’ interests are increasingly in conflict with those of the public.

When will the first ‘agripark’ be built? There are already various ongoing initiatives. In Horst, companies are sharing their waste flows. The project developer Ballast Nedam is currently looking for a site on which to realize an ‘agripark’ with several hundred thousand pigs. There is already firm interest from a food processing firm, a fertilizer factory and a number of pig-farmers. There may also be glasshouses and a fish farm. It is a question of patience, but some of these projects will certainly see the light of day within the next five years.

The more intensive, the better?
No. In Horst, there is an ongoing experiment in which four businesses are making use of each other’s waste flows. They are a pig-breeder, a tomato grower, a mushroom grower and a poultry producer. A fifth company is responsible for the technical aspects of processes such as composting and fermentation. Mushroom cultivation produces a considerable quantity of carbon dioxide, a greenhouse gas which would normally be discharged into the atmosphere. Moreover, growers currently burn gas in order to produce CO2 to help their plants grow. In Horst, the mushroom grower is supplying the CO2 to his neighbour, the glasshouses. Because the two businesses are located so close to each other, the whole process requires only a few small pipes to be laid.

InnovationNetwork has worked alongside a number of partners on this concept. They include: University of Wageningen, ABCTA, Arcadis, Buck Consultants, CoopCodis Supermarkets, Farm Diary/Frites, Happy Shrimp Farm, Port of Amsterdam Authority, Global Image, Rabobank, Keopen Holding, Kuijpers Kip, LTD (North), Ministry of Agriculture, Nature and Food Quality (LNV), Motivation, NIB Consult, NOP, Dost NV, Port of Rotterdam, Province of Gelderland, Province of Overijssel, the Rathenau Institute, Utrecht University, Rijnconsult, TNO, Van de Bunt, Van Rijningen Beheer, V&D La Place Restaurants, Walas The Maverick, 10 Wizards.

TRUDY VAN MEGEN
KNOWHOUSE, PROJECT MANAGER FOR THE ‘NEW MIXED BUSINESS’ IN HORST

AGRIPARKS
Innovation in agriculture is difficult and expensive. There has to be good process management, which is where Knowhouse comes in. They realized that the ‘agripark’ concept is extremely promising, but it had yet to be put into practice anywhere. Knowhouse saw that the south-eastern Netherlands offered excellent opportunities.

The cycle of glasshouse horticulture and livestock farming

‘We at Knowhouse facilitate innovative developments in agribusiness throughout the south-eastern Netherlands. We try to oversee the implementation of new ideas, from both the private and public sectors, in such a way as to develop the knowledge that is actually needed. Sometimes, if we come across a particularly promising idea, we will actively seek out businesses which are willing to become involved and who will help to develop those ideas.

This was the case with the ‘agripark’ concept. It is clearly extremely promising, and many parties shared our view that bringing together different types of business in this way and ‘closing the cycles’ is a good thing. Even so, no actual project had managed to get off the ground. If it is possible anywhere, surely it is here in Noord-Limburg. The region already includes glasshouse horticulture, arable farming and intense livestock farming. There must be companies with the foresight and pluck to set up a large, modern ‘mixed business’. We eventually found five companies who were keen to become involved.

And so the Horst project came into being. Because it is such an innovative project, we were able to obtain funding from TransForum for Agribusiness and Rural Areas, an organization which supports the development of knowledge with regard to sustainable agriculture. The development of knowledge is now our main task. The companies taking part face many issues. Glasshouse horticulture, for example, requires plenty of light (and hence electricity) as well as CO2 to help the plants grow. Energy can be produced from manure, and the process of doing so also produces CO2. Can that CO2 be used directly in the glasshouses, or does it require some form of pre-processing? We formulate the research questions, produce research proposals and then find the best people to perform the research and provide the necessary knowledge. Knowhouse is an intermediary between the hands-on businesses and the knowledge institutes. We ensure that the researchers provide exactly the knowledge that is required.

We also continue to support and encourage the businesses, so that everyone remains fully committed to the project, and the research is confined to the relevant issues.

The Horst project has now been up and running for a year. Some of the companies which were initially so keen have pulled out because they thought that their independence was being eroded. However, there are others which were hesitant at first but have since become committed partners. The aims have shifted slightly too. Originally, the processing of manure was to be only a small component of the new business. It is now one of the mainstays. It is extremely important to manage the group process properly. People will only be willing to cooperate if there is a good atmosphere and good working relations. Our plan is for three companies to form a new joint business. If they can obtain all the permits, that is. We assist them in this, too.

As soon as you start the process of applying for permits, there has to be a public consultation. Intensive livestock farming is always contentious. We shall explain very carefully that an ‘agripark’ is an entirely different type of business. It serves to reduce transport, has less environmental impact, and is better in terms of animal health and welfare. For the country as a whole, the agripark will imply enormous benefits, but local residents are likely to see it as just another new business cluttering up the landscape. The Horst project can form a role model for future developments. We have established that regional authorities will not dismiss the idea out of hand, and that you have to consider how to make best possible use of the setting. But above all, you must involve the right sort of people.’
QUALITY OF LIFE AS THE FOCUS OF SOCIAL PERCEPTIONS
The glasshouse horticultural sector is not held in particularly high regard. The public objects to the use of pesticides and to the alleged employment of illegal immigrants. People do not wish to see gigantic glasshouses cluttering up the landscape. 'The sector must take far greater account of the desired quality of life in the Netherlands.'

The horticultural industry need not confine itself to growing tomatoes

The Dutch horticultural sector spends millions on general advertising for its flowers, fruit and vegetables, although no one actually knows whether the advertising has any effect. In any event, it does nothing to assuage the public's opposition to the horticultural industry. People first objected to the use of pesticides and to the alleged employment of illegal immigrants. Attention then turned to the huge glasshouses which erode spatial quality, and then to the lorries full of produce which are blamed for much of the country's traffic congestion. There seem to be no ready solutions.

Time for change?
Yes. Rather than merely promoting its products, the sector must actively address the public's concerns. It must take greater account of the quality of life issues which the Dutch public consider important. Rather than directing the advertising towards 'consumers' who will buy the tomatoes anyway, the sector should target the 'citizens' who believe that their human environment is being violated by the sector's activities.

How can horticulture take greater account of the general public's wishes?
First, you must find the right people to do so. To reverse any trend requires certain qualities: you need people who think differently. That is an individual trait, not a characteristic of a certain advertising agency or communications bureau. There are very few agencies with people who are able to maintain an alternative view in the long term. However, one man who can do so is Hans Brand, director of Total Identity. He was responsible for a marvellous essay entitled 'Roses grow on trees, tomatoes come from Albert Heijn' (the Netherlands' largest supermarket chain.). The essay concerned the distance between the public and the horticultural sector: few people in the cities actually know what comes from where. Hans Brand charted all the changes that the sector has undergone since the 1960s. It then becomes possible to determine how the sector can once again be brought back in touch with society as a whole. The horticulturalists can address public wishes and requirements by,
say, introducing new forms of architecture and spatial design, reducing energy consumption, and adopting a more cooperative attitude to regional development plans. Most importantly, they can – and must – revise their communications strategy.

The Dutch are familiar with the advertising slogan, ‘Flowers love people’. Are you suggesting this should now become ‘Flower-growers love people’? Not if it means confining communications to advertising alone.

How can an essay help the sector to find a way forward?
Individual companies were the first to benefit by including the content, or at least the gist of it, in their own communications. At a later stage, the Product Board for Horticulture made funds available for its Public Relations department to revise the communication strategy for the sector as a whole, and to manage the issues which concern the public more effectively.

What is ‘managing issues’?
Take the public’s perceptions of open spaces. The various ways in which the horticultural sector affects that perception are ‘issues’ which should be presented to the public and opened up for further discussion. In fact, this process has already resulted in the Ministry of Spatial Planning and the Environment issuing a policy document which introduces the concept of ‘greenports’. Areas with significant concentrations of horticultural activity – Westland and Aalsmeer, the bulb fields of the western conurbation, Boskoop and Venlo have been designated ‘greenports’ which means that the government wishes to develop horticulture here in preference to anywhere else.

Will ‘greenports’ change the public’s opinion of horticulture?
It is certainly significant that the horticultural concentrations have been designated as a focus for economic development and employment on a national basis. In this sense, they become comparable to the country’s ‘main-ports’: Rotterdam harbour and Schiphol Airport. The public see these centres of economic development not just in the context of local environmental quality, but take the wider view. However, the horticultural sector must still do its part to address immediate concerns.

InnovationNetwork has worked alongside a number of partners on this concept. They include: SIGN, Bloemenbureau Holland, Flora Holland, LTO Nederland, Product Board for Horticulture, Total Identity, Association of Dutch Flower Auctions.
The Dutch public appreciates the horticultural sector for its economic contribution and its healthy products. However, few people want huge glasshouse complexes on their doorstep. The sector is now working to improve its image. ‘Take the appearance of the glasshouses. We now encourage companies to build in a new and interesting style.’

Treat the horticultural sector as one large company

‘Of course we are trying to improve the image of the horticultural sector. The changes must be long-term: anything else is a waste of time. We noticed that many individual companies and organizations had developed initiatives in this regard, but had done so in isolation. We therefore decided to bring them together to find ways in which they could cooperate in improving the quality of life for people living nearby glasshouse complexes, and to stave off any future problems. Joint action is essential to success.

Our approach relies on ‘issue management’. We then act as if the entire sector is one big company, even though it actually comprises thousands of individual enterprises. We formed a workgroup, and appointed a project manager and coordinators to decide which issues we should work on first.

‘Space for glasshouse horticulture’ is one such issue, and a difficult one. The public appreciates the sector for its economic significance and healthy produce, but few people want a huge glasshouse complex on their doorstep. We therefore started by trying to foster an understanding that the sector does indeed need space. At the same time, we encouraged companies to take the wishes of local residents into account.

Take the appearance of the glasshouses, for example. We have encouraged businesses to adopt a new and more interesting architectural style. This has certainly not been the case in the past, but many individual companies have now improved the appearance of their buildings.

Recently, we have seen a number of reasonably successful attempts to make entire areas more attractive. They now incorporate better recreational facilities such as cycle paths so that the public can also appreciate the benefits of the glasshouses. We have also tried to use space much more efficiently, so that there is room left over for greenery, water and gardens. One innovative plan is for a ‘glass castle’, with various functions stacked above each other. There would be workrooms, offices and distribution centres on the lower levels, with production in the glass sections on the upper level. Unfortunately, the plan has not come to fruition as it has not been possible to find enough people interested in renting the lower areas.

Another problem is light. To ensure good quality, year-round production, many companies use artificial lighting at night. The resultant ‘glow in the dark’ glasshouses are not popular with everyone. In areas in which there is suddenly more light, local residents have complained loudly. We have therefore considered this problem and in association with the Nature and Environment Foundation, we have drawn up an agreement with the sector.

We also try to remind both the public and the sector that solutions to this problem will not be found overnight. However, they will be found within the next five to eight years. It will be technically challenging and expensive. It is not particularly difficult possible to screen off the glasshouses at night to prevent the light escaping.

However, the lamps produce heat and if the building is fully enclosed, that heat will be retained. That is not good for the plants. Our sector is spending hundreds of thousands of euros to solve this sort of problem, to improve our image and to enhance the quality of life for the general public. All in keeping with the InnovationNetwork essay, ‘Roses grow on trees, tomatoes come from Albert Heijn’.

EVEryDyA PRACTICE
INTERNATIONAL MARKET-DRIVEN SERVICE NETWORKS
THE CONCEPT

The roads are reaching gridlock. Air quality is declining. Nevertheless, the flower-growers of the Netherlands wish to continue supplying their product to the entire world, and wish to do so in a sustainable way. ‘We are the stewards of the Earth and must hand it over to future generations in good condition.’ This is made possible by ‘International market-led service networks’.

INTERNATIONAL MARKET-DRIVEN SERVICE NETWORKS

Growers wish to sell flowers without harming the environment

The Dutch think of distribution in terms of asphalt. We – the growers, packers and distributors of horticultural produce – think in terms of the auction houses in Aalsmeer and Naaldwijk. That is where everything has to be taken. We grow and pack everything, and then send it all elsewhere. The Netherlands is the centre of a large logistic network. Past innovations have addressed the processes involved, but the roads are now reaching capacity. Emissions of greenhouse gases are already too high, and the auction houses have expanded to their limits. The traditional approaches are no longer sustainable.

So what is?
Sustainability entails acting as the stewards of the earth, handing it over to future generations in good condition. We must earn money without damaging the environment.

What sort of system is required?
Rather than there being just one logistic hub, there must be several. There is already one Dutch horticultural producer who has set up locations all over Europe. He is then closer to his customers and is largely unaffected by local traffic congestion. The business becomes a network in its own right. This has inspired the idea of a system of Dutch-run distribution hubs close to the larger European consumer markets, such as the Randstad, Berlin and Paris.

Is this enough?
Not in itself. The nature of the network hubs will also change. They will no longer be concerned only with processing, loading and distributing, but will provide additional services on behalf of retailers. There could, for example, be special types of packaging to meet market demand. Or a special type of pre-packed salad to allow retailers to meet the growing demand for healthy yet convenient food.
Are the Dutch growers, packers and distributors behind the idea?
The idea itself – the development of international market-led service networks – is inescapable. Moreover, Dutch businesses wish to retain their leading position, be it in production, transport, processing, packaging or distribution. However, when the idea was translated into a practical plan by Innovation-Network and the Innovation in Glasshouse Horticulture Foundation (SIGN), it met with a somewhat lukewarm reception. It would be perfectly viable for the people behind the plan to set up their own service centre near a city such as Berlin. However, this is seen as too competitive; they would be treading on the toes of the established businesses, who prefer to seek out their own partners. Some businesses wish to cling to the old situation, others are willing to explore a different route. That is all part of the dynamic of such a broad and level sector. A few companies were quick to seize upon the idea. The essay ‘From logistic hub to sustainable service network’ eventually enjoyed two reprints. That’s practically a bestseller!

So there will be new market-led networks in the Netherlands?
It takes time for this sort of idea to take root. Further development will cost time and money.

What sort of development?
Various ideas have already emerged from this different approach to the transport of horticultural produce. Take refrigerated transport, for example. For many years, this has relied entirely on the roads. However, now that the roads are so congested, we must look at ways of combining water, rails and road transport to form a ‘multimodal transport chain’. This is where the idea of the Coolboxx comes in. It is a self-refrigerating container of the standard dimensions used on ships, trains and lorries. For the first six months or so, the idea did not really get off the ground. Then three large transport companies formed a new limited company, Coolboxx B.V., since when the first several hundred units have been produced in China.

What has a self-refrigerating container got to do with a market-led service network?
The Coolboxx enables us to serve the market much more flexibly. We can transport produce direct from the source in say, South America, to markets in Europe. We would be able to bypass Rotterdam altogether. However, that would not be good for the harbour’s business, nor for the Dutch producers wishing to use the existing transport chain. There are possibilities, but there are also some strategic issues to be addressed.

Innovation-Network has worked alongside a number of partners on this concept. They include: SIGN, Aalsmeer Flower Auction, Coolboxx B.V., Dutch Flower Group, Flora Holland, Frugi Venta, Lemkes B.V., LTO Nederland, Province of Zuid-Holland, Rabobank, Port of Rotterdam, Van de Geijn & Partners, Association of Dutch Flower Auctions, Association of Horticultural Distributors, Visbeen Transport.

HERMAN DE BOON
PRESIDENT OF THE ASSOCIATION OF FLOWER WHOLESALERS (VGB)
A new type of refrigerated container could bring about a revolution in logistics. Distributors will be able to broaden their horizons. ‘With the new technology, we will be able to harvest at exactly the right moment and prevent product decay.’

The new technology allows us to harvest at the best possible moment and prevent any further ripening or decay of the product. This demands extreme accuracy, since one type of flower may have to be transported at three degrees Celsius, while another will remain fresh at five degrees. However, we have already conducted some trials with tulips. They spent a month in transit but arrived as fresh as the day they were picked.

The climate-controlled containers enable us to adapt our logistic processes. Distributors will be able to broaden their horizons. Rather than delivering fresh vegetables to a distribution centre in Germany, it will be possible to transport them all the way to the final consumer in Russia. That is not the only new opportunity. The mode of transport will also change. At present, practically all fresh produce is transported by road. However, it is perfectly possible to bring produce from Spain to Rotterdam by ship, and load it onto a lorry there.

When we started, our ambition was to have some three thousand containers ‘doing the rounds’ in this way. We have not yet reached that stage, but we will. The Coolboxx company has now been set up by a number of transport companies specializing in fresh produce. Coolboxx containers meet the European standard of being able to hold 33 pallets. The traditional reefer container holds only 22. A significant improvement in efficiency is therefore on the horizon.'
Text: Peter Henk Steenhuis en Tigrelle Uijttewaal,
www.tekstinstijl.nl
Editor: Claudi Hulshof
Concept and art-direction: Dietwee communication and design,
Sybren Kuiper and Ruben Pater
Design: Dietwee communication and design, Ruben Pater
Print: drukkerij MART.SPRUIJT bv
www.agro.nl/innovatienetwerk
THE GLASSHOUSE AS A SOURCE OF ENERGY
THE CONCEPT

During the cold Dutch winters, glasshouses guzzle expensive energy. In the summers, the windows are wide open to dispel the heat. Isn’t there a ‘smarter’ approach? ‘Closed glasshouses in summer can produce more heat than they need during the winter. It should therefore be possible to design a self-sufficient glasshouse which produces its own energy.’

THE GLASSHOUSE AS A SOURCE OF ENERGY

Glasshouses have to be kept warm and light. They are therefore major consumers of fossil-fuel energy. However, in theory a glasshouse can also produce energy. In the summertime, the glasshouse has an average of 7 MW surplus heat due to the sun’s rays. In the winter, it needs just 2 MW in additional heating. And so the concept of ‘the glasshouse as a source of energy’ was born. Rather than merely consume scarce resources, the glasshouse will actually produce its own energy, and then some.

This is still just theory, isn’t it?
Not at all. The technology already exists. There are just minor glitches to overcome. For example, the system will not work in an open glasshouse, or in one which is poorly insulated. However, by combining existing technologies we have been able to arrive at a realistic preliminary design. In fact, the world’s first energy-producing glasshouse is now under construction, thanks to a grant of five hundred thousand euros from each of the three ministries involved (Agriculture, Environment, and Economic Affairs), together with additional funding from the Product Board for Horticulture, the Rabobank, the Province of Gelderland and members of the consortium.

It is in Bergerden, within a new glasshouse region being developed between Arnhem and Nijmegen.

That’s all very well, but who is the glasshouse in Bergerden going to supply with its energy or hot water?
For the time being, no one. At this stage, the purpose of the project (being conducted by InnovationNetwork and the Netherlands Foundation for Innovation in Glasshouse Horticulture: SIGN) is to arrive at an energy-producing glasshouse. It will explore various avenues. The main aim of the Bergerden experiment is to establish whether the idea is viable. At the same time, we are working on networks, known as ‘energy webs’, via which the residual heat can be transported to those who need it.
How does the concept work?
In the summers, glasshouses can retain more heat than they actually need in the winters. The surplus heat, in the form of water at 25 °C, can be supplied to other horticultural businesses, to offices, swimming pools, supermarkets or private homes. However, the nature of this ‘low grade’ heat means that the glasshouses have to be located close to the actual users.

A glasshouse pumping water at 25 degrees into homes? For a nice hot shower, perhaps? No, the glasshouse is not intended as a source of hot water, but as a source of heat. In modern buildings, pipes set into the walls and floors provide a much more comfortable heat than traditional radiators. The water in the pipes is at a temperature of approximately 25 °C, much lower than that in a traditional central heating system. The glasshouse will then have two different types of product: the usual horticultural produce such as fruit and vegetables, and warm water.

Is that a ‘system’ innovation?
The ‘glasshouse as a source of energy’ concept is a major technical innovation which has consequences for many types of system. It may affect the location of horticultural activity in the Netherlands, for example, and could change the entire energy supply system.

An ‘energy web’ is to be created in one test region, whereby supply will be matched to demand. The glasshouse produces low-grade energy which must be used in the immediate vicinity since it would be too expensive to transport it elsewhere. With an energy web in place, the system changes, and parties who would otherwise have no contact start to cooperate with each other.

The energy-producing glasshouse represents a transition from fossil-fuel energy to more sustainable forms. That is clearly a good thing, particularly given that the horticultural sector currently accounts for ten per cent of the Netherlands’ consumption of natural gas. Moreover, it is responsible for some 4.5% per cent of the country’s total CO2 emissions.

The energy-producing glasshouse is therefore another means by which we can meet our obligations under international climate treaties. At present, CO2-based fertilizers are often applied when the glasshouse windows are wide open. The gas then escapes into the atmosphere. This would not be the case in a closed glasshouse. Moreover, keeping the glasshouse sealed at all times keeps out pests and disease. The plants will be healthier, and the requirement for pesticides will be far lower. Previous experiments with closed glasshouses suggests that production will also increase. It is therefore hardly surprising that there is so much interest in closed glasshouses and the energy-producing glasshouse. Other countries are keenly monitoring our progress.

InnovationNetWork has worked alongside a number of partners on this concept. They include: SIGN, Sustainable Energy Systems, Venlo Fiwhax Energy Web, Greenport, Hydro Huisman, IMAG, Kema, Lek Habo Ter Beek B.V., LTO Nederland, Ministry of Agriculture, Nature and Food Quality (LNV), Product Board for Horticulture, Sustainable Energy Project Bureau, the ‘Glasshouse as source of energy’ steering committee, Beringen District Council.

THE GLASSHOUSE AS A SOURCE OF ENERGY
EVERYDAY PRACTICE

It has been known for many years that a glasshouse retains more heat from the summer sun than it actually requires during the winter. But how can that heat be stored? In Bergerden, a village in Gelderland, a prototype of a new glasshouse is under construction. ‘The glasshouse itself is not important. It’s all about the principle of the glasshouse as a source of energy.’

This glasshouse is one big solar energy collector

‘When I look up, I see the roof of a new type of glasshouse. We started building it ten weeks ago, and the structure itself was completed this week. We are now fitting out the interior with screening and pipes. It will all be finished in October. Eventually, this type of glasshouse will be a source of energy rather than a consumer of energy. That is a major change, but strangely enough this glasshouse does not differ greatly from others. Every glasshouse has a roof which allows in a lot of light. Here, the roof has a zigzag profile, and on top are several plastic prisms which reflect diffuse light into each other. This serves to catch even more light than a traditional flat roof. Even on an overcast day, the interior of the glasshouse is well lit, even brighter than outdoors. That in itself saves energy. This glasshouse is one big solar energy collector.

We have known for decades that a glasshouse absorbs more energy in the summer than it actually uses in the winter. Nevertheless, it was a long time before we hit upon the idea of collecting that energy. I think it was about four years ago that Henk van Oosten of InnovationNetwork asked me how we could make serious reductions in energy consumption. I told him that we would have to collect and store the surplus heat produced in the summer-time. That is what this glasshouse will do. We have not built this prototype to make money. There are bound to be many ‘teething troubles’ to sort out, and the development of the heat exchangers has already demanded a considerable investment. It is not about the glasshouse itself, it is about the principle of the glasshouse as a source of energy. We shall not be tinkering with that idea.

At first, we thought that it might take us twenty years to arrive at an energy-producing glasshouse. Developments have been rapid, however, and we are now looking at a time frame of about five years. That doesn’t mean that we shall have to demolish this glasshouse and start all over again: the main improvements will be in the heat exchanger technology.

However, future glasshouses may well look different. If we keep them closed all year round in future, capturing the summer heat rather than allowing it to escape, certain features of today’s glasshouses will be ‘surplus to requirements’. It will then be possible to adopt a more daring architectural style. In fact, the glasshouse we have built is by no means unattractive. Here in Bergerden we have created a sort of ‘industrial estate’ for the horticultural sector. Our water company does not store rainwater in ugly reservoirs, but in a landscaped lake. Our power station has exactly the same yield and efficiency as that in Nijmegen. However, ours does not merely discharge hot water from the generators into the river. We store it in tanks so that we can make use of the heat at night. Moreover, we use the CO2 produced by the power station in our glasshouses. The plants then grow better, while we reduce CO2 emissions at the same time. Our glasshouses are doing their bit to stop the ‘greenhouse effect’!

The new glasshouse is very much at home in an energy-aware horticultural complex such as this. The industry will greatly benefit from greater energy-efficiency, not just in the Netherlands but all over the world.’
Horticultural sector innovation fund
THE CONCEPT

The horticultural sector is keen to innovate. But innovation costs money – too much money. And it brings risks – too many risks. ‘That is why there is now a new financial instrument which has been specially designed to meet the capital requirements of the horticultural industry: the ‘Horticultural Sector Innovation Fund.’

Subsidies or no subsidies: risks cannot be avoided

InnovationNetwork and the Netherlands Foundation for Innovation in Glasshouse Horticulture (SIGN) once funded a research project looking at ways to extract pharmaceutical proteins from plants. Is it possible to cultivate the raw materials for certain drugs in plant cells, rather than in animal or human cells as is currently the case? The study concluded that it is technically feasible, but that there would be financial risks. Moreover, it would not be commercially interesting for the horticultural sector as a whole. While there may be a small number of businesses which could earn profits in this way, that does not justify collective investments. However, this type of high-risk innovation demands collective investments, particularly if no subsidies are available. So how do you acquire the funding needed to get an idea off the ground?

According to some in the sector, there is too much collective investment in high-risk innovation.

True. The horticultural sector often runs enormous risks. Nevertheless, it is sometimes possible to persuade companies to get involved if it is not going to cost them anything. That is why the Horticultural Sector Innovation Fund has been set up: to provide ‘risk capital’. It is a new financial instrument which meets the sector’s capital requirements for innovation. That capital requirement is so large that the existing funding flows, not only those of the sector itself but also those of the government and the banks, cannot meet it.

How does the Innovation Fund work?

It is intended as a ‘back-up’ to private equity capital. In effect, it increases the total capital available, and hence enhances the sector’s borrowing ability on the financial markets. With a combination of private capital and borrowed funds, a company can then undertake complex innovation projects which entail a degree of risk, which are likely to run for several years, in which several parties will take part, and which are unpredictable in that no one knows in advance what the final returns will be.
What has been the industry’s response?
Marvellous: there has been a lot of support for the idea. With the fund in place, the first projects which could lead to major system innovations can now be undertaken. Moreover, the financiers can claim intellectual property rights on the knowledge developed, enabling them to derive additional financial advantage. The Horticultural Sector Innovation Fund is able to enter into contracts with research institutes whereby they share any costs and revenue relating to patent applications. If a profit is made, the Fund itself will also benefit.

And the banks?
Most banks have been reticent so far. One said, ‘if we become involved, we may just as well write off the money now.’ They dare not take part because they do not anticipate sufficient returns. Although the horticultural sector will repay the money, the banks consider the risk too great. The sector is not willing to pay twenty per cent interest, which is often the going rate for risk capital. That risk capital is used by individual companies, only one in twenty of which will actually benefit from the investment. Our fund turns that situation around, since the risk capital is used for projects which will benefit the sector as a whole. Practically everyone welcomes that, even though there may be no direct profit. To date, however, only five million euros has been set aside for the use of the Innovation Fund, enough for ten projects. That is not enough to make a convincing start.

Does that mean the Fund will be dissolved before it has even started?
No. There are still some plans to get the banks involved, although there have been no concrete results as yet. However, the Ministry of Economic Affairs has shown interest in our approach and intends to incorporate it in its new innovation policy. The idea has also met with much interest in InnovationNetwork circles. It is therefore possible that others will take it up.

InnovationNetwork has worked alongside a number of partners on this concept. They include: SIGN, Frugi Venta, LTD Nederland, Netherlands Fruit-growers’ Association, NIBConsult, Product Board for Horticulture, Rabobank, Association of Horticultural Distributors.
EVERYDAY PRACTICE

The Horticultural Sector Innovation Fund wishes to help many large companies in the horticultural industry. 'As a businessman, I know that innovation increases your commercial ‘clout’. As an administrator, I therefore wish to help others innovate.'

Win together, lose together

'When I was a committee member of the Netherlands Foundation for Innovation in Glasshouse Horticulture (SIGN), I used to work with ideas presented to us by companies in the sector. I am the owner of a sixteen-hectare pot plant nursery, and as such I too sometimes want to undertake some form of innovation. I also hold a position with the Rabobank. It is because of the three ‘hats’ that I wear that I came into contact with the Horticultural Sector Innovation Fund.

I believe that the fund would be the ideal answer in helping me to bring about innovations. Those innovations are generally beyond the financial reach of an individual business, and usually have a long development phase. They represent large-scale developments which are very difficult to plot out in advance. You know what you want to achieve, but you are unable to state exactly how you will do so, what must happen on the way, and how long it will take. The overall process demands considerable investment and expertise.

However, innovation must not become too structured: good innovation demands a degree of improvisation.

I am certainly not the only businessman in this sector who thinks like this. At our meetings, we hear comments to the effect that the fund is purely for the benefit of a few. But if we wish to remain a strong sector, we must continue to innovate and to do so efficiently. In fact, the fund will not support all projects, only those which have the potential of benefiting the sector as a whole. The emphasis here is on ‘potential’, since you can never predict exactly what will happen when major developments are involves.

It is a bit like the American space programme. That produced a range of developments from which many people have benefited. However, in the development phase it is impossible to state exactly who will do so and how. That is why large-scale innovations targeting the entire sector are likely to produce more ‘waste’ than product or process innovations.

The success rate falls as the scope of innovation increases. That makes the financiers nervous. I nevertheless believe that we will have ten million euros or more in the ‘kitty’ before long. That will be too late for our own projects as we have now taken the plunge in what is perhaps a less professional way. We must now bear all the costs. I would have preferred to be able to share them.'
INNOVATION NETWORK

Horticultural sector academy
THE CONCEPT

The ability to innovate faster than the competition relies on knowledge. But there are few, if any, horticulturalists who have time to go back to school to acquire that knowledge. ‘At the Horticultural Sector Academy, participants learn from each other and from outsiders at informal meetings.’

Horticulturalists look beyond their neighbours’ tomatoes

In the horticultural industry there is a very clear dividing line between what an individual company does itself, and what it does in association with others. Cooperation is the result of an inability to act alone. This is certainly the case when thinking about the future. What can we expect? How must we respond? Should we do so as a group or is it ‘every man for himself?’ We proposed the idea of the Horticultural Sector Academy because this process of forward planning is one that must be undertaken collectively, and because people in the industry wish to learn from others outside their immediate circle.

Does it help to devise collective scenarios? That’s not really the point. Take for example the turnaround in thinking about logistics in the horticultural sector, whereby the Netherlands will no longer be the centre of distribution, but the hub of several international, market-led service networks. This major change involves not only the distributors and packaging firms, but also the horticultural producers themselves. Suppose that Dutch companies want to transport apples directly from Argentina to a service centre near Berlin. Why should they go via Rotterdam harbour? The Dutch roads are already overcrowded. If it is no longer necessary to route the produce through the Netherlands (because you are actually earning all your profits at the service centres in Berlin or Paris), it is only logical to use other routes. Bring the apples to Marseilles by sea, then transfer them onto a lorry or the train. But how will the companies in the Netherlands get their produce to Berlin or Paris? At present, they can ‘hitch a ride’ with the other goods coming through Rotterdam. Clearly, the horticultural producers must also be involved in thinking about this type of proposal.

Will the joint approach automatically lead to the best solution? There is no hard and fast formula, but if you want to transcend your own experiences and perceptions, you have to enter into new
relationships with the rest of the chain, the market parties, societal organizations and other sectors. You will then discover what is happening elsewhere, why consumer purchasing patterns have suddenly changed, and what you as a business can do to address the new trends. You will also develop innovative ideas by looking further than your neighbour’s tomatoes. Top businessmen from other sectors can teach horticulturalists how to strengthen their innovative ability in order to arrive at a greater number of innovations which are both broader and deeper.

**How do you ‘transcend your own world and look further’?**

The Horticultural Sector Academy has been created for this very purpose. It is funded by the private sector and it has its own director and management committee. Besides InnovationNetwork and SIGN, various organizations in the horticultural sector and beyond are involved. They include LTO Nederland, the Product Board for Horticulture, FrugiVenta, VGB, and the Rabobank.

**Is there a school building?**

No, it is all ‘virtual’.

**Virtual, but with a real-life director?**

Yes, and a real-life assistant! They organize meetings about various challenging topics, attended by parties who would otherwise have little or no contact with each other. Large logistics companies such as Frans Maas and TPG, transport firms such as Jan de Rijk, and container firms such as ECT are useful discussion partners, as are retailers and ‘out of home’ caterers. For example, vegetable-growers have been on a working visit to Sodexho, a company which operates staff canteens at various locations. The top twenty vegetable-growers in the country had never even heard of Sodexho and had never set foot in one of their canteens, even though the company feeds five hundred thousand people every day and is constantly involved in product innovation in the form of new menus, new recipes and new vegetables.

**So, the Academy is a virtual training centre?**

No, it’s certainly not a training centre. The participants do not attend courses. They acquire new knowledge during informal meetings and outings. Everything is very informal and individual: everyone has the opportunity to sort the new and useful knowledge from the rest. For example, a top flower-grower may want to see how people shop in Paris, Milan or wherever. He then determines how the purchasing patterns are likely to affect his company.

**What are the benefits?**

We believe that the Horticultural Sector Academy will help to enhance the competences and skillsets of its participants, who will then be able to recognize and address major developments more readily. This will support our aim of ‘innovating better and faster than the competition’, will strengthen the service infrastructure, increase competitive edge, and bolster the added value of the horticultural industry to society.

InnovationNetwork has worked alongside a number of partners on this concept. They include: SIGN, Frugi Venta, Ministry of Agriculture, Nature and Food Quality (LNV), Product Board for Horticulture, Rabobank, Van de Geijn & Partners, Association of Dutch Flower Auctions, Association of Horticultural Distributors.

---

**MEINY PRINS**  
MANAGING DIRECTOR OF PRIVA, MEMBER OF THE PROGRAMME COMMITTEE OF THE HORTICULTURAL SECTOR ACADEMY
EVERYDAY PRACTICE

‘Of course, at first I wondered what the purpose of the Horticultural Sector Academy was. How would it help to promote innovation?’ As a member of the Programme Committee, Meiny Prins now tries to answer those questions.

Learning opportunities for busy entrepreneurs

‘It was the director of the Horticultural Sector Academy, Cees den Hollander, who invited me to help develop the concept by becoming a member of the Programme Committee. He was looking for new blood and someone interested in innovation. I have always been interested in innovation. That is perhaps hardly surprising for someone who runs a company such as Priva. Priva supplies products, systems and knowledge which enable companies in the agricultural industry to manage their processes effectively: from climate to primary operations and from energy to labour. We are the world leader in process automation for the indoor horticultural industry.

Of course, at first I wondered what the purpose of the Academy was. How would it help to promote innovation? What form should it take? I am now one of the people responsible for answering those questions.

We held a number of brainstorming sessions to identify the current problems in the horticultural sector. One of the problems is outside labour. It is very difficult to attract competent people from outside the sector itself. Why? What can the Academy do to resolve this? Is it a question of image? Do people have the wrong impression of horticulture? I believe that they do. In fact, the horticultural sector is a prime example of socially responsible enterprise and innovation in practice. All our innovations are geared towards sustainability, but the general public is unaware of this. We have to think about this, since if we were to communicate our concern for sustainability, this could well make the sector a more interesting career option. Other sectors which have already been successful in attracting competent staff may have something to teach us about how to go about rectifying our poor image. Those other sectors will be invited to share their experiences in the setting of the Horticultural Sector Academy.

I am particularly interested in our sector’s image and in the way that our own members view the horticultural industry. What connects us? What is our common purpose, what do we wish to become, how do we deal with others, what is our identity? Competition during working hours is a good thing. But after work, it is also very useful to examine our common ground, with which we can profile the sector as a whole.

These are the topics that I shall be working on during the coming year. I shall do so with a small group, yet to be formed. Together, we shall examine how we can arrive at useable, interesting answers to the questions. The group should have some standing, so I shall seek out senior people from the various segments of the horticultural industry and from related professions such as installation companies, machine builders and research institutes.

The word ‘Academy’ is perhaps a little misleading. There is no classroom; our participants are far too busy for formal lessons. Rather, we wish to learn how to innovate within a neutral, independent discussion platform.

I therefore intend to link certain wider social developments to the innovations in our sector.

The Programme Council’s membership is not fixed. Once a topic has been dealt with satisfactorily, a new one will take its place and a new member of the Committee will be appointed to coordinate the relevant activities.’
Text: Peter Henk Steenhuis en Tigrelle Uijttewaal,
www.tekstinstijl.nl
Editor: Claudi Hulshof
Concept and art-direction: Dietwee communication and design,
Sybren Kuiper and Ruben Pater
Design: Dietwee communication and design, Ruben Pater
Print: drukkerij MART.SPRUJTT bv
www.agro.nl/innovatienetwerk
MULTIPLE SPACE USAGE IN GLASSHOUSE HORTICULTURE
THE CONCEPT

Most people find glasshouses unattractive. They spoil the landscape. What would happen if you devised a single spatial design incorporating housing, recreation, nature and horticulture? This ‘multiple space usage’ is now commonplace in urban planning, but an entirely new concept to the horticultural sector.

How about a floating glasshouse?

Many people find glasshouses unattractive, perhaps even more so than office blocks or huge billboards alongside motorways. Glasshouses restrict the feeling of ‘openness’ in an otherwise beautiful landscape. Innovation-Network and the Netherlands Foundation for Innovation in Glasshouse Horticulture (SIGN) presented this problem to a firm of architects and a planning consultancy, both unconnected with glasshouse horticulture itself. They were asked to consider an area of the Netherlands for which new glasshouse development is planned: the Zuidplaspolder, between Rotterdam and Gouda, bounded by the A12 and A20 motorways. The designers were asked to suggest ways in which glasshouse horticulture could be reconciled with spatial quality, whereupon it would gain greater social acceptance.

That does not sound easy.

Indeed not. There was already considerable opposition in the region. However, the architects and planners did not base their designs on local physical measures, such as the size of the green areas around the glasshouses or the type of glass used. Rather, they adopted a much broader approach, looking at good regional development which would incorporate glasshouse horticulture as an integral feature. Glasshouses have to be assimilated within the spatial quality of a region. Accordingly, the result was a single, integrated plan for housing, recreation, nature and glasshouse horticulture. This represents a major shift in thinking: from a planning design which revolves around the glasshouses to a regional design which includes the glasshouses. This approach is now commonplace in urban planning, but unprecedented in the horticultural sector.

What exactly does it involve?

Practically anything is possible. The most simple and easily attainable approaches are to carefully arrange and separate the various functions within the region, or to combine them. For example, a lake which has a function...
in terms of nature conservation can also be used for recreation. It would also be possible to ‘stack’ buildings, with glasshouses atop factories for example. In an area with so little available space, this is an extremely interesting option and has led to considerable discussion. Another example is the combination of glasshouse horticulture and water storage. There could be huge underground reservoirs beneath the glasshouses, which would help ensure that buildings and homes are not flooded during any high water. It would even be possible to have floating glasshouses, which would certainly provide a good solution in those districts which have been designated as water catchment areas. Water storage and water management can then be combined with economic activities, such as growing fruit and vegetables. This multiple space usage prevents the area from becoming unusable simply because there is flooding every few years.

What have been the results thus far?
We now have maps for certain areas in which housing, landscape and nature have been elegantly interwoven with horticultural activities on a sort of industrial estate. The glasshouses are really attractive, not the familiar huge walls of glass. The results have been presented in a ‘pictorial essay’, entitled Spatial Quality and Glasshouse Horticulture. It has met with a magnificent reception and has sparked considerable interest and debate. It has certainly influenced the planning process and policy. InnovationNetwork and SIGN have regularly consulted local authorities and their administrators. The spatial planning of the Zuidplaspolder will draw upon the essay and the concepts developed thus far.

So there will be multiple space usage?
Construction work in the Zuidplaspolder area is scheduled to begin in 2007. The exact form depends on the negotiations between the various stakeholders. Our ideas recently formed the basis for a design competition in which several architects were invited to investigate whether this ‘interwoven’ glasshouse horticulture really is a viable concept for the area. Apparently it is, but the precise form is not entirely the decision of the horticultural sector. Much will depend on the negotiations with other parties, including housing corporations.

Will horticulturalists be willing to work ‘upstairs’, above other functions?
There is some hesitancy, but some ‘trail-blazers’ have produced a marvellous plan under the name ‘The Glass Castle’. The main problem to date has been finding companies who wish to occupy the downstairs areas below the glasshouses.

InnovationNetwork has worked alongside a number of partners on this concept. They include: SIGN, Alterra, the Glass Castle Combine (Bunnik Plants and Bleiswijkse Zoom) Mecanoo architects, Mentink Consultancy, Province of Zuid Holland, RBOI Rotterdam.
Urban planning and glasshouse agriculture are coming together in the Zuidplaspolder district. There is to be a new town, with glasshouses supplying much of the required energy. 'Eventually, we realized that a town like this would open up all sorts of unimagined prospects.'

We are going to integrate glasshouse horticulture with the new town

'The plan is to cover three hundred hectares of the Zuidplaspolder district with new glasshouses. Two thirds will be entirely new, the remainder will be relocated from elsewhere. As Process Manager, I was asked to act as the secretary of the steering committee and help to bring this plan to fruition. That is not an easy task. Today, the district encompasses five villages. Over the next few decades, a further thirty thousand houses are to be built together with the necessary infrastructure, and an identity for the district has to be established. We now have 22 parties involved. Together, they have to solve a very complicated jigsaw puzzle. This calls for great synergy between them. That synergy is now developing, and in that respect we have overcome the main initial problem.

At first, some people forced us into a defensive stance. Glass is unattractive, they claimed. Moreover, with all those pesticides in use, no one wanted a huge glasshouse on the doorstep. We stressed that glasshouse horticulture is an important economic activity which has always shown reasonable continuity even in times of general recession. Eventually, we realized that the idea of integrating a new urban development with glasshouse agriculture would open up all sorts of previously unimagined prospects. We then publicly expressed our support for a 'symbiotic' relationship with the new town.

We faced another problem: how could symbiosis be achieved on this scale? We had to acquire new knowledge, and to do so we launched a design competition. The cream of Dutch planners and architects were invited to produce a design. We then selected three designers to elaborate their plans for the new symbiosis. We can now call upon an enormous quantity of knowledge and expertise. There is technical expertise, covering aspects such as water management, but there is also a huge body of economic expertise and architectural expertise.

We approached InnovationNetwork to help us put our ideas into practice. Their assistance has been crucial. Once we could demonstrate support from such an important organization, other financiers soon proved willing to come forward.

In the form that we now envisage, the new town will be truly revolutionary, certainly in the longer term. For example, a glasshouse retains more heat in the summer than it actually requires in the winter. In the past, we have never been able to make use of the surplus. Now we can and the 'glasshouse as a source of energy' is on the horizon. The laboratory testing phase has been completed and the first practical trial is under way in Bergederen. In future, one hectare of glass could provide not only its own heating requirement, but that of one hundred homes. With three hundred hectares, we could therefore heat the entire town!

One consideration is that the heat retained and stored by the glasshouses is at a relatively low temperature: 25 degrees rather than the 80 degrees produced by a domestic central heating boiler. This is too low for conventional radiators, but can be used in under-floor heating or in pipes set into the walls. However, it then becomes necessary to include the necessary pipes in the preliminary design of new houses: they cannot be added later. The new town will also be revolutionary in terms of its architecture. The glasshouses will not be clustered together, hidden away on the very edge of the town. They will be integrated amid the housing. There will be no large-scale glasshouse district as such. It will also be possible to include other types of business activity alongside the glasshouses. I predict that, thirty years from now, there will be bus-loads of Japanese tourists coming to see this revolutionary new town!'
THE CONCEPT

A different plant, a better heating system. That sort of innovation falls to the plant-growers themselves. However, innovations which affect the entire sector are a different matter. ‘The Netherlands Foundation for Innovation in Glasshouse Horticulture (SIGN) is concerned with innovations which must be devised and implemented today in order to secure the future of sustainable glasshouse horticulture in the year 2020.’

Innovation today, sustainable flower production tomorrow

If KLM and Air France can do it, so can InnovationNetwork! In 2001, InnovationNetwork entered into a strategic alliance with the Netherlands Foundation for Innovation in Glasshouse Horticulture, set up in 1997 as a continuation of the industry’s ‘study clubs’. Its aim is to identify possible innovations and promote developments which will benefit the entire glasshouse horticulture sector.

The horticulturalists’ keenness for innovation proved to be well complemented by InnovationNetwork’s problem-solving ability. This strategic alliance could itself be termed an ‘instrumental innovation’: a new approach whereby research is conducted at the request of the hands-on practitioners.

What happened next?
In 2001, InnovationNetwork and SIGN held a working conference to identify the ‘spearhead themes’, the problems that glasshouse horticulture would face in the years ahead. This process resulted in a long-term action plan. What innovations must be set in motion today if we are to ensure a vital, sustainable and respected horticultural industry in the year 2020?

What did this action plan include?
There were five themes which the sector representatives identified as requiring further research, and on which the vitality and sustainability of the Dutch glasshouse sector depend. These themes will determine whether the industry continues to command public esteem, as well as affecting future income and employment opportunity.

The first theme is ‘Logistics, Infrastructure and Re-allocation’. The sector acknowledges that increasing traffic congestion in the Netherlands is likely to cause severe logistic problems. The second is ‘Identity and Image’, which addresses the growing social opposition to the glasshouse horticulture sector in the Netherlands. That opposition is due to the use of pesticides, the alleged employment of undocumented immigrants, the siting of huge, unattractive glasshouses in rural areas,
and use of large transport vehicles which serve to increase traffic congestion yet further, at least in the public’s perception.

The third theme, ‘Sustainable Energy’ was included in the action plan because the sector currently accounts for ten per cent of the Netherlands’ consumption of natural gas. It also produces 4.5% of the country’s CO2 emissions. That does not bode well for ‘sustainability’, and neither is it particularly commendable. The fourth theme is ‘Learning to Innovate’, reflecting our desire to innovate more quickly and more effectively than the competition. To do so, we must find ways of strengthening the sector’s competencies. ‘Sustainable Glasshouse Complexes’ is the fifth and final theme, selected because stubborn problems of sustainability will be solved sooner and more easily by linking horticultural complexes together. A recent example is the development of an ‘energy web’.

What is the purpose of the five themes?
They serve as ‘springboards’ from which we can launch various innovation programmes and thus arrive at new concepts. We shall develop ideas which represent a break in traditional thinking, a new direction or an entirely different perspective.

What sort of ideas?
Individual horticulturalists have always been very good at phased innovation in all areas of their operations: a different or improved plant, a better heating system, a more efficient growing method, a more practical form of packaging. However, our innovation programmes will be concerned with system innovations affecting the entire industry. For example, the ‘Glasshouse as a source of energy’ project has been set up because we realized that sustainability issues can only be resolved if we adopt a drastically different approach.

Is the partnership proceeding as hoped?
Absolutely, even though recent developments – such as the creation of a new representative federation – have complicated the situation somewhat. We certainly wish to continue our alliance, provided the businesses which are particularly innovation-minded remain involved.
EVERYDAY PRACTICE

Innovation begins on the shop floor. Every day, businesses face problems for which new solutions must be developed. ‘That is why researchers and knowledge institutes tackle the questions which we at SIGN have formulated.’

A notable innovation every three years

‘Innovation has long been an important feature of the Dutch horticultural sector. We used to have a number of ‘Study Clubs’, which were responsible for introducing many new methods and aids. When they dissolved, we decided to form the Foundation for Innovation so that we could continue to identify promising new developments. We then set out to find a director to lead the foundation, and partners to help us. We came into contact with InnovationNetwork, which was very interested in a foundation which wished to link innovation emanating from the private sector with that being proposed by the research field and the government. The SIGN Foundation thus came into being with Henk van Oosten as the first director. He divided his time equally between working for us and working for InnovationNetwork. SIGN has been a great success. One of the most notable results of recent years is the ‘Glasshouse as a Source of Energy’ project. In the past, glasshouses guzzled energy. In the future, they may well actually produce surplus energy. This is a significant system innovation which earned us a major government award for sustainability. We were also one of the driving forces behind the foundation of the Horticultural Industry Academy, and the Horticultural Industry Fund with which we finance innovations which could well benefit the entire sector, but which are too expensive or present too high a risk for individual companies to take on. For many years, the researchers believed that they were responsible for all innovation. They set out to develop new technologies and put forward new knowledge. Occasionally, their work was indeed useable, but usually it disappeared into a drawer never to see the light of day again. Real innovation begins on the shop floor. Every day, businesses make discoveries or come up against problems for which new knowledge has to be developed. Today, knowledge is far more demand-led. The scientists, researchers and knowledge institutes tackle the questions that we have formulated. The cooperation between InnovationNetwork and SIGN has produced some marvellous results. When we extended our partnership for a further three years, Cees Veerman, the Minister of Agriculture, called upon us to come up with just one notable scientific innovation which is of use to the private sector every three years. The results of our partnership seem to have prompted other sectors to recognize the need for cooperation between the private sector, the research field and the government. The livestock farming sector has now introduced its own partnership, although because the industry has not been so innovation-focused in the past, this has largely been a question of trial and error. We have always had to compete with the low-wage countries, without the benefit of subsidies. That is only possible if you innovate quicker than anyone else. That is our motivation, our raison d’être. In ten years’ time, the glasshouses will be ‘staffed’ entirely by robots. The process of growing plants will be fully computer-automated. That is cheap and convenient. However, first we must know more about plant roots, the ideal growing temperature, the best feed and exact water requirements. To glean this knowledge, we are to set up a project entitled ‘The intelligent glasshouse in an intelligent chain’. I confidently predict that we will be able to meet Mr Veerman’s call for at least one useful innovation every three years.’

Since this article was written, Frans Hoogervorst has stepped down as president of SIGN and is now chairman of ‘Glaskracht’, a new federation of businesses in the glasshouse horticulture sector.
Researchers, administrators and businessmen are all involved in innovation. However, there can be a gulf between them. 'The TransForum for Agribusiness and Rural Areas strives to involve the research field in the practical aspects of innovation.'

Knowledge should not be confined to bookshelves

The TransForum for Agribusiness and Rural Areas is an organization which encourages research and education establishments to adopt a different approach – one which supports system innovations in practice. At present, communication and coordination between the research field and the innovative private sector is not all it could be. Researchers often have their own agenda. After all, they are judged on their scientific performance, not on whether innovations are successfully adopted in practice. Moreover, the knowledge structure of the agricultural industry is currently dominated by technical and economic considerations, while processes of change demand knowledge in the spheres of sociology and governance. It is sometimes more appropriate to develop this knowledge elsewhere. The TransForum for Agribusiness and Rural Areas will therefore strive to build new bridges between science and practice, as well as between the diverse scientific disciplines and institutions.

What can the TransForum achieve?
The ambition of the TransForum is to involve the research field in the practical implementation of innovations, and to enhance research in the non-technological sciences, such as sociology, psychology and management science.

Why is that necessary?
There is currently something of a gulf between the academic research field on the one hand, and the public and private sector parties who are involved in the actual implementation of innovations on the other. As a result, much of the knowledge developed by researchers goes unused, and the new disciplines which are necessary to promote the processes of change are too slow to develop.

What does this mean in practice?
Everything is still in the very early stages. The 'TransForum' programme started in early 2005 and is due to run until the end of 2010. Those six years will be deemed successful if public and private sector parties indicate...
that they are interested in acquiring further scientific knowledge from the research field. We shall therefore encourage the researchers to join in practical projects which will serve as a ‘learning environment’. Knowledge will therefore be developed and used where it is needed, rather than remaining on the bookshelves or in the heads of the researchers.

The researchers are being pumped for answers?
You could say that, yes. For example, they are now involved in a project in Horst, in which various companies are trying to set up an Agripark. There are various questions which have to be answered, such as how to transport the CO2 produced by one partner, a mushroom grower, into the glasshouses of another, a tomato grower. Can we be sure that the CO2 contains no harmful pathogens? What business model should be adopted to cover the cooperation between the partners? The researchers cannot spend four years mulling these questions over – the answers are required now.

Do the researchers enjoy leaving their ‘ivory towers’?
Some do, certainly. They are also eager to build bridges. However, we need many more active participants, since the ‘TransForum’ will have to account for its performance in 2010. Some researchers will probably choose to remain in their ivory towers. That is not such a problem, because they too will develop knowledge which can be useful in the long term.

InnovationNetwork has worked alongside a number of partners on this concept. They include: Wageningen University, LTO Nederland, Ministry of Agriculture, Nature and Food Quality (LNV), Product Board for Horticulture, Meat and Eggs Product Board, TNO, Eindhoven University of Technology, University of Tilburg.
EVERYDAY PRACTICE

In agriculture, innovation has often involved doing the same thing, but doing it better and quicker. 'Today, the businessman must first discover what the market actually needs. This demands a different type of knowledge.'

Be creative with knowledge

‘After the Second World War, the Netherlands became the third largest agricultural exporter in the world. That was due to the enormous amount of knowledge which had been pumped into agribusiness. Scientists made a ‘discovery’, tested it and then presented it to the farmers. This top-down ‘knowledge chain’ was remarkably effective in increasing production. Dutch farmers could make good profits in those days.

This fact did not escape others. Countries such as Spain and Brazil started to emulate Dutch methods. They began to compete, and gradually gained the upper hand. In the Netherlands, the products had become more expensive due to such factors as higher labour costs. Moreover, mass production soon began to reveal a number of negative side-effects, such as the problem of disposing of animal manure, and the greater scope and impact of any epidemic of a veterinary disease.

Dutch agriculture then had to move away from mass production and to specialize once more, concentrating on products with a special ‘added value’ and fewer negative effects. That transition had dramatic consequences for the knowledge infrastructure. The market has become fragmented and difficult to manage, with an extremely diverse demand for different types of knowledge. It is no longer the knowledge institutes which determine what knowledge is needed, but the farmers themselves and society as a whole.

Moreover, there is now a far greater demand for creativity. In the past, innovation usually meant rationalization. You would continue to do the same thing, but would do it quicker and better. Today, the businessman must identify market demand. He requires knowledge even before production begins. In many cases, that knowledge is not technical in nature. Rather, it relates to economics, organization and management skills, and promotional ability. The knowledge institutes and private sector organizations must therefore formulate the research programmes jointly. ‘TransForum’ intends to promote projects which place a firm emphasis on the relationship between research and practical implementation.

As a member of the scientific advisory board, I assess proposals for practical projects as well as for the research which will give those projects a greater chance of success. In the current knowledge infrastructure, scientific research is often insufficiently relevant to the actual problems faced by the field. I do not like that situation, but I can understand how it has come about. Universities and other knowledge institutes do not suddenly find themselves with new researchers, and their current researchers are somewhat set in their ways. They are comfortable in their ‘ivory towers’, and do not take kindly to being told that their agenda will in future be determined by innovative practical projects.

Moreover, they believe that greater knowledge will automatically lead to greater welfare and prosperity. They must be disillusioned of that notion. A significant problem is that researchers are generally judged by their publications. Their papers and articles are assessed by other researchers and not, at least not primarily, in terms of any practical application. If they are to rise through the academic ranks, young researchers have to comply with this traditional practice. As a result, there is little research which is directly concerned with practice. If we are to strengthen the ties between the knowledge infrastructure and the users, the manner in which universities and their staff are paid for their efforts must also change.

Clearly, it will be impossible to change an entire knowledge infrastructure within a few years. But change it must: there is no option. This is why a programme such as ‘TransForum’ is so very important.'
Text: Peter Henk Steenhuis en Tigrelle Uijttewaal, www.tekstinstijl.nl
Editor: Claudi Hulshof
Concept and art-direction: Dietwee communication and design, Sybren Kuiper and Ruben Pater
Design: Dietwee communication and design, Ruben Pater
Print: drukkerij MART.SPRUIJT bv
www.agro.nl/innovatienetwerk
THE CONCEPT

Our climate is changing, sea levels are rising and our groundwater is becoming brackish, much to the dismay of the farmers. A transition to ‘salt-based’ agriculture is not economically attractive. Or is it? ‘There is one business which is now breeding and selling clam worms. Billions of them!’

A long quest culminates in innovation for saline areas

Some years ago, Wouter van Dieren, a respected environmental expert, made a number of suggestions regarding the possibilities for saltwater-based agriculture. The Ministry of Agriculture, Nature and Food Quality (LNV) wished to test his ideas, and therefore asked the National Council for Agricultural Research, the predecessor of today’s InnovationNetwork, to produce an advisory report. Its conclusion was that the large-scale adoption of saltwater agriculture is neither necessary nor desirable in the Netherlands, but that salination nevertheless presents a global threat to food production. The Ministry then asked InnovationNetwork to explore whether the Netherlands required an action plan for the brackish areas.

What approach did you adopt?
The study was dubbed ‘Salty Perspectives’ and focused on opportunities to change a threat into an opportunity. The salination of groundwater in coastal areas has traditionally been seen as a threat to agricultural and horticultural production. However, it is possible to introduce new forms of aquaculture, recreation and nature to those areas, provided you extend your vision to look beyond the agricultural sector itself.

Are the farmers in the coastal regions open to such new ideas?
No. They believe that the salination must be halted. However, given factors such as climate change and rising sea levels, the amount of available fresh water will continue to decline. That is inevitable. It is impossible to provide these areas with fresh water for ever, and we must prepare for the future.

By growing seaweed?
No, it will be next to impossible to persuade the farmers to do so, since there is so little economic perspective. There are a few edible crops which can be grown in saline water, such as lava and samphire, but the demand is minimal. Five hectares would be enough to saturate the market. You just can’t sell the stuff.
Surely that is because these crops are rare and expensive?
They are not rare. There is more than enough to go around. Perhaps the shops are just not willing to take a chance. If even more is grown, the price will plummet. Some growers have already gone out of business as a result.

How can farmers prepare for the salination of the coastal regions?
Three strategies have been developed. The first entails farmers being far more frugal with the scarce fresh water, ensuring that none is wasted. That strategy works, as demonstrated by the resurgence of traditional agriculture in Zeeland. The second strategy focuses on the way in which the land in a saline area is used, which may involve new activities. The third strategy entails a complete transition to saltwater aquaculture and mariculture.

And?
It is one thing to devise strategies and ideas, present reports and attempt to break traditional taboos. Ensuring that the new ideas are actually adopted in practice is quite another and will demand much time and effort.

If the ideas are good, surely they will be adopted automatically?
Well, the first results are indirect. There is now an Innovation Platform on Aquaculture. The relevant ministries have made funds available for studies into saltwater agriculture, which is now a spearhead of research at Wageningen University. The Province of Zeeland has incorporated a number of our recommendations into its official policy, both from the ‘Salty Perspectives’ project and from ‘Ocean Farming’. Zeeland wishes to establish aquaculture in the region, but if you leave it to politicians to develop ideas, it will be at least ten years before anything happens. And the private sector will not automatically adopt the ideas unless there is a clear prospect of making money.
**EVERYDAY PRACTICE**

Agriculturalists do not like salt water. As the groundwater of some areas becomes saline, those areas become unsuitable for arable farming. However, the situation also presents opportunities. ‘Sheep, cattle and horses can be put out to graze on large, brackish nature areas. This has a double advantage: livestock farmers can produce better meat, and nature managers have their land managed more sustainably.’

**From onions to worms**

‘As sea levels rise, land levels fall and climate change continues, the groundwater in some parts of the Netherlands is becoming brackish: it is salt water. That in itself is not a disaster, despite what some farmers may think. However, we must learn to cope with the new situation. At the Centre for Agriculture and the Environment (CLM), we try to develop means to ensure the future sustainability of agriculture. We are particularly concerned with water management as it affects agriculture, and we seek out opportunities for productive interaction between agriculture and water.

It seems likely that the salination of water and soil will continue for the foreseeable future. In the past, the strategy in the Dutch delta region has always been to make the fullest possible use of the fresh water. We grew and refined crops such as potatoes, which thrive on fresh water. The potato and salt water do not go together. Given that the potato plant’s roots can extend a metre downwards, even slight salination of the groundwater is disastrous. However, there are also plants that tolerate salt water, and some which do not as yet but can be refined to do so in future. One example is the sugar beet, of which there is also a marine strain known as the sea beet. This beet does not have a great future on the Dutch market, since it is not particularly appetizing and we do not yet have enough salt water to necessitate a large-scale change in tastes. However, there are many other countries with far less fresh water. The knowledge we develop in terms of crop refinement can be readily exported. The Netherlands can then be profiled as a ‘knowledge country’. The Dutch market does hold out better prospects for livestock. Sheep, cattle and horses can be put out to graze on large, brackish nature areas. This has a double advantage: the livestock farmers can produce high-quality meat, while nature managers benefit from their land being maintained in a sustainable manner. However, if these large nature areas are to be fully productive, it is essential that nature organizations and farmers cooperate more with each other. At present, this is difficult because agriculture and nature remain strictly separated. Increasing salination presents both problems and opportunities. Clam worms are a good example. They are used as live bait by anglers, but can also be used as feed for farmed fish (as a clam worm producer in Zeeland has discovered). The prospects seem so promising that that we are now conducting a study to determine whether large-scale production is economically viable.

One possibility is to install large clam worm breeding tanks on arable farms in the region. Rather than an acre of onions, there will then be an acre of clam worms. The Zeeland regional authority, InnovationNetwork and some private parties have financed a trial project to test this upscaling of clam worm production. The plan presents so many possibilities: revenue will certainly not be the problem.’
Seawing
Fish stocks are being depleted. Our consumption of fish is increasing. So what is the answer? To farm fish, shellfish, algae and seaweed. ‘Seawing' is a multifunctional, mobile, floating basin moored far offshore, producing both food and energy.’

Mussels do not have much of a ‘cute factor'!

The fishing industry now has to make the transition that agriculture made tens of thousands of years ago: from hunting and gathering to cultivation. In fact, salmon farming is now common practice. However, it has disadvantages in the form of pollution and an inferior product, since the fish do not have room to swim around. They therefore become ‘fat’, to the detriment of flavour and texture. While it is possible to farm fish on land, space is at such a premium in the Netherlands that it makes sense to do so offshore, out at sea. Moreover, fish-farming could then be combined with other activities, such as energy production, while the offshore units could also provide extra coastal protection.

What exactly is ‘Seawing’?
Seawing is a multifunctional, mobile, floating basin located on the high seas. It will produce both food and energy. It comprises a hollow platform, half of which is filled with water in which shellfish such as mussels, and later fish, can be farmed. Energy will be produced primarily by the wind, but eventually will also be produced from wave motion. We shall join energy companies in determining how best to develop wind turbines for use on a floating platform. Tall vertical structures would be inappropriate, since they could act as a sort of sail and drag the platform along. We are thinking more of a horizontal paddle wheel, close to the floor of the platform.

What will the energy be used for?
The energy will be used on the platform itself to produce fish feed such as algae. It may also be possible to supply energy to other functions elsewhere, perhaps even on land.

Is this a new form of bio-industry?
Mussels do not have much of a ‘cute factor’, so animal welfare is not really an issue. Fish are... well, a different kettle of fish. They need space and clean water. In the first instance, the plans are concerned with shellfish.
What is so innovative about 'Seawing'?
The groundbreaking aspect is that the production of maritime products takes place at sea in an energy-neutral manner. In other words, the process is self-sufficient. The energy used is entirely sustainable energy. This is one of the reasons that ‘Seawing’ won the public award at the North Sea Days conference in 2003.

But what about the waste products: the fish excrement?
That is released into the sea. There is no need for a quota or ‘points system’, such as that used in the Norwegian fjords or around the coast of Ireland. The basins will not account for any pollution, since the waste will be partially treated and the nature can easily do the rest, thanks to the strong currents and the fact that the basins will be relocated from time to time. It may even be possible to make use of some of the waste flows on the platform itself.

When will the first Seawing become operational?
First, we must attract sufficient interest from the private sector so that companies are willing to invest knowledge and funds in the idea. If we can do so, a trial platform could well be at sea within three years. In the meantime, a miniature platform will probably be built at the Sustainability Centre in Lauwersoog within the next two years. This will be mainly for educational and research purposes rather than any commercial application.
EVERYDAY PRACTICE

‘Various disciplines were represented around the table: a mussel producer, a structural engineer, people from non-profit organizations and a shipbuilder. Not forgetting myself, of course. I was there to contribute expertise in industrial electrical engineering.’ Eric van der Hammen describes the unorthodox idea known as ‘Seawing’.

‘You have to get a lot of people onto it’

I attended a lecture at which an extremely unorthodox idea was presented in such a professional manner that it immediately appealed to me. The idea was to bring together a number of existing technologies in an apparently simple way, and to combine production processes which would normally not be located in such close proximity. This is certainly ‘thinking outside the box’. ‘Seawing’ is all about various types of energy production, storage and use in a single, mobile location. Croon Marine & Offshore will, of course, continue to do what we have done for the past 130 years. We design, install, maintain and modify electrical installations for ships and offshore platforms. However, it is also part of my job to ensure that the company enjoys a sound future. That is why we take an active part in developing new maritime products and a shipbuilder were there, not forgetting myself as the electrical engineering expert. The Seawing platforms will be sited far offshore. Can mussel-farming and the generation of energy be combined with recreation? A chance to ‘get away from it all’ for a week, surfing, diving and fishing? Or something involving jet skis perhaps: after all, there will be no one to disturb. Energy can be generated and stored on site, and will then be available for countless different purposes. The concrete result of our brainstorming is that we now intend to build a prototype Seawing platform, on a scale large enough to answer all our questions. For example, there has to be room for enough people to allow a proper assessment of the desired performance and effect. Otherwise, I would not be inclined to spend any more of my time on the project. The prototype will allow us to test our technical and functional hypotheses. It will also make the idea tangible, which will help to increase support and may well encourage others to join us in the next phase, that of full-scale production.

First, you have to identify exactly why you want to have a prototype. What information do you wish to glean, and how much should it cost? The various partners must then decide to build a prototype that meets all the various requirements and conditions. Everyone must agree on those requirements and on the basic principles. Having formulated your requirements, you will have a fairly accurate idea of the costs. Those will undoubtedly be too high for some. If the prototype is too expensive because of the jet skis, for example, then we shall simply scrap the idea of the jet skis. For me, it is the quality of the decision-making process that makes the project so interesting. We are discussing innovation in every sense of the word: technical, organizational and that of the process itself, all with one firm aim in mind. In my experience, discussions of innovation in the Netherlands, and particularly in Dutch industry, soon become bogged down at the technical level. Our cooperation represents a ‘smarter’ method of organization, an area in which others do not seem particularly accomplished. There is an old Dutch saying, ‘de kost gaat voor de baet uit’, which translates as ‘you have to pay out before the rewards come in’, or ‘you have to speculate to accumulate’. Few people seem to apply that adage in practice. And yet the innovation represented by our method of organization and process design is absolutely essential. Everything that we Dutch invent seems to be copied and improved by the Chinese fifteen minutes later. A concept such as ‘Seawing’ is far less susceptible to such imitation; it can only be commercially successful if a number of diverse partners can come together to pursue a joint aim. They must then organize themselves in such a way as to enable a phased process to be designed and managed effectively. The process will then lead to the creation of an innovative maritime product. This is an extremely difficult project, beset by many uncertainties and potential pitfalls. However, if it is successful, it will be extremely difficult to copy.’
Text: Peter Henk Steenhuis en Tigrelle Uijttewaal,
www.tekstinstijl.nl
Editor: Claudi Hulshof
Concept and art-direction: Dietwee communication and design,
Sybren Kuiper and Ruben Pater
Design: Dietwee communication and design, Ruben Pater
Print: drukkerij MART.SPRUIJT bv
www.agro.nl/innovatienetwerk
In days of yore, the cities consumed what the rural areas produced. The waste produced by the urban population was used as fertilizer and a source of energy. ‘Agropolis’ is to revive this traditional system.

**THE CONCEPT**

In the ‘Agropolis’ everyone is a producer

**What is so innovative about the ‘Agropolis’ concept?**
The strict division between town and countryside that we see in the Netherlands has served to disrupt all sorts of traditional cycles. ‘Agropolis’ will re-connect the city and rural areas, restoring those cycles. Everything will once again be local: local food production, local waste management, local energy production. Moreover, this innovation will prompt further innovations in areas such as the construction sector.

**Are you saying that cities produce only waste?**
That depends on how you look at it. The cities produce resources which can be readily used in agriculture. The agricultural produce can then be sold in the cities. One of the designs produced for the ‘Agropolis’ concept is the ‘Urban Glasshouse’, a structure which produces excess low-level heat (as in the ‘Glasshouse as a source of energy’ project). That excess heat can then be stored in subterranean water layers and can be used to heat homes via pipes incorporated into their floors, walls and ceilings. The residents produce human waste: both solids and urine. If we then collect the solid waste using special non-flushing toilets which do not add water to the waste flow, it is possible to produce biogas from the waste very efficiently. Similarly, kitchen and garden waste, such as vegetable peelings and grass trimmings, can be fermented. The minerals which remain can then be used as fertilizer for gardens or commercial horticulture. Everything remains in the urban environment. There will no longer be large, centralized sewerage plants, but local re-use in a process which does not require clean water. In the existing system, the water used to flush toilets has to be re-purified for further use.

**What will you do with the biogas?**
Waste is converted to energy. The fermentation process also produces CO2, which can be used in horticulture. At present, glasshouse
operators burn natural gas to produce the CO2 they need. The city-dwellers can buy produce such as tomatoes directly from the local glasshouse. They could even ‘pick their own’. Production will once again be closer to the people, the local community, which also serves to strengthen social cohesion.

A futuristic idea?
Yes, there are certain pre-requirements. It demands special homes, special glass-houses and special people. We are talking of an ‘ecological neighbourhood’. But the idea could really take off, since the costs of heating and waste management would be drastically reduced. Houses themselves would also be cheaper, since they could be of a lighter construction. Less mass would be required to retain heat, since the heating requirement would be met by the underground water layers. There are certainly financial advantages, which are always popular with the Dutch.

But is this just speculative?
No, there are already concrete plans. Several local authorities have expressed interest. We now need to find three or four which are willing to take part in a feasibility study. The locations must meet a number of requirements: it must be possible to build a number of new houses within the next three years, and the local authorities must be willing to re-invest profits from land sales in the ‘Urban Greenhouse’. There could well be an operational urban glasshouse in the Netherlands within the next three years, and there will definitely be one within twenty years. Moreover, the concept will not be confined to the Netherlands.

InnovationNetwork has worked alongside a number of partners on this concept. They include: Elannet B.V., Kristinson Architects and Engineers, Fiewex, International Institute for Urban Environment, Lettinga Associates Foundation (LeAF), Rabobank, Wageningen University.

EDGAR WORTMANN
ORGANIZATIONAL CONSULTANT
AND CO-FOUNDER OF ECODORP
EVERYDAY PRACTICE

A neighbourhood which is entirely self-sufficient in energy and water. When incorporating an energy-producing glasshouse, that presents no technical difficulties at all. 'Evaporation and condensation allow us to re-use 95% of the water.'

Agropolis brings town and countryside together

The 'Agropolis' concept is basically all about closing cycles and intertwining the agricultural and urban functions. The rural areas need new economic support, while the cities are calling out for more fresh air and greater sustainability. In addition, people like to know where their food comes from. It therefore becomes possible to create a true 'win-win' situation, as illustrated by our design for two hundred homes combined with a glasshouse complex covering two hectares.

The complex is a closed, heat-producing glasshouse. Normally, a glasshouse would open its windows at certain times to maintain the correct temperature. Because ours does not, it has to be artificially cooled using water. Heat is then transferred to the water and can be used elsewhere, provided it can be stored in the meantime. In our design, this happens in an underground buffer. Moreover, a commercial plant grower needs twice as much CO2 than found naturally in the atmosphere. He therefore burns gas to produce it, but the same can be achieved by burning biogas, a process which can also be used to generate electricity. The biogas can be derived from the waste, or 'biomass', produced by the residents of the two hundred houses. This must be as dry as possible, so the houses will be equipped with vacuum toilets. Bleach will be forbidden, of course. Kitchen and garden waste will also be fermented. In this system, the local residents are not only the consumers of energy – the heat from the glasshouses and the electricity generated by burning biogas – they are also suppliers of energy. However, the quantity of biomass from the houses will not be enough to provide enough electricity for the entire neighbourhood. We are therefore exploring the possibility of collecting biomass in the form of kitchen and garden waste from elsewhere in the city. We would actually be paid for taking it away, but it is a difficult market to enter due to the requirement for long-term contracts. Moreover, the stuff smells dreadful and waste collection is never the most hygienic undertaking.

Grass clippings from roadside verges would be a cleaner material. It would then be possible to create a completely self-sufficient neighbourhood in terms of energy, provided the residents refrain from buying Jacuzzis or other high-consumption equipment.

Apart from gas, the biogas machine produces water and solids. With some minor processing, the solids can be used as a cultivation medium in the glasshouse. The water will be part-purified by the local installation which also treats the 'grey water' from the kitchens and bathrooms of the houses. This provides a supply of irrigation water which contains various useful nutrients for the plants in the glasshouse. Because the glasshouse is closed, moisture cannot escape but will evaporate and then condense on the glass of the walls and the heat exchangers which provide the cooling. This is therefore distilled water, which is even purer than regular tap water. It can be collected, some calcium added, and used for consumption. It then becomes possible to re-use 95% of all the water in the system, which is continually being purified in the most effective manner possible: evaporation and condensation. This is an exciting prospect for arid regions such as Israel.

A self-sufficient neighbourhood, apparently unaffected by the market forces of the regular electricity supply, does however face two problems. Firstly, there is behaviour. Will residents observe all the rules? And then there is legislation: the government, tax department and the energy companies are not exactly cheering us on. Nevertheless, the consumer will be able to make significant savings. We shall reduce the cost of electricity to zero, whereby the closed-cycle system will pay for itself. All the required technology already exists, so there are no problems in that respect, either.'
THE CONCEPT

Do pigs become less resistant to disease if you isolate them from the outside world? What would happen if you gave cows more and more antibiotics? ‘Robust livestock’ makes a plea for more resilient livestock holdings.

Fowlpest affected our chickens, but not the geese

Animals are increasingly isolated from the outside world, based on the belief that this will protect them from disease. However, with no exposure to pathogens, the animals’ natural immune system doesn’t have the opportunity to develop. If there is then an outbreak of a disease, it is likely to spread extremely rapidly. Moreover, there is growing social opposition to the unnatural lives that farmed animals are forced to lead.

What does ‘Robust Livestock’ entail?
We have joined scientists, farmers and animal health experts in formulating a number of design requirements to help increase animals’ natural resistance by means of breeding programmes, special feed and optimized accommodation. We must now find ways of implementing the ideas in practice. Anything that is a radical departure from current practice must first be tested by means of a trial project. The ‘Robust Livestock’ concept has yet to be translated into practical terms.

So what have you done with the idea?
We have sparked discussion. In late 2004, InnovationNetwork presented its report to the Minister of Agriculture, Cees Veerman. He supports the concept because he believes the current veterinary disease control policy to be too narrow. He asked us to propose concrete measures which would serve to increase natural resistance and we are now working on our recommendations.

Will you be introducing all sorts of diseases to the sheds?
That won’t be necessary. It will be possible to increase resistance by means of breeding programmes, modified feeds and different forms of accommodation. Vaccination can also be used as a sort of safety net. After all, vaccination is another way of encouraging the animal’s own system to develop antibodies to various diseases. When vaccinated animals are allowed to graze outdoors, you need have no fear of the viruses that, say, passing geese may be carrying. That is how the most recent outbreak of fowlpest started, we believe.
But vaccination is illegal, isn’t it?
That’s right. It is prohibited by the European Union. Some countries, such as Japan, will not accept vaccinated animals because it is impossible to determine whether the antibodies in their blood are due to vaccination or to actual exposure to a disease. The animal may be sick. The European Union’s reasoning was simple: if we are unable to export vaccinated animals, we must ban vaccination. As a result, animals are now required to live in isolation. Happily, European policy is now shifting: if there is an outbreak of a disease, vaccination is permitted to prevent further spread.

Would it help if we just let some diseases run their natural course?
Probably. At present, if an animal falls ill it is immediately given antibiotics. An alternative would be to let the disease run its course, whereupon the animal’s own defences would deal with the pathogens and develop natural immunity. If the same disease comes along again, the animal is unlikely to be affected. The use of antibiotics, on the other hand, means repeated administration of the drugs. Eventually, the pathogens can even become resistant to the antibiotics.

Animals from which we derive milk and meat are constantly given antibiotics, aren’t they?
Usually, yes. These days, some animal feeds contain antibiotics as a standard ingredient. Natural resistance can also be increased using modified feeds which ensure that ‘unfriendly’ bacteria cannot survive in the digestive system. People who drink ‘bio-active’ products such as Yakult are applying exactly the same principle.

Will it be possible to increase all animals’ resistance in this way?
Some animals already have natural resistance to certain diseases. Fowlpest affected our chickens but not the wild geese, for example. Genetic selection is another means of increasing resistance in poultry, because certain breeds are already resistant to certain diseases.

InnovationNetwork has worked alongside a number of partners on this concept. They include Centre for Agriculture and the Environment, Wageningen University.
EVERYDAY PRACTICE

Animal welfare. The environment. Nitrates and Nitrites. 'Only when these problems are tackled head on will the sector become 'robust'. Animals will then be stronger, society will have one moral concern fewer, and the consumer will be more satisfied.'

'Robust' does not only apply to the animals

'The word ‘robust’ refers to an inherent resilience. In one sense, this is indeed the natural resistance of your animals. True, you could introduce all sorts of diseases to your sheds, wait a few months, and the animals that survive will be more robust. The same theory would apply to humans but there are not many doctors who would advocate exposing all children to the live smallpox virus.

The question is, what should the animal actually be resistant to? We wish to ensure that our children do not become ill from the everyday bacteria found in the playground. In the case of animals, the situation is not so cut-and-dried. We do not expect that we shall have a strategy which determines exactly what animals should be resistant to, at least not in the coming ten years. It may be worthwhile, but it is very difficult to implement.

Our current system of disease prevention is not designed to increase robustness, but rather it is concerned with international trade. It is all about pandering to the fears of other countries. We are not concerned with our animals but with our customers. If we were to completely reverse that approach, whereby our primary concern is the animal, the first step would be to bring back traditional vaccination. No messing about with markers to show what antibodies are due to vaccination and which are due to actual exposure – just the good old-fashioned vaccination. And we must insist that the government is not entitled to oppose vaccination. Then wait and see what the customers do.

However, political game-playing stands in the way of this strategy. If a veterinary disease is discovered, there is likely to be an immediate cull. The disease must be eradicated at all costs, whereupon it then becomes necessary to import from countries which have not taken such drastic measures and in which the disease may still be thriving. Politicians may oppose ‘robust livestock’, but swine fever and foot-and-mouth are diseases which the farmers themselves can prevent.

Apart from this, the word ‘robust’ goes beyond the natural resistance of the animals. ‘Robust livestock’ suggests a system of livestock farming which is self-sustaining. Ours is anything but.

Just think of the animal welfare issues or the environmental problems which the industry has to contend with. Nitrates and nitrates – it is not easy to reduce the emissions. Think of the extremely limited financial basis. We have only ourselves to blame: we produce too much.

If the taxpayer refused to foot the bill for the next outbreak of swine fever, the entire industry would be ruined overnight.

Only if all these problems are tackled head-on can the sector become truly ‘robust’. Animals would become stronger, society would have one moral concern fewer, and the consumer would be more satisfied. ‘Robust livestock’ is also good for the economic position of the livestock farmer. ‘Robust livestock’: it is a nice term and a logical aim, but the road towards it is long and winding.'
THE CONCEPT

Rules. Lots and lots of rules. Endless red tape, which drives both businesses and the public to the point of despair. Is it really necessary for the government to control everything? To assume universal responsibility? 'No. Consumers are perfectly capable of looking after their own affairs.'

When Y sells toxic strawberries...

Business and the public experience a heavy regulatory burden. The Dutch government wishes to reduce that burden by revising or repealing laws that are no longer enforced. However, if the situation is to be changed permanently, it is necessary to ask how parties other than the government can be given a greater part in public administration. After all, there are many problems which ought not to be the responsibility of the government, but that of society at large. Food safety is a prime example.

Surely a fruit-grower is responsible for his own strawberries?
You would think so. However, in terms of regulation, the government is responsible for the safety of all food products. It can only fulfil that responsibility by means of a system of regulation and enforcement.

Would the private sector welcome the government’s relinquishment of its regulatory role?

Food safety is not something that should be determined by the private sector alone. Other stakeholders, not least the consumer, must be given a say in the matter.

Does the consumer want to become involved?
I’m not talking about individual consumers. There are many organizations of various types that are willing to become involved, and will have to do so shortly. We have already seen this in other areas. When Mercedes introduced its ‘Baby Benz’ model, there were a number of incidents in Sweden which suggested that it was not entirely safe, especially when cornering. The Dutch government did not step in, but there was plenty of television coverage of the problem. Consumers are perfectly willing to take action.

There is a difference between a car and strawberries, surely?
Not at all. The market would penalize Mercedes if it tried to sell an inferior vehicle.
It’s exactly the same with strawberries. Suppose that consumer organizations, the environmental lobby and the private sector were able to introduce a norm for, say, the amount of residual pesticides permitted on the fruit. If company Y fails to meet that norm, the consumer organizations would loudly announce that ‘Y is selling toxic strawberries!’ It is then up to the consumer to decide whether to buy those strawberries or not.

That is effective. But will it be possible to organize all the responsibilities differently? During the next six months, we are to investigate whether we can take this concept further in practice. Which parties will be involved? Who will set the norms? How do those concerned acquire the necessary knowledge, which is currently in the hands of the government? Can consumer organizations actually use that knowledge?

The government will relinquish some of its power. Yes, and there is likely to be some opposition to that. On the one hand, we are used to the current situation. We are even dependent on it. The public does wish to have more and different responsibilities, but when there is a serious incident, such as the Enschede firework disaster, the Volendam fire or the Bijlmer plane crash, we immediately turn to the government to do everything. You have to offer a system which is ‘crisis-proof’. On the other hand, the government itself is uncertain of its future role. What part would it play if it gave up all its responsibilities? Some officials find the very idea appalling. If we are to suggest an alternative model, we must be able to demonstrate that it will be one hundred per cent effective. Otherwise, it will never be accepted, even though the current model is far from one hundred per cent effective. It incorporates what we might term ‘accepted failure’.

Can you demonstrate one hundred per cent success? No, there is no such thing as a completely watertight regulatory system. The question is: which approach will be most effective? A new system in which market forces provide the penalties may well be more effective than the current approach.

Do you have enough influence to alter the current balance of power? Minister Cees Veerman once said that the government should not regulate, but should facilitate. That is exactly the basis on which we are working. We shall facilitate a situation in which there are parties willing and able to assume responsibility for the safety of strawberries. The minister also said, I do not grow potatoes,’ implying that he should not be held personally responsible for their quality. True, and in the new system it will be the potato-growers and the public who will assume responsibility. This reallocation of responsibilities represents the emancipation of the citizen.

When will consumers take charge? Radical innovations take time. Before anything is done, there has to be a debate, and much more besides. We shall spend the next six months working through the idea. We shall begin on a small scale, probably with a project addressing food safety. One of the most important questions will be: who must we lobby to change the regulatory system? Is that the Dutch government, or must we go to Brussels? If the latter, our task will certainly not be any easier.

InnovationNetwork has worked alongside a number of partners on this concept. They include: University of Tilburg, Ministry of Agriculture, Nature and Food Quality (LNV), Product Board for Horticulture, Sovion.
Too many hormones in meat? Blame the government: they should have imposed stricter regulations. ‘This argument sounds logical, but it is based on the naive belief that centralized regulation can solve all problems. Nonsense!’

There is no such thing as a watertight system

‘Can we reduce the regulatory burden? Yes, if the government regulates less and governs in a different way. The next question is how? This requires a somewhat longer answer. Let me begin by asking you to picture a pyramid. The government is currently at the top of that pyramid, and imposes regulations which everyone further down must obey. The pyramid must now be turned upside down. Society, or a sector of society, must formulate its own norms and requirements and should also ensure that they are observed.

Take food safety, for example. At present, the government bears overall responsibility, but that responsibility ought to fall to the producers, wholesalers, retailers and consumers. The government should confine itself to ensuring that these parties can fulfill that responsibility. This greatly reduces the workload and the costs of government. Of course, the sector itself may have to make all sorts of agreements, sign contracts and formulate rules, which could well increase its workload and costs, but that is not the government’s problem.

We intend to assess this new concept with the help of InnovationNetwork. Ideally, we would do so in two entirely different sectors. One may be the horticultural industry, which already has an advanced system of self-regulation, while the other could be the pig-breeding sector, which has the image of being rather slapdash. It is seen as a ‘bunch of cowboys’, with little self-regulation and fewer quality management systems.

Generally, it is easier to pass responsibility to a social sector if it has a long history, if its interests are well organized, and if quality represents additional profit. This is certainly the case for the horticultural sector. For pig-breeding, perhaps somewhat less so. Dutch consumers are not known for their refined culinary tastes. Food is generally purchased according to price. Bulk means cheap, and bulk is difficult to control.

Everyone says that the pig-breeding ‘cowboys’ have to subject to greater control or everything will get entirely out of hand. I doubt that. Perhaps self-regulation should be given a chance in this sector above all others, but you must dare to trust the breeders and must expressly invite them to regulate themselves. The government is not inclined to trust them, which is why it imposes such strict regulations. This may seem a logical response, but is based on the naive belief that central regulation can solve all problems. Nonsense! Not even the government can guarantee a completely watertight system.

It is still rare for the names of wrongdoers to be published on the internet. If someone tinkers with animal feed in Belgium, this affects the entire sector, not forgetting the retailer of the meat. The retailer must also be given a significant part in formulating the rules for quality control. Consumers know the name and reputation of the retailer, but do not generally know who actually produced the meat. It is the retailer who is most likely to suffer should anything go wrong, and the retailer will therefore benefit from stricter controls.

Another factor is that the agricultural sector is heavily subsidized. To obtain a subsidy requires the completion of various forms. It would be simple to reduce the administrative burden here, simply by abolishing subsidies. But of course, we would then hear more grumbling and complaints. That is the paradox of so many regulatory systems: we want to be rid of the burdens, but we do not want to have to stand on our own two feet.’
INNOVATIONNETWORK
The concept

The seas are becoming depleted, fish stocks are being exhausted. Sustainable farming is the answer. But farmed fish is oily and can have an inferior flavour. ‘Give the fish their own gym. Then they’ll develop more muscle and taste better!’

Offshore fish farming with no environmental impact

‘InnoFisk’ is intended to further the transformation from intensive fishery to sustainable fish farming.

Is the romantic freshly-caught fish dinner a thing of the past?

Soon, yes. But it will also disappear if we do not go over to fish-farming, since the seas are gradually becoming depleted.

So, there is to be a bio-industry for fish?

Not as such. It is possible to farm fish in a fully sustainable manner, on a ship or in a floating offshore tank. This has to be designed as a combination of fish farm, fish processing plant and production company.

It still sounds rather industrial.

Yes it does. Fish farming in more or less open systems, as now practised on quite a large scale, has come up against some serious problems, not dissimilar to those seen in intensive livestock farming. Imagine a situation in which fish are bred in a huge net, somewhere out at sea. Some of the food, fish oil and fishmeal obtained from sea fish will be used by these farmed fish, while some will be lost. Fish excrement then enters the environment. Moreover, occasionally a fish will escape the net, whereupon farmed fish will interbreed with the wild population.

Is that a problem?

Yes, it is. But it is a fairly rare occurrence because most fish are rather lethargic. They tend not to move if they can avoid it and, just like humans, they get fat. That detracts from their flavour and texture.

How will ‘InnoFisk’ resolve these problems?

‘InnoFisk’ involves fish-farming within a more-or-less closed system, such as a ship at sea. This offers several advantages. The ship can be moored some way offshore, where the water quality is far better. You can then pass the water through the ship to provide an artificial current for the fish to swim against.
They will have to keep moving to avoid being splattered against the sides of the ship. In effect, they then have their own ‘gymnasium’ to keep them fit and lean, which provides a far better flavour. Furthermore, the discharged water can be readily purified, preventing any environmental impact (‘eutrophication’) caused by fish excrement.

What will the fish eat?
We are currently looking for alternatives to fish meal and fish oil, since using these does nothing to conserve fish stocks in open water. One possibility is soya. Another is bacteria, which would be cultivated in methane.

Methane is natural gas, isn’t it?
Yes. I admit that it doesn’t sound particularly attractive, but a lot of animal feed and pet foods are already produced in this way. It is all a question of choice: wild fish from the seas, or those fed on bacteria which are grown using methane.

The gas will have to be transported by boat. Or are you going to lay a pipeline?
Neither. There are still sizeable pockets of methane under most drilling platforms. The problem is that there is not enough pressure to bring it to the surface. It could, however, be used for our purposes and could also be used to run machinery on board the ship.

End of project?
That waits to be seen. We have to broaden the concept, which is why we are looking at farming different species of fish. It is also possible to farm shellfish on fish excrement, which serves to close the cycle to form a self-contained ecosystem.

When will the first boat head out to sea?
That will demand an enormous investment. To give some idea, you would have to be at sea for at least five years to farm three generations of fish. That would cost between thirty and fifty million euros. However, because the EUREKA programme accepted the ‘InnoFisk’ project in July 2005, there is now funding available for companies from fifteen member states to set up a broader fish-farming project. In addition, the Dutch Aquaculture Innovation Platform has now included the plan for a research ship to test fish-farming methods in its programme.

InnovationNetwork has worked alongside a number of partners on this concept. They include: Dreamstart, O. van Batenburg, Easthouse BV, Netherlands Institute for Fisheries Research, Meneeromstander, Trencavel, University of Tilburg, V. Vlijma, Zwaar Water.

POL VAN DEN BERGEN
FORMER DIRECTOR OF DREAMSTART
AND CURRENTLY CHAIR OF THE NATIONAL PROJECT COORDINATORS FOR THE EUREKA PROGRAMME

INNOFISK
EVERYDAY PRACTICE

It is perfectly possible to farm salmon on a ship moored offshore. However, doing so is not yet economically viable. 'We must research the production costs and the maximum price we are likely to get for the fish.'

The long haul from knowledge to cash

'The government is constantly saying that Dutch expertise and knowledge should be put to use in making money. If anything is likely to do so, it is the 'InnoFisk' project. The Dutch know a lot about fish, fish-farming, fish transport and offshore activities. Not only can we claim the expertise of Wageningen University, we also have the international market leaders in fish feed production and salmon-farming. I can imagine huge basins moored off the coast of Rotterdam. There are strong currents here, so the fish will develop the muscle tissue that we like to eat. But first we need the 'InnoFisk' network to conduct some supplementary research.

Veerle van Laere, formerly one of my senior staff, has joined the chemist Okker van Batenburg in carrying out a feasibility study into 'InnoFisk'. This revealed that there are no technical or scientific barriers to salmon farming aboard a seagoing vessel, but that the system would need at least five years to break even. However, demand is currently growing, both for the bulk protein contained in fishmeal and for edible fish, such as eel, sturgeon, cod, plaice and sole. This demand cannot be met through traditional fishing. Fish farming is becoming unavoidable. We saw this as an opportunity for 'InnoFisk'. The possibilities exist and the knowledge can be developed. However, not all fish species can be successfully farmed based on our existing knowledge.

Because further research is required and a bundling of European knowledge would be desirable, we put 'InnoFisk' forward for funding under one of the European Union's largest technology development programmes, EUREKA.

Research institutes, private sector companies and governments from 35 countries work together within the programme to finance technology projects of international significance. Together with Veerle van Laere and Okker van Batenburg, I am therefore currently transforming the 'InnoFisk' concept into a project with a truly international approach.

We have brought together the partners for 'InnoFisk'. Many international parties have shown an interest. On 29 July 2005, the National Project Coordinators accepted our proposal during their final meeting in Maastricht. Together with the partners, we are now examining ways in which the 'InnoFisk' idea can be made fully operational within five years. This will involve spending a year addressing many questions. What is technically feasible? What is already possible? What do we already know? What still has to be determined? What are the economic aspects: the cost price compared to the sale price of the product? What are the financial possibilities: who is going to pay for what, and when will they receive a return on their investment?

The 'InnoFisk' initiative will have to be funded by the international participants: governments, private sector organizations and knowledge institutes. With forty or fifty million euros, it must be possible to do something. The partners will be invited to contribute that amount in instalments.

We are also trying to obtain funding from the European Union. Since 1986, the EU has set aside reserves for technology programmes such as this. We are currently awaiting the European Council's decision regarding a new, large-scale technology programme for which we have requested 77 billion euros to cover the period 2007 to 2013. One of the priorities of the EU programme is 'food production', which includes 'aquaculture'. We hope that the 'InnoFisk' project will fit neatly under this heading.'
Text: Peter Henk Steenhuis en Tigrelle Uijttewaal,
www.tekstinstijl.nl
Editor: Claudi Hulshof
Concept and art-direction: Dietwee communication and design,
Sybren Kuiper and Ruben Pater
Design: Dietwee communication and design, Ruben Pater
Print: drukkerij MART.SPRUITJ bv
www.agro.nl/innovatienetwerk
Taste Lessons

1. 

2. 

3.
THE CONCEPT

By 2020, one out of every four Dutch people will be overweight. What can we do to prevent this? We can give today’s children ‘taste lessons’ so that they know what they are eating. ‘We are going to teach youngsters what a tomato really tastes like.’

Taste Lessons

‘No wonder I’m piling on the weight!’

Mothers are worried because young people are just not interested in a safe, healthy diet. That is understandable. But children weren’t particularly interested in food thirty years ago, and mothers were just as concerned then.

So what has changed?
Thirty years ago there was no impending obesity problem. Today there is. That is due to our modern diet and the fact that we now take less exercise. True, snacks were available in 1975, but they were so expensive that they were a treat rather than a staple. Moreover, the number of high-calorie products on the market has increased enormously in recent decades. As a result, 45% of men and 35% of women are now above their ideal weight. According to the latest forecasts, by 2020 one in four Dutch people will be clinically obese. Already, some 400,000 Dutch children aged between 4 and 16 are overweight.

Children haven’t suffered any ill effects, have they?
Perhaps not – but they could well do so later as they develop diabetes, eye diseases and problems with their joints.

Later. Young people don’t care about later!
Exactly. And one of the ways we can overcome this indifference is to provide ‘taste lessons’ as part of the school curriculum. At present, any attention to food and nutrition is part of the science syllabus. Pupils can gain an encyclopaedic knowledge of nutrition in relation to biology, chemistry or geography, usually in a rather dry, passive manner. They will know how and where corn is grown, how it is processed, how it can be used and what happens to it in the body’s digestive system, but will know nothing about what it tastes like, or how you can make popcorn, cornflakes or tortillas. And yet the very act of eating is a cognitive, practical, emotional, physical, aesthetic and social activity. Because little attention is paid to the ‘hands-on’ aspects of food – preparing,
tasting, experiencing – it remains anything but exciting or interesting.

How can you make food interesting?
We must turn eating into an ‘experience’. We shall introduce children to how food can and should taste. However, this needs some point of reference. If you have grown up on tomatoes which taste of nothing but water, you don’t know how flavoursome they can really be. A variety such as ‘Tasty Tom’ can be absolutely delicious. There are tomatoes that you can smell from ten paces, and they are so full of flavour that you want to eat them there and then. Let’s teach youngsters what a tomato tastes like, and how to make a delicious Salade Caprese.

A Salade Caprese?
Obviously, you didn’t have taste lessons at school. It’s tomato, mozzarella, basil, freshly ground pepper and olive oil.

Taste lessons sound a pleasant way of passing the school day: eating is better than spelling. It is more than just a nice way to pass time. We believe that this project represents a relatively minor intervention that can change current eating habits. The effects can already be seen when, for example, you ask children to make their own mayonnaise. They are horrified to discover that it is actually seventy-five per cent oil. ‘No wonder I’m piling on the weight!’ The concept of taste lessons introduces an entirely new educational approach which includes attention for food and nutrition. It also represents a ‘double-whammy’: not only do we teach youngsters how to make a simple delicious mayonnaise, we show them that eating too much of it is really not good for you.

Have there been any results to date?
A programme was launched in a Rotterdam school in 2004 and has been very successful. A further feasibility study is now being conducted among 55 schools in Wageningen. Both pupils and their teachers have expressed great interest. I think that within ten years, taste lessons will be a regular part of the curriculum, just like craft or woodwork. After all, it is just as important to know how to prepare a tasty meal as it is to know how to make a mortice-and-tenon joint!

InnovationNetwork has worked alongside a number of partners on this concept. They include: Pierre Wind, Rotterdam Department of Educational Services, EuroToques, agricultural colleges and their teacher training departments, the Ministry of Agriculture, Nature and Food Quality (LNV), the Ministry of Health and Welfare (WVS), the Netherlands Institute for Health Promotion and Disease Prevention, NVON, the Educational Institute for Technology and Nutrition (VWO Campus) at Wageningen University, Stichting Kennisnet, Studio A, Netherlands Nutrition Centre.
EVERYDAY PRACTICE

It is top chef Pierre Wind’s dream to make ‘taste lessons’ compulsory in primary schools. ‘Today’s children know so little about food. Some of them think that tomatoes grow in little cellophane bags.’

Becoming a whiz with a whisk

‘My dream is that taste lessons will become compulsory in primary schools. And it seems likely that the dream will soon become reality. It’s marvellous to have an idea and to see it take off like this. I am a sort of ambassador for food.

That is not to say that the project is already successful. There is a danger that the concept of taste lessons will be enthusiastically received, but will gradually become fragmented into a multitude of different projects. In my dream, I see a ‘taste train’ which is joined by all the major food-related organizations. Together, we hurtle towards a new food culture. That is necessary if we are to combat problems such as obesity. We must develop a new approach to food and nutrition.

Overeating is not the only problem. Ignorance gives rise to the strangest medical conditions. For example, have you ever heard of orthorexia? That is a newly identified disease which is caused when people eat only uncooked vegetables in the mistaken belief that this increases their intake of vitamins.

This sort of ignorance cannot be resolved by more rules and regulations from government. It is pointless for the Minister of Health to decree that people are not entitled to an unhealthy lifestyle. Fining parents who send their children to school without a proper breakfast will have little or no effect. You should not penalize people, whether children or adults, but encourage them. That is the idea behind the taste lessons. Don’t forbid hamburgers, but encourage people to make their own from fresh ingredients. Today’s children know so little about food that they think that tomatoes grow in little cellophane bags.’

Taste lessons can help end this ignorance. We shall begin with the very youngest school-children. Even four-year-olds can be reached. You might ask them to colour in a picture of tomatoes. They will begin with red. Then you ask them to colour a few in yellow. ‘Yellow? There aren’t any yellow tomatoes! Duh!’ Then you can explain that there are many different types of tomato: red, yellow and even fully ripe green tomatoes. The final assignment will then be to design their own tomato. This is bound to work.’

We have to increase children’s knowledge and it is possible to do so in a fun, interesting way. I might ask, ‘Do you want your granny to die young, or would you prefer to have her around for a long time?’ The children will answer this question, and of course they will all say that they want granny to live to a ripe old age. ‘Then you must always give her eggs that are salmonella-free,’ I explain. ‘Eh? Come again? What is salmonella?’

You can make the lessons more understandable with the practical work of actually tasting things. Biology goes no further than identifying species and explaining how they work inside. You may dissect a fish, but you won’t eat it. Neither will biology lessons explain that it is unwise to eat fresh fish in February or March because that’s when they spawn. ‘What’s spawning?’ you will then hear.

In the past, cooking skills were handed down by mothers and grandmothers. They no longer have the time. That is not necessarily a bad thing: society itself has changed. There is no point in claiming that bringing up children is not the school’s job. Taste lessons are not part of childrearing as such, they are a form of education, of knowledge transfer. Taste lessons are the only way to teach our children respect for food.’
Supermarkets are interested in making a profit. They are not particularly interested in their customers' health, nor in how fresh their products are. ‘You can't find the fruit and veg department just by smell alone. You can in a ‘Gruitsjop’.

A shop with the allure of a south Italian market

The ‘Gruitsjop’ concept is intended to change our food purchasing habits from ‘cheap and convenient’ to ‘healthy and sustainable’. It is not only a question of logistics, but have you ever noticed how a Dutch supermarket is laid out?

No – how?
Next time, have a good look. The layout is designed to entice customers into making impulse buys, and to spend as much money as possible. As you queue at the checkout, you are surrounded by chocolate bars and crisps rather than healthy fruit and vegetables. You are generally forced to take a route through the supermarket which makes it very difficult to load your trolley sensibly. First comes the fresh produce, which is delicate, and then the heavy packs of dairy produce and fruit juices, and then the even heavier bottles of beer and wine. This is certainly not as customer-friendly as is often claimed, either in terms of the customer’s purse or her health.

No. But it is good for profits. Will the ‘Gruitsjop’ just ignore profit?
Not entirely, but making a profit will not be our only aim. We wish to invest just as much in health and sustainability. The special feature of the ‘Gruitsjop’ is that we shall lay out the shop, or ‘transaction site’ as we think of it, in such a way as to promote healthy and sustainable purchasing habits.

So a shop is now a ‘transaction site’?
We use that term because the ‘Gruitsjop’ is more than just a shop. We have produced a book entitled ‘Celebrate Food’, in which we ask what has happened to the ‘wow factor’ of food. Where is the experience? In a normal supermarket, you cannot smell your way to the fresh fruit and vegetables.

And you can in the ‘Gruitsjop’?
The designs produced so far offer an all-round experience. One idea is to divide the premises into different departments, each offering products from a specific region or country.
There would be an Italian corner, for example, but not just a few jars of pasta sauce. There might be a small restaurant where a chef is on hand to show you what you can do with the products. There could be recipe cards to inspire new ideas. The products would be fresh so you can actually smell what you're buying. And the products would not be crammed onto shelves, but laid out so that you can feel them, just as in a southern European market.

You are still talking about a shop?
I’m talking about various design ideas. The ‘Gruitsjop’ concept includes not only a number of designs for new transaction sites, but is also intended to develop new forms of distributed production.

What would that entail?
You can link supermarkets by means of logistic networks. Suppose you have a fleet of small vehicles, in which the products can be processed. One supermarket may have a surplus of fresh onions, while another has run out of ready-sliced onions. The process of slicing can take place during the transport.

I envisage a sort of old-fashioned mobile fruit-and-veg shop. That’s quite an appropriate picture.

A nice idea, but isn’t it prohibitively expensive?
Not if it is part of a much larger network. I agree that it all depends whether the public is prepared to pay for this sort of concept. However, we already see biological produce gaining in popularity, so we know that not everyone wants the cheapest possible option.

What type of customer would be inclined to go to a ‘Gruitsjop’?
Let’s not get ahead of ourselves. We have been commissioned to design the concept. It will be some time before one is actually opened on the high street.

InnovationNetwork has worked alongside a number of partners on this concept. They include: E. Vaane, Bedrijvigzichten, Fiskeriforum Vest (Bergen, Norway), M. Heselmans, Items, NCC (London, UK), University of Eindhoven, Voorheen De Toekomst, YD+I.
EVERYDAY PRACTICE

To encourage consumers to buy healthy food, designers have to come up with something new. 'We are designing new food, new vending machines, an entirely new approach.'

To design is to seduce

'The public's view of food is dictated by our supermarkets. That is where we come into contact with food on an almost daily basis, from early childhood onwards. Everything is displayed in bulk. Few people know where the food actually comes from, how it has been produced, what the label says, or how you can make a tasty meal with these ingredients.

If you wish to break through this indifference about food, you have to come up with something new. You must design a new concept. Take the unhealthy eating habits of today's youngsters, for example. Their mothers may cook a healthy meal, but they are likely to eat unhealthy snacks at school or when out with their friends. That is a matter of concern, but it is hardly surprising since there is no healthy option available. In a vending machine, a salad sandwich would start to look very unappetizing after only an hour. Surely there must be another way? You have to ask a designer to look at the problem.

It is certainly technically feasible to produce a vending machine which will keep products fresh. To date, however, manufacturers have been unwilling to invest in them, since they don't see any potential returns. If designers can make the salad sandwich an attractive alternative to the hamburger, they could well change the manufacturers' minds once they can be shown that consumers can be tempted to buy the healthy alternative. So how do you seduce consumers into doing so? That is the question on which we are basing our concepts.

Rather than looking at market surveys which rely on current market demand, we are interested in the trend surveys which attempt to identify changes in demand. The designers then try to stay one step ahead of those changes. If they are successful, it may be possible to tempt consumers and then the industry itself.

To seduce consumers into buying different types of food and to place quality above price, you have to come up with something new in terms of the place in which they obtain that food. In other words, the supermarket. Thirteen young designers were therefore invited to take part in the 'Celebrate Food' project run by the Young Designers & Industry Foundation. I had the privilege of overseeing this project. One way of increasing the consumer's appreciation of food quality is for supermarkets to adopt a completely new layout and design. Consumers could choose their purchases from an attractive display, rather than from a stack of tins on a shelf. The selected products would then be assembled out of sight in the store-room. While you are waiting, you have time to look at the recipe books or ask the in-house chef about ways to prepare your purchases. Another of our designs takes advantage of the regional nature of food production and is based on the 'shop-within-a-shop' concept. Local producers will have a stall within the supermarket on which they can display their products.

These designs prompt us to redefine the term 'supermarket'. This is currently something of a misnomer anyway, since it is a market that is dominated by only one company. The markets we have designed provide opportunities for various suppliers to present their wares. It then becomes possible to exploit the social function of food once more. In a supermarket, you grab your groceries and head for the checkout as quickly as possible. It would be nice to incorporate the conviviality of the traditional market into the supermarket setting. I expect to see our designs put into practice in one form or another. If you are to keep a densely populated country such as the Netherlands 'liveable', you have to keep designing and redesigning.'
INNOVATIONNETWORK

foodicons
Consumers cannot read. At least, they don’t want to read. They have no time to read. Nevertheless, manufacturers have to put certain information across. ‘Use a symbol, a foodicon: that will do the job.’

‘Foodicons’ is a concept for new product labels on food packaging, similar to the familiar ‘emoticons’ used in e-mail messages.

I never use emoticons; what use are foodicons to me?
Sixty per cent of consumers have a knowledge of food-related matters comparable to that of a secondary school pupil. They have difficulty in reading and understanding the information presented on packaging. The sell-by date is not a problem, but the nutritional information such as calorific value, fibre content and so forth is a mystery. How many people know the recommended daily intake of calories? If you don’t, there is little use in knowing that a product contains 200 calories. This is, however, very important information.

Why?
Because of the fats and sugars which make us fat. According to the latest predictions, by 2020 one in four Dutch people will be seriously overweight.

But I don’t have time to read all that information.
That is why we are trying to find a way to present all the relevant information in a simple way. China adopted just such a system many years ago, since the country’s official language is Mandarin Chinese but many people speak a regional dialect. In order to reach everyone, manufacturers started using symbols. This has proven very successful. The expansion of the European Union means that we too will have to contend with many more languages on packaging. That could be confusing. We therefore intend to follow the Chinese example and use foodicons.

What are foodicons?
A foodicon is simply a pictogram similar to the ‘emoticons’ we see on Internet and in e-mail messages. They can be used to show whether a product is likely to make you fatter or will help you lose weight.

All information in one simple symbol
Will manufacturers welcome the idea?
It is possible that manufacturers will wish to present only the positive information – the good news. That is not a problem, since in the long-term it will become clear that any product without a foodicon showing the calorie content must be a little suspect.

I am not overweight, but I do have a peanut allergy. Will there be a foodicon for that too?
No, there can’t be a specific symbol for each and every ingredient. We must avoid giving too much information, since this also becomes confusing. That is already the situation with all the various symbols used to indicate whether a product is biological. There are now so many that they have lost all relevance.

So, allergic consumers will lose out?
No. There will indeed be a general foodicon indicating that the product could cause some form of allergic reaction. This could be a simple ‘A’, for example. You then just have to read the list of ingredients to find out whether the product contains whatever triggers your specific allergy.

Great. So then I won’t even be able to eat cashew nuts anymore.
Yes, you will. The proposed system goes even further. It will be possible to include much more information on the product than is currently the case, perhaps using a barcode or a mini-chip. Customers who spot the icon denoting a possible allergic reaction can then scan the product to determine whether it is suitable for them. The innovative aspect of the foodicon idea is that it offers a completely new, customer-focused method of providing information.

When will we see the foodicons on a jar of peanut butter?
Research indicates that some manufacturers do not yet appreciate the importance of providing full product information. We are currently working alongside a number of companies in designing the icons and launching a trial. Whether the system is ever implemented on a large scale will depend on the outcome of that trial.

InnovationNetwork has worked alongside a number of partners on this concept. They include: Delft University of Technology, Trencavel.
EVERYDAY PRACTICE

‘All information provided with simple, attractive pictograms? It will be a very clever designer who makes that idea work. However, the foodicon is certainly viable as part of a large, innovative information system.’

A bug with a line through it

‘I have my doubts about the possibilities of foodicons on their own. Just over a year ago, I supervised a student’s graduation project. She had devised a number of pictograms to be used on food packaging, but I considered that this was not enough to underpin a thesis. After all, we train students to become engineers, not graphic designers. The project required more depth and breadth, so we put our heads together to define a more challenging problem.

The most important question is, what do you want to achieve? To do away with all the written information on the packaging and replace it with simple, attractive pictograms? That is impossible: there is simply too much information to put across. There would have to be enough little pictures to fill a gallery! Some people need to know whether the product is kosher, while others may want to know whether it contains cochineal, a colouring produced from the blood of an insect. What are you going to use to show that? A bug with a line through it? It will be a very clever designer who comes up with the answers. The pictograms have to be simple, attractive and informative. Must they therefore offer less information than before? Consumers who are allergic to a certain additive will always read the list of ingredients carefully. I myself am a vegetarian, and I would be very annoyed if I could no longer determine whether a product contains animal derivatives.

The second question is, who do you wish to reach? The general public, who are now living so unhealthily and becoming fat? I do not believe that is realistic. In any case, I believe that the vast majority of Dutch people already know what is healthy and what is not. Large sections of the population are just not interested in healthy products, but in cheap products. It is possible that you could represent some of the more important constituents by means of pictograms. The energy-dense ingredients such as sugars, for example. But here too there is a problem: how do you represent the consequences of eating these ingredients? A caricature of a fat person? A set of rotten teeth? No manufacturer will want to have that on the back of their products, and it will be impossible to gain their cooperation. But suppose we do manage to get the manufacturers on our side. The next question is: will it work? Probably not. Take smoking and tobacco, for example. When European cigarette packets started carrying warnings such as ‘Smoking reduces the blood flow and causes impotence’ and ‘Smoking can damage the sperm and decreases fertility’, they suddenly became collectors’ items among Dutch schoolchildren. ‘Have you got an impotence?’ ‘Yes, I’ll swap you for an ageing of the skin’. You cannot force people to adopt a healthy lifestyle. Indeed, attempting to do so would be ethically questionable. Surely everyone has the right to choose his or her own lifestyle? The foodicon is however of limited use within a much larger, innovative information system. It may then prompt perhaps ten per cent of consumers to delve more deeply into the composition of their food purchases. Other components in such a system could include ‘smart shelves’, with a display providing additional information, or barcodes which can be read with a special mobile phone. There could be information panels in stores, with Internet access to provide comprehensive product information. Now we’re talking! This would reach a very specific group, the so-called early adopters. These are the consumers who have money to spend, and who enjoy dabbling with the latest technology. Once this group accept an innovation, the rest of the population is likely to follow. However, I doubt whether the foodicon will play a significant part within the system as a whole.’
THE CONCEPT

To achieve large-scale breakthroughs calls for knowledge. And not just theoretical knowledge, but hands-on, practical knowledge. ‘The ‘System Innovations Knowledge Network’ stimulates interaction between those who develop knowledge and those who actually put it into practice.

Knowledge is about more than technology alone

In early 2004, ICES-KIS approved funding for the ‘System Innovations Knowledge Network’ (KSI) business plan. That plan came into being through close networking and cooperation between researchers and organizations which are concerned with system innovations: integrated, trans-sectoral innovations which could lead to large-scale, fundamental changes.

The intention of the plan is to create a national knowledge and competence centre focusing on ‘Transitions towards a sustainable society’. InnovationNetwork contributed to the KSI plan through the input of some fifty practice-oriented researchers who develop knowledge about the instruments required to initiate, guide, monitor and evaluate system innovations.

Is InnovationNetwork concerned with obtaining government funding?

Well, as one of the organizations set up to promote system innovations, the development of the plan was partly our responsibility and we made a substantial contribution to it, particularly in the early phases. Because we are primarily concerned with system innovations which address complex issues relating to rural areas, agriculture and nutrition, we could ensure that our requirement for better knowledge in this field was known. In addition, we wished to share our experience in working on system innovations within the new network, so that others can learn from it.

However, any research programme requires funding. The ICES-KIS funds are earmarked to ‘improve knowledge infrastructures’. How do you arrive at knowledge? How can it be properly disseminated? How do you create effective interaction between the people who develop the knowledge and those who actually use it? These questions apply equally to knowledge about system innovations, in the sense of complex transitions to new systems.

What could a national knowledge centre contribute in terms of system innovations?

The scientific field needs the actual hands-on practitioners in order to establish whether

---

1 ICES: Interdepartmental Commission for Economic Structure Strengthening; KIS: Knowledge Infrastructure
their research addresses the right problems and to test the theoretical models they produce. Conversely, practitioners need scientific research and knowledge development in order to answer the questions which arise during a process of innovation, and to identify effective methods whereby that process can be facilitated and managed. In short, there must be closer interaction between theory and practice.

An open door?
In the ideal situation, maybe. In practice, theoretical and practical knowledge about system innovation is unevenly distributed and poorly applied. Moreover, there is no single discipline which is solely concerned with knowledge about innovation, system innovations or transitions. We require some provision whereby the various disciplines involved can be encouraged to cooperate and thus to bring all the theoretical and practical knowledge together. The groups must be able to work together within a real network.

Cooperation for its own sake?
No, various programmes are being set up to improve the knowledge infrastructure in specific areas, such as space usage and agricultural production. In these programmes, the knowledge being developed is not drawn purely from the physical sciences, but also the social and life sciences. The System Innovation Knowledge Network hopes to be able to contribute to this type of programme by facilitating cooperation between the various disciplines, introducing ways in which the knowledge in one discipline can be shared with all the others. The KSI can also apply this approach in helping an organization such as InnovationNetwork operate more effectively.

What types of knowledge can you contribute, based on your experience?
We can, for example, make clear that we should not be primarily concerned with technological developments, even though they are largely knowledge-driven.

That sounds something of a paradox.
Products and production processes are often redesigned in a knowledge-driven way. The knowledge then ‘pushes’ developments: first devise some new technological gimmick, then devise a new product, then create the conditions in which the new product can be used. The complex issues we currently face in terms of rural areas, agriculture, water management and healthcare were created by knowledge-driven innovations which completely ignored the negative social impact they would have. These issues cannot be solved through knowledge-driven innovation alone, nor by technological developments alone. InnovationNetwork must therefore look beyond this sort of innovation process and explore other approaches which will bring about the desired changes.

InnovationNetwork has worked alongside a number of partners on this concept. They include: Universities of Maastricht, Eindhoven and Amsterdam, the Competence Centre for Transitions, Netherlands Energy research Centre, Habiforum, KLICT, Ministry of the Environment (VROM), National Initiative for Sustainable Development (TNO), TransForum on Agriculture and Green Areas, Transumo, Prisma & Partners, PSIBouw.

JOHN GRIN
PROFESSOR OF SYSTEM INNOVATIONS
AT THE UNIVERSITY OF AMSTERDAM
AND CO-DIRECTOR OF THE SYSTEM INNOVATION KNOWLEDGE NETWORK
EVERYDAY PRACTICE

What are system innovations? How do they come about? Who is involved? What knowledge is required. This is the type of question which the 'System Innovation Knowledge Network' seeks to answer.

An understanding of system innovations

'The System Innovation Knowledge Network' (KSI) studies system innovations and transitions with a view to gaining a better scientific understanding of them, and to make more effective use of them in practice. The KSI has adopted a three-pronged approach. Johan Schot, professor of the social history of technology at Eindhoven University, is researching historical system innovations. What happened during the transition from sail to steam, for example? The second approach is provided by Jan Rotmans, who is a professor at the Erasmus University in Rotterdam. He is focusing on the relationships and dynamics between the economic, ecological and social aspects of transitions and system innovations.

Finally, I am leading the third sub-programme, 'Governance Studies'. 'Governance' assumes that a social development is given direction by a series of actors: market parties, social organizations, administrators and scientists. A key characteristic of our markedly interdisciplinary research programme is that it will produce both fundamental knowledge and an insight into the practice of all those parties. This is why we wish to work alongside people who are actually involved in the practice. For example, we have joined the Ministry of Spatial Planning and the Environment (VROM), Senter-Novem and the Netherlands Organization for Applied Scientific Research (TNO) in setting up a knowledge centre for transitions. Based in Utrecht, this centre will analyse the learning processes between researchers and those whose involvement is more practical.

As part of the centre’s activities, I have established a Monitoring and Evaluation Project looking at how InnovationNetwork goes about its work. This has two purposes: to initiate a learning process within InnovationNetwork, and to allow other researchers and organizations in the field to make use of InnovationNetwork’s experience. To achieve these aims, we have involved the staff of InnovationNetwork in our own thought processes during meetings and study days. In addition, a report of the MEP project has been published and formed the input for a study day for people from other organizations wishing to learn from this approach.

I get the impression that all staff members have benefited from our evaluations and suggestions. Exactly what they have gained varies from person to person and, even more importantly in my view, from moment to moment. Over time, staff have become more willing and able to talk about both the strong and the not-so-strong aspects of their work, which has greatly enhanced the learning ability of the organization. Of course, there are also differences between the project managers. While one is more interested in the process aspects of a project and its progress, the other will be more interested in the content and the results.

I have always regarded content as one of InnovationNetwork’s strong points. They know exactly how the topics of agriculture and rural areas relate to each other, for example. Only when you are a true expert, with a thorough understanding of the subject matter, can you devise new solutions in a strategic manner. Moreover, InnovationNetwork knows exactly which players are important, and can identify their interrelationships. This is very useful, as it is impossible to bring about a system innovation entirely on your own. You need the help of the farmers, the politicians and the public, none of whom will be necessarily eager to see major changes.

To involve these stakeholders in the projects, you have to be able to ‘think outside the box’. This requires considerable expertise in change management processes. We believe that we have now gained a far better understanding of such processes, which will enable InnovationNetwork to do its work even more effectively.'
Text: Peter Henk Steenhuis en Tigrelle Uijttewaal,
www.tekstinstijl.nl
Editor: Claudi Hulshof
Concept and art-direction: Dietwee communication and design,
Sybren Kuiper and Ruben Pater
Design: Dietwee communication and design, Ruben Pater
Print: drukkerij MART.SPRUIJT bv
www.agro.nl/innovatienetwerk