

New regional knowledge arrangements facilitating regional learning

Wielinga^a, H.E. D. Roep^b and F.A. Geerling-Eiff^a

^a LEI Wageningen UR

^b Rural Sociology Group, Wageningen University

Paper for the XXIII European Society for Rural Sociology congress, Vaasa, Finland 17-21 August 2009

Corresponding author: dr ir Dirk Roep, Rural Sociology Group, Wageningen University, Hollandseweg 1, 6707 KN Wageningen, The Netherlands - Tel. 0031-317-482708 - Fax: 0031-317-485475 - Email: dirk.roep@wur.nl

Key words: regional development, regional learning, knowledge arrangements, facilitation

Abstract

Knowledge production and utilization should be better tuned to sustainable regional development practices. Generally three basic problems are identified:

- 1) a lack of interaction between different modes of knowledge production and utilization (such as scientific research and learning by doing) and consequently a lack of interactive learning among its practitioners;
- 2) regional questions are not properly articulated in (national) research and education programs and
- 3) scientific knowledge production is often highly reductionist and produces specific expertise, while its utilization in regional development practices asks for integration.

To enlarge the impact of research and education on regional learning and regional development they need better anchoring in regional development practices and be more structurally involved in (facilitating) joint regional learning, including citizens, entrepreneurs, authorities, policy-makers but researchers, teachers and students as well.

In the Netherlands new regional knowledge arrangements (KA's) are being developed and experimented within different regions¹ that deal with this. Some promising newly developed regional KA's were evaluated by means of mutual visits by key-actors and as part of interactive or action learning. The paper presents an overview and analysis of these newly emerging regional KA's and presents the lessons learned of the joint tour and interactive learning. As a result these emerging regional KA's are now seen as promising cornerstones of a knowledge-infrastructure better tuned to regional development practices.

At various levels, provincial, national and EU, there are subsidies available for activities in regional development, each with their own criteria and mechanics. However, this availability does not guarantee that the funds are being used where they are needed most. Much depends on the infrastructure through which people with initiatives find their way to these resources, and how they mobilize their networks of stakeholders and knowledge workers who will jointly work on important issues. While reporting about the study tour in search of ways to reinforce this kind of arrangements, it appears necessary to redefine certain concepts and roles in knowledge processes, for analysis of the observations and for drawing conclusions for the next steps to take.

Sustainable development requires interaction between stakeholders and knowledge workers

From dominance of agriculture towards a vital and versatile countryside

The challenges of the Dutch countryside have changed since the time that agricultural network was dominant in the processes that shaped the rural area. Many other stakeholders have entered the arena, and farmers nowadays have to acquire a new "licence to produce" in the eyes of the public, by adding new functions to their traditional role as food producers (Van der Ploeg *et al.* 2000). The public wants to enjoy the countryside and relax in nature and nice rural landscapes. New opportunities have been discovered, such as combining agriculture with care, recreation or nature management, and the market for special

¹ "Regions" in this paper refer to rural areas that show a certain geographical, cultural and economical coherence. Regions in The Netherlands are usually smaller than provinces.

regional brands is growing (Oostindie, Renting & Van der Meulen, 2007). Efforts are being made to restore links between citizens and the sources of their food, by establishing direct links with local producers (Wielinga 2001; Renting, Marsden & Banks 2003; Roep & Wiskerke 2006; Leeuwis 2005; Wiskerke, Van Huylenbroeck & Kirwan forthcoming).

In this changing landscape, regional development requires new forms of entrepreneurship, new ways to connect the countryside with the urban society, and new instruments to enhance the quality of living in the rural area (Wiskerke, submitted). There is plenty of work to do for researchers, teachers and advisors in developing appropriate knowledge for these themes. In addition to this thematic knowledge, stakeholders need knowledge on processes of change, on social learning (Wals, 2007), on facilitating negotiations in situations of competing claims, and on network development. (Hubeek, Geerling-Eiff & Van Baalen 2006).

Sustainable development

Sustainability is a major concern in regional development. New solutions should reproduce themselves without harmful effects on others or bills that are postponed to the future. This requires mutual respect for stakeholders, as well as respect for the carrying capacity of the ecological environment. Sustainability as at least two essential components: ecological knowledge about threats and opportunities, and the social aspect of stakeholders being able to respond adequately to these threats and opportunities. We refer here to the concepts of agency as the ability of stakeholders to generate concerted action, and governance as the institutional environment that enables stakeholders to unfold initiatives and to get their acts together.

Regional stakeholders and knowledge workers

For the issue of this paper we make a distinction between regional stakeholders and knowledge workers. Regional stakeholders are persons or groups of persons who have a stake in the region: entrepreneurs or networks of entrepreneurs, networks that have formed themselves around an initiative, associations that represent certain interest groups, public authorities at municipal or provincial level, etc.. These regional stakeholders are supposed to shape their environment and to create opportunities. With knowledge workers we refer to actors who are primarily involved because of their specific knowledge: researchers, teachers, advisors and students.

In an ideal world regional stakeholders and knowledge workers would work closely together in finding sustainable solutions for the countryside. In practice, however, too often they live in separate domains with their own logic and dynamics.

Relevant knowledge emerges from interaction

Expectations of the role of knowledge workers depend largely on the way knowledge is conceived. Some see knowledge as incontestable truth, validated by scientific research. Others take knowledge as a product for sale, in a world as a large market place with knowledge producers and knowledge users. Constructivists claim that knowledge is an individual construct, and shared knowledge can only emerge from interaction in collective learning processes (Wals, 2007; Bruckmeier & Tovey 2008). In an organic approach (Wielinga 2001, 2004) knowledge is seen as the ability of a system to respond adequately to a changing environment, a property that all living entities possess in order to survive and to reproduce themselves. Probably all these aspects of knowledge are valid under certain conditions (Wielinga 2009). For our purpose the most important distinction is referred to as knowledge mode 1 and mode 2 (Gibbons 2000):

- Mode 1: knowledge as scientific truth and / or product. This mode assumes that knowledge is produced by specialists and can be transferred to users. The call for more demand driven knowledge systems means that users should have more influence on the kind of knowledge that is being produced by knowledge workers. It puts emphasis on the quality of channels for transfer and agenda setting.

- **Mode 2:** knowledge as individual and / or collective property. This mode assumes that knowledge is in the minds of people. Concerted action requires a certain level of shared knowledge, that can only be the result of interaction. Knowledge workers are supposed to add to the quality of such shared knowledge. This mode puts emphasis on the quality of interaction processes, to which both stakeholders and knowledge workers should contribute.

Without disqualifying the value of mode 1 knowledge, the notion of knowledge as a property of people in mode 2 offers a much wider insight in the dynamics in knowledge processes for rural development, since it takes also the experiences, insights, tacit knowledge and convictions of stakeholders seriously (see Stagl 2006). If we accept that all actors involved develop and utilise knowledge in interaction, i.e. acquire knowledge and build capacities as part of social learning processes (Wals 2007; Bruckmeier & Tovey 2008), the next question is what differences there are between the contributions of stakeholders and knowledge workers to social learning processes. In Roep, Horlings and Wielinga (2009) primary and secondary learning processes are distinguished:

- **Primary learning processes** take place between stakeholders. They learn by doing in interaction with their environment, by encountering each other and possibly by exchanging experiences. We could visualise these primary processes as the horizontal dimension in figure 1.
- **Secondary learning processes** take place in the domain of knowledge workers. They collect data in practice and try to make sense out of the complexity. They develop theories, methods and tools, both on contents as on processes. They assist stakeholders with their expertise, and with support by means of lecturing, publishing, training, coaching and advising. These secondary processes are visualised as the vertical dimension in figure 1.

Of course, stakeholders develop their own theories and methods as well, and there is much truth in the statement that the most effective advisor is the neighbour. But within the knowledge system, knowledge workers are supposed to be experts in one or more functions as mentioned in the secondary learning process.

Crucial to the emergence of relevant knowledge is the interface between the two domains, where primary and secondary learning processes come together. In the 70ties and 80ties of the 20th century, the Dutch agricultural knowledge and information system (AKIS) acquired a worldwide reputation as being very effective in enhancing innovation. The small and industrialised country became the second largest exporter of agricultural products in the world. It is assumed that the intermediate structure, creating short communication lines between farmers, researchers, teachers, policy makers and industry, contributed substantially to this success. It created problems as well, because the close ties made the agricultural network blind for signals from the outside world, where subsidised overproduction and pollution was no longer acceptable.

The pivotal role of the government extension service in maintaining the links between stakeholders and knowledge workers got lost after its privatisation in 1990. In the knowledge market, where commercialised actors had to survive in fierce competition, the reservoir of intermediates with a free role between stakeholders and knowledge workers ran dry. (Wielinga 2001; Klerkx 2008; Klerkx and Leeuwis, 2009).

The new challenge

For a vital and versatile countryside new ways have to be found for connecting the domains of stakeholders and knowledge workers. Compared to the past, the variety of stakeholders has become much larger. The emphasis on regions includes respect for regional particularities, requiring specific solutions that may not apply elsewhere. On the other hand, topics that arise simultaneously in different regions

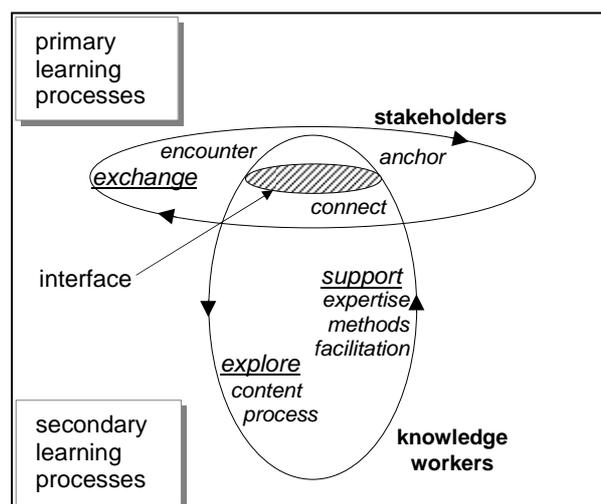


figure 1: Primary and secondary learning processes (after Roep, Horlings and Wielinga, 2009)

could better be tackled in joint efforts. This calls for connections between networks of stakeholders and knowledge workers in different regions. In the domain of the knowledge workers, interaction with practice is crucial both for research and for education. Researchers should reflect on real life challenges and experiences to remain relevant. Educators should go further than transferring information, and create a challenging learning environment for their students that is larger than the classroom. Interaction with practice should update themselves as professionals too.

In efforts to break down barriers for joint activities between the two domains, “knowledge arrangements” are being developed in various areas in The Netherlands: contractual agreements between regional stakeholders including public authorities and knowledge institutions such as green schools², colleges, academies and research institutes. The Ministry of Agriculture, Nature and Food Quality seeks ways to support this kind of initiatives, possibly by funding a national network for learning regions. In this paper we report about the findings of a joint investigation on the need and possible features for such a network. (Roep *et al.* 2009).

Knowledge arrangements and knowledge brokers

‘A knowledge arrangement is the smart combination of hardware, software and orgware, viewed from a societal or economical point of view, that leads to effective contributions to the knowledge economy’. (Nijkamp 2002, in: Lans *et al.* 2006). ‘The primary goal of these arrangements is to respond adequately to complex, often multidisciplinary innovation tasks, like customer-driven practices, new requirements for product quality, chain management, food safety, biotechnology, corporate social responsibility, use of renewable energy sources, multiple land use, and so on. Knowledge arrangements appear in many forms, like communities of practice, learning networks, innovation networks, etc.. Knowledge arrangements are by no means fixed configurations of participants in a certain setting, they can have different functions and different results’ (Lans *et al.* 2006).

‘Knowledge arrangements combine different activities for creating, sharing and applying knowledge from different perspectives by collaboration of different actors. For example, entrepreneurs bring in practical knowledge based on experiences with their enterprise, with suppliers and with the market for their products. Researchers bring in theoretical insights and technical opportunities. In their labs they work on answers to questions that prevail in businesses and society. Teachers are experienced in making learning environments and can create learning situations in a knowledge arrangement. This enables students to elaborate existing ideas in a creative way or to add new ideas. Not only the types of knowledge are different, also the way knowledge manifests itself varies. For an entrepreneur tacit knowledge plays a role, although this intuit and experience based knowing is hard to make explicit. A researcher can make analytical tools available, and a student may make an inventory of sources of information through internet. Of course, the people in a knowledge arrangement are the most important carriers of knowledge. Collaboration usually takes place in projects, especially if this joint activity is temporary. Just like other projects, a knowledge arrangement leads to products, aiming at specific targets. Short term effects are related to the use of the end product by the target group. Long term effects refer to changes in behaviour of people, organizations or a system’ (Geerling-Eiff *et al.* 2007).

Discussing the role of researchers in area development, Leeuwis (2004) suggests that their specific contribution could be summarized as follows:

- To assist in detecting implicit suppositions, knowledge and questions that are taken for granted and possibly block the decision making process;
- To make generic knowledge applicable in the context of a specific area, and to generate shared knowledge with practitioners;
- To reinforce networks with scientific concepts and tools that are considered as useful by all stakeholders, and meanwhile create mutual understanding and trust;

² “Green education” is the name for formerly agricultural schools and colleges that nowadays offer a wide range of subjects related to the green space, including e.g. animal care, gardening, rural economics and marketing, environment and area development. The green educational system, including Wageningen University of Life Sciences is funded by the Ministry of Agriculture, Nature and Food Quality.

- To provide feedback: results of research can stimulate reflection, e.g. reconsidering the problem definition;
- To monitor and analyse the process of change for timely adjusting the organisation and working procedures.

Based on Blaauw (2005), a knowledge arrangement is considered to be a work organisation stemming from formal organisations and supported by their commitment. He considers three distinct levels of knowledge processing: national, organizational and individual level. The knowledge arrangements are working organisations dealing with these three distinct levels. Knowledge arrangements in agri-food can be looked at from three levels:

- **Individual.** The individual actor, with his experience, skills and attitude participates as a knowledge worker in the arrangement.
- **Organisation.** The formal organisation which employs the individual, is committed to the arrangement and shows an opinion on its role in the national knowledge infrastructure.
- **Network.** Cooperation between formal organisations. It includes supply chains as well as innovation, learning and research networks.

Despite all these ideas of how it could be, in practice one often encounters a different reality. Scientific knowledge is not sufficiently used by people in the field, like managers of nature reserves and national landscapes, who consider it to be too rigid for being applicable in the specific context of the area (Pren-dergast *et al.* 1999; Pullin *et al.* 2004; Azerrad and Nilon 2006). Educational institutes rather plan in their curricula long beforehand than to create space for collaborative projects that are hard to account for. Commercial advisory services cannot afford to run risks in a competitive market. Every hour must be paid for.

It requires people and structures with intermediate roles to link the different domains together. Vijverberg described in detail how in the period of rapid growth of the Dutch agricultural sector this intermediate role had been performed by the government agricultural extension system. (Vijverberg 1996). The task of translating science to practice was considered too important to leave it to the researchers. Special liaison units within the extension services maintained close contacts between farmers, researchers and decision makers in the farmers organisations and the ministry of agriculture. Opposing the idea that knowledge flows from science to practice, he shows that many innovations were initiated by farmers and subsequently validated by research. Vijverberg had been a key actor himself in the horticultural knowledge system for many years before he wrote down his experiences in a dissertation.

When in the nineties ideas about knowledge processes changed and the concept of the knowledge market became popular, the extension service was privatised. Gradually, the brokerage function was no longer considered as a task of the government. If this function would be of any importance, the market would find solutions by itself. This however appeared to be a miscalculation. The market went for the quick wins, and this facilitating function was neglected. (Wielinga 2001 and 2004; Klerkx 2008). Recently there is a revival of interest for network approaches, which can be seen as efforts to restore the linkage function (see for example Wielinga *et al.* 2008 and 2009). The challenge is to find new ways to do so, including the new actors who have entered the stage in area development.

Dutch regional knowledge arrangements investigated

The joint study tour

Several key players behind regional initiatives for knowledge arrangements in The Netherlands expressed the wish to explore possibilities for a national “Knowledge Network for a Vital Countryside” to support their activities. In the fall of 2008 this resulted in a study tour along major regional initiatives, investigating the “pearls and puzzles” that were experienced so far, and the need for a national facility. A special feature of this study tour was that all parties involved participated in the visits: initiators, regional stakeholders, administrators of the Ministry of Agriculture as funding agency, and researchers, amongst which two of the authors of this paper. This gave opportunity to share views and develop ideas in an informal setting³.

³ In Roep, Horlings and Wielinga (2009) the joint findings, reflections and recommendations of the study tour are reported.

First, we give a short description of the knowledge arrangements that have been visited. Each of them differs in origin, stage of development, and activities. Then the ‘pearls and puzzles’ of each arrangement are compared. Lastly, we summarise the conclusions of the tour regarding a national facility for support.

The Countryside Academy

The “Plattelandsacademie” (countryside academy) has been created in 2006 as a joint activity of two green academies, the cooperative “Stadteland” (city-in-the countryside), and the Agricultural Economics Institute, which is part of Wageningen University and Research. Its aim is to support learning networks of stakeholders by offering expertise of teachers and their students. The academy acts as a contract partner for rural development projects, and organises the availability of expertise.

The Regional Innovation Centre Eemland

The RIC Eemland⁴ aims to act as a counter and a meeting place for matching demand and supply in expertise related to a versatile countryside. Furthermore it wants to act as an intermediate that actively supports good initiatives. The driving force behind this centre is an agricultural entrepreneur who is known for his efforts to promote the concept of a “versatile countryside that has so much more to offer than agricultural production only”. The centre was created in 2008 as a ‘match’ between the “Stichting Vernieuwing Gelderse Vallei” (Foundation for renewal in the Gelderland Valley), the cooperative “Stadteland” (City-in-the-Countryside), the municipality of Amersfoort, Wageningen University and Research, and “The Eemlandhoeve” (the farm of the entrepreneur). RIC Eemland and the Countryside Academy work closely together.

The Workshop Veenkoloniën

The “Werkplaats Veenkoloniën⁵” is a community for learning and working on issues of regional importance, jointly by stakeholders, teachers and their students. A former church with its annexes was made available by a municipality, and transformed into a workshop where people can meet and hold temporary office. The initiator is an academy lecturer with the ambition to create an integrated way of working together, with students at different levels, national and international students, regional stakeholders and with active participation of inhabitants. The “Workshop Veenkoloniën” is operational since 2004, and the concept is currently being adopted in five other regions throughout the country. In December 2008 a contract was signed by five educational institutions⁶, nine municipalities, two provinces in the North Eastern part of the country and the Ministry of Agriculture, making structural funds available for the “Agenda for the Veenkoloniën” for a period of four years. Professionalization and dissemination of the workshop concept is part of the agenda.

The Knowledge Counter Brabant

Several educational institutions have created the foundation “Knowledge Counter Brabant⁷” for connecting education with practice. Especially in reconstruction area’s, where substantial funds are provided for projects of replacement of farms and reshaping the area in order to lower the risks of animal diseases in the intensive livestock industry, there are good opportunities for active involvement of teachers and students in practical assignments. The foundation coordinates knowledge counters in community centres in various areas throughout the province. The educational institutions have appointed persons as “Education Interfaces” who act as knowledge brokers between the school, college or academy and the client. The knowledge counters cover more than one institution and have close contacts with the field. Each knowledge counter has one coordinator who is responsible for matching demand and available expertise. He or she can initiate activities as well. The foundation facilitates regular contact between the coordinators for exchange of experiences and professionalization, e.g. by developing a handbook on procedures. Projects are carried out by the school of academy: the knowledge counter only monitors the progress, and collects experiences for improving the approach.

⁴ Eemland is a region in the central part of the Netherlands.

⁵ Veenkoloniën is a region in the North East.

⁶ Both “green” and “grey” academies and colleges are involved here. Grey refers to general education, funded by the Ministry of Education, Culture and Science, while green education resorts under the Ministry of Agriculture, Nature and Food Quality.

⁷ North Brabant is a province in the Southern part of the country.

The Countryside Exchange

Contrary to the knowledge arrangements mentioned so far, the Countryside Exchange is not an institutional arrangement but a method that brings new impulses in a short period of time. Core element is that a network of regional stakeholders invites experts from a foreign country to visit the region and make an analysis of what they encounter. The initiative can come for example from a Leader network where various stakeholders are represented like farmers, citizens, nature protectionists, knowledge workers and local politicians. Contacts with foreign experts can be made through the European Leader network. The preparation of the visit has already a stimulating effect on the network, since participants should formulate key questions to orient the observations of the foreign experts. The exchange during the visit is inspiring, since foreigners bring in their views and experiences from a different context that might lead to new insights, both for the stakeholders as for the foreign experts. Since the foreigners work basically on a voluntary basis, conflicting interests do not interfere in the dialogue. Another factor of success is the transdisciplinary character of the exchange: opportunities and threats are analysed in an integral manner. Experience shows that a Countryside Exchange stimulates shared responsibility of stakeholders, followed by a range of new initiatives for joint activities.

Similarities and differences

All knowledge arrangements that have been visited emerged from regional initiatives for bringing stakeholders and knowledge workers together in order to generate new impulses for the region. The reasons to do so were similar:

- People involved had the impression that education, research and practice had grown apart;
- Relevant knowledge for questions from regional stakeholders was hard to find and dispersed;
- Practice as source of innovation was not being utilised sufficiently;
- Practice should offer a challenging learning environment for students;
- Complex issues require collaboration of partners who are not inclined to look for each other all by themselves;
- Contacts between partners with various backgrounds can generate unexpected views and inspiration;
- Both knowledge workers and stakeholders are supposed to contribute to the learning process. The emphasis is not on knowledge transfer but on knowledge co-creation.

Significant differences were observed as well:

- The position of the initiator varied from lecturer, (Countryside Academy, Workshop), board of executives (Knowledge Counter), and entrepreneur (RIC) to facilitators (Countryside Exchange) who were active in local stakeholder networks, supported by the LEADER programme.
- The stage of development of the knowledge arrangement was different. The Knowledge Counters are already active since 10 years, whereas the RIC is just starting up. The Countryside Exchange is a one time activity that can be repeated in other regions. The Workshop approach is probably most advanced with contractual arrangements including funds and projects for introducing the model in other regions in the country.
- The composition of the network of actors involved showed variations. Some focussed exclusively on contacts between students with their tutors and stakeholders having concrete questions, while others would involve researchers as well where possible and useful, and could actively intervene with facilitation of networks.

Although there are differences in history, scope and dynamics of the knowledge arrangements, they have the following components in common:

- Formulating knowledge questions is a specific branch of activities. Sometimes it requires meetings or workshops with stakeholders to explore the most relevant issues. The outcomes should be translated into questions that can be taken up by educators and/or researchers. A third step is to cluster such questions for agenda setting at the level of research institutes or funding agencies, in order to create space in budget and time for knowledge workers to work on these themes.
- Execution of collaborative projects with stakeholders and knowledge workers, including students from the region, is quite demanding in means, time and facilitation. Experience shows that often such

projects create enthusiasm and generate new questions for which it is worthwhile continue the collaboration.

- Initiatives are being taken up in a network approach, involving relevant stakeholders from different categories: entrepreneurs, administrators, educators, researchers and civil society.
- Educational institutions play a key role in most knowledge arrangements, by making personnel available, by being visible and creating counters where stakeholders can go with questions, and by creating meeting places for joint activities.
- Agenda setting at a regional level is an important element of knowledge arrangements. As mentioned before, clustering of questions at management level allows for the allotment of funds and capacity over longer periods. It also enables to attune efforts with other agencies and programmes and joining forces.
- Coordination by intermediate actors also leads to various combinations of different types of expertise, such as landscape planning, rural development, participatory processes, as well as scientific knowledge, applied science and tacit knowledge of inhabitants and other stakeholders.
- The knowledge arrangements stimulate the development of competences-on-the-job: collaborative skills, the ability to connect different worlds, and comprehensive thinking.

Pearls and Puzzles

The discussions during the joint study tour, that consisted of several visits, focussed on the ‘pearls and the puzzles’ of each knowledge arrangement, and subsequently the need for a national ‘Knowledge Network for a Vital Countryside’ as facility to support these arrangements.

Without being exhaustive, some important pearls can be summarized as follows:

- Enthusiasm appeared to be a key factor in the collaborative activities. The energy and drive of entrepreneurs who find themselves supported by students and their teachers, students who feel inspired in working on relevant real life issues, encounters of people from different domains who recognize their commitment for the same issues: *“With enthusiasm you organise enthusiasm”* someone said.
- The Knowledge Arrangements act as shops where people can go with their questions. The threshold is low as compared to commercial advisory services, and they give access to assistance in a wide range of disciplines. Questions can go beyond the usual, and lead to search-and-learn processes instead of standard advices.
- The region gets access to a reservoir of knowledge workers in the form of students, backed up by teachers and in various cases also researchers.
- In some cases it was reported that the atmosphere changed when students became involved. Entrepreneurs often felt more at ease with students than with commercial advisors charging considerable fees. Many times students would also bring in fresh and original ideas.
- The Knowledge Arrangements work as crystallizing points for networks between different stakeholders in a region. They shorten the lines between entrepreneurs, citizens, interest groups and policy makers at various levels. Results of search-and-learn processes can be implemented more easily. Municipalities are challenged to attune their policies, and to make use of the initiatives that emerge.

Puzzles came to the surface as well. They can be divided in three categories:

- puzzles in initiating Knowledge Arrangements and making them functioning well;
- puzzles in acquiring space for this type of arrangements within existing structures;
- puzzles in transdisciplinary work with people from different domains with different rules and subcultures.

Puzzles in initiating Knowledge Arrangements and making them functioning well

- The work of connecting actors having questions to knowledge workers who can assist them is time consuming and requires special skills. Building a network of stakeholders and knowledge workers that engages into a search and learn process is an art in itself. There must be someone in the position to do so: a “free actor” who is capable of seeing opportunities, recognising what is needed to bring initiatives further, and acting accordingly (Wielinga 2001 and 2008). What position should such intermediate persons have, and who should pay them for this work?

- Additionally, these “free actors” should be well acquainted with available capacities within educational and research institutions. They should be excellent networkers, and have time to maintain their networks. Where to find this time is quite a puzzle for people involved.
- In most cases, Knowledge Arrangements have started because an inspired teacher, entrepreneur or citizen has spent much personal time and effort in getting things going. Sometimes they could make use of opportunities, but more often they did so in spite of the existing structure. How can it make it easier for such persons to elaborate their initiatives?
- When key actors are farmers or citizens, which is often the case when they represent interest groups, they usually collaborate in their free time. Once collaborative activities start up with knowledge workers, the professionals are being paid as part of their job. For interaction on the basis of equity this is not an ideal situation.

Puzzles in acquiring space for this type of arrangements within existing structures

- Extending the first puzzle just mentioned, “free actors” experience the resistance of existing structures while deviating from normal routines, as is usually the case with the type of arrangements that are necessary for collaborative activities. How to give this work of creating space a structural place in a way it offers continuity and becomes less dependent from individual pioneers is still a challenge.
- In existing structures there needs to be more flexibility for responding to arising issues and opportunities. Especially in education this is easier said than done. Curriculum timetables are fixed and the time of teachers is scheduled for an entire year. Such curricula do not always match with activities in the field. Also the time of researchers is allocated in research programmes that have been contracted over longer periods.
- The mechanisms in use for accountability form a barrier for creativity and flexibility. SMART formulated targets and performance indicators being used to measure effectiveness and efficiency push knowledge workers into the direction of standard products that can easily meet the criteria, instead of risk taking attitudes necessary for innovative search and learn processes. When the indicators at the end of the yardstick have been fixed at the start, nothing new and unexpected can come out.
- Various funds are available for collaborative activities, at regional, national and European level. Such funds must be acquired through complicated and time consuming procedures, and project proposals have to meet numerous criteria. For example, a few years ago all green schools, colleges, academies and Wageningen University were united in the “Green Knowledge Cooperative” with the aim to restore the link between practice, education and research. The Ministry of Agriculture, Nature and Food Quality has allocated a considerable fund, that is channelled through a programme structure to collaborative projects in education. Complaints are that the threshold for obtaining funds is high and administrative burden is heavy as compared to the amount of money that can be spent on the project proper. Furthermore, the yearly project cycle makes it hard to respond quickly to urgent matters that arise.
- Beyond this complaint there is the more principal issue of space for the free actor. If requirements for funding are high, much of the important work for successful collaborative projects should already be done before they meet the criteria: bringing actors together, creating trust and enthusiasm, agreeing on tasks division and own investments, etc.. Who will pay for this function, and how can this work be made accountable?

Puzzles in transdisciplinary work with people from different domains with different rules and subcultures.

- Regional stakeholders often have views on what is at stake that are different from those of knowledge workers. Although this should be seen as an advantage, it takes time and effort to understand each other. In the eyes of knowledge workers, regional stakeholders are usually more short term oriented, and unaware of the larger issues that should be addressed. Special activities are needed to stimulate a sense of urgency. Calamities can be helpful too.
- Actual questions from regional stakeholders must be reformulated into knowledge questions that can be taken up by knowledge workers in education, research and/or advise. This requires special skills.
- A next challenge is to get such questions on the agenda of institutions, that should allocate time and funds for giving them proper attendance.
- Each domain has its own way of holding people accountable. Researchers should publish in scientific magazines. Applied research does not have a high status. Educational institutes should deliver high numbers of graduates at low costs. Practical work outside the classroom is time consuming and is not

rated as efficient. Funding agencies should yield measurable results. The outcome of collaborative search and learn projects is hard to predict. Representatives of regional stakeholders should put their flag on achievements in order to get support. In collaborative efforts it is hard to say who contributed most.

- People from different domains hold different expectations of what other partners should contribute. Regional stakeholders often expect knowledge workers to bring in ready-made answers, and only discover after some time that co-creation is much more satisfactory. Some knowledge workers have to discover that stakeholders have crucial experiences and develop valuable knowledge as well. Expectations of the work of students can easily be too high, while sometimes remarkable outcomes can be recorded as well.
- All Knowledge Arrangements that have been visited report that it takes time and effort to create mutual understanding and a sense of shared ownership.

National facilities to support regional learning: towards a network of learning regions

Regional knowledge arrangements as intermediate structures

Regional Knowledge Arrangements facilitate learning processes between stakeholders, rather than acting as transfer points where stakeholders can ask for the knowledge they need. Knowledge workers have an active role in (the facilitation of) regional learning processes. Next to learning in regions, also learning between (national and international) regions can be facilitated by means of knowledge arrangements. The key question is then how regional learning can be supported by additional national knowledge arrangements and facilities. A result from these reflections on regional knowledge arrangements is, that it would be more appropriate to speak of the national facilities needed to support regional learning and thus of “Network of Learning Regions” instead of the initial “Knowledge Network for a Vital Countryside”.

Knowledge arrangements fill a missing link in the present knowledge system. They host people who can fulfil intermediate roles between stakeholders and knowledge workers. These roles do not fit into the regular job descriptions of teachers and researchers, and they are usually ignored in schemes for project funding. The work of such persons should already be done before acceptance of the proposal. Given these facts, knowledge arrangements are a necessary complement to the existing structure.

It helps to lower the threshold for acceptance of networks of different actors who gather around an initiative, and to provide assistance in the early stages of network development. This was the conclusion of an external evaluation of two networking programmes aiming to link practice to knowledge (Bartels 2009a, 2009b). The first programme, “Networks in Animal Husbandry”, invited farmers to present innovative ideas. The requirements were that [a] they should present themselves as a network, [b] the idea should have a perspective for sustainable development of their sector, and [c] enthusiasm in the network should be tangible. The programme assisted the networks by providing a facilitator and a limited budget for hiring expertise. The facilitators were subject matter specialists, mainly researchers. The assistance had a duration of one year, which was extended in some cases. In total more than 120 networks were assisted in the period 2004 – 2007 (Wielinga and Zaalink 2008). After the programme started to yield successes, the Ministry of Agriculture decided that the scientific experiment should be succeeded by a subsidy scheme for innovative networks in the livestock industry. However, the subsidy scheme had a difficult start in 2008, and repair actions were needed to prevent it from failing completely. The evaluators found that the threshold for acceptance was a crucial factor determining difference between success and failure. For the subsidy scheme, the responsible agency applied its usual criteria for acceptance. Enthusiasm did not play any role in the selection because it could not be measured objectively. As a result, there was only a limited number of applicants, and the quality of the applications was poor. The evaluators recommended to lower the threshold for acceptance, and to offer assistance in earlier stages of the process in a network for innovation. Recently the minister of agriculture has sent the evaluation to the Dutch parliament. In her accompanying letter she writes that she underlines the conclusions and intends to take action (MinLNV 2009).

Regional knowledge arrangements lower the threshold for stakeholders with initiatives, and can provide assistance in building networks from their early stages onwards. Experience from the animal husbandry network programme shows also that this assistance entails more than bringing people together. Facilitating

this kind of networks is demanding in skills, and requires a different type of tools as compared with those that are common in planning and control approaches (Wielinga and Zaalmink 2008).

Intermediate roles

Earlier we distinguished primary and secondary learning processes. Primary learning processes refer to the domain of regional stakeholders who learn for and in action, and secondary learning processes of knowledge workers who observe, reflect, and develop theories and methods. Intermediate roles should link these domains to each other (*figure 2*).

At the regional level 'knowledge brokers' connect networks of regional stakeholders with knowledge workers in education, research and advisory services. They should be hosted by regional Knowledge Arrangements. They should be well aware of the expertise and capacities that are available and have easy access in order to mobilise the knowledge workers that are needed.

These knowledge brokers should work in close contact with 'regional brokers' who facilitate regional stakeholder networks, e.g. in the LEADER programme or various agencies stimulating small and medium size business.

Some themes and problems surpass the regional level. The same items might be at stake in other regions as well, and joining efforts could be more effective. Problems might also be so complicated that knowledge from outside the region is required. For linking knowledge networks at regional and national level, a 'knowledge manager' needed, who has overview, who can detect emerging issues and problems, and who is able to influence agenda setting in education, research and funding agencies.

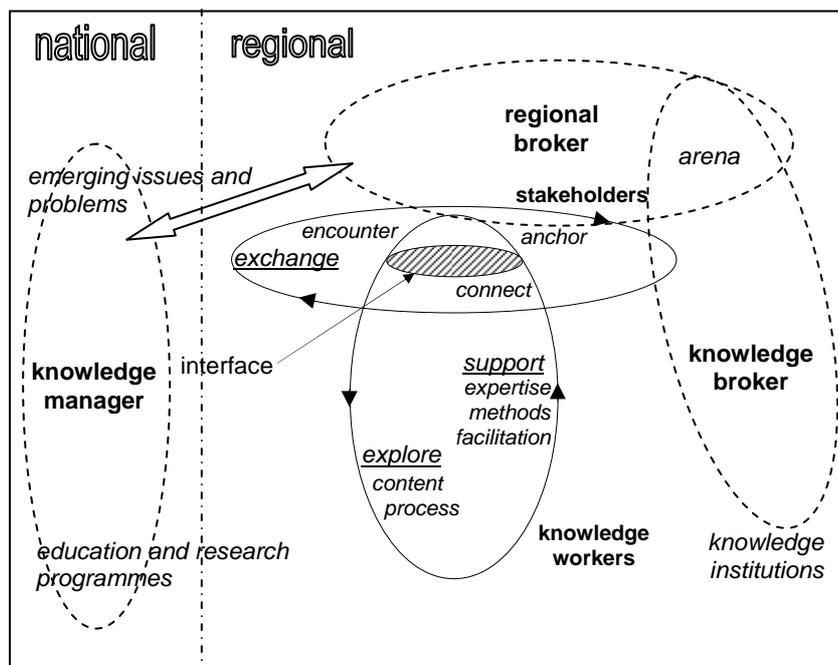


figure 2: Emerging tasks and roles in regional knowledge arrangements (after Roep, Horlings and Wielinga, 2009)

Key national facilities to support a network of learning regions

The partners in the tour along the regional Knowledge Arrangements jointly agreed that national facilities to support regional learning has at least have five crucial components and recommended the Ministry of ANF to take action upon these. Component 1 and 2 are thematic, the 3rd one is programmatic and components 4 and 5 deal with methodology and professionalization. Later, a 6th component on communication had been added.

[1] Thematic exchange

A network of learning regions should provide a (physical and virtual) platform where all persons involved in regional development can meet and exchange their expertise and experiences. Persons working on similar issues can thus get inspired and learn from each other. In some cases this could also lead to sharing forces. At this platform, knowledge brokers and their allies meet each other.

[2] Agenda setting

Issues that surpass the regional scale, because of urgency or expertise that is needed, should be lifted to higher levels in order to mobilise funds and experts. The national network should host one or more

knowledge managers with access to decision makers in knowledge institutes and funding agencies and ensure that urgent issues are being considered in the various processes of agenda setting.

[3] Creating institutional space

Regional knowledge arrangements require ground breaking work in institutional structures and procedures that should give way to collaborative search and learn processes. Initiators at regional level could profit substantially from someone with authority who represents the national knowledge network, and has easy access to both regional and national authorities.

[4] Methodological exchange

The work of knowledge brokers, facilitators, initiators: in sum “free actors” is demanding in energy and skills. Tools as they are common in project management, following the “planning and control cycle” do not apply for networks that form themselves around an initiative. The successful programme “Networks in Animal Husbandry” that was mentioned earlier has experimented with a new generation of network tools for free actors (Wielinga and Zaalmink 2008, Wielinga 2009). The national knowledge network should provide opportunity to regional facilitators to meet in peer consultations, to exchange experiences in knowledge network development, and to improve their skills.

[5] Professionalization

Scientific monitoring, reflection and further development of the approach of regional knowledge networks should be part of the total package. Although new tools have been developed, much work still has to be done. For example, common tools monitoring and evaluation do not apply anymore when it is not known what should be the last mark on the yardstick, which is the case in innovative and collaborative network efforts. The knowledge arrangements fill a gap in the green knowledge system that has been ignored for some time. It is relevant to follow this process of change, including its successes and struggles, its pearls and puzzles, in a scientific way.

[6] Communication

Many people are involved in the knowledge arrangements. Frequent communication about activities, successes and also problems that are encountered helps to speed up learning processes, and also contributes to an atmosphere of enthusiasm and trust. This is true for people who are active in similar themes. It is also true for the “enabling community”: the decision makers who should make space for the activities that are facilitated by the knowledge arrangements. New media, such as web 2.0 applications for internet that are fed by the users themselves, can be very helpful, but require active involvement of a ‘community manager’ to get the flow going and to maintain it.

Recent developments and future steps

While discussing the findings and reflections of the tour along the regional KA’s, the message came that the Knowledge Counter had ended its activities. The new chairman of the board of the academy that had hosted the Knowledge Counter had decided that the teaching staff should work more efficiently and concentrate on education only. The Knowledge Counter was no longer considered as a core activity. This incident shows the urgency of the issue discussed in this paper. Maybe a knowledge manager on behalf of the national knowledge network could have prevented this calamity, by discussing the importance with the chairman, by showing results from other regions, or by mobilising other forces such as the Ministry to change his mind. Or perhaps he could have facilitated the discussion at high level about the division of the cost and the benefits of hosting this successful knowledge arrangement.

The good news is that, while writing this paper, the Ministry of ANF has indeed accepted the recommendations and that currently an inventory is being made of regional knowledge arrangements that could become founding partners of a ‘Network of learning regions’. A list of at least twelve regional initiatives is being investigated. The next step is to convene the key actors from these knowledge arrangements for a conference for founding the ‘Network of Learning Regions’. The Ministry of Agriculture, Nature and Food Quality supports this development. In the Southern part of the country various partners are discussing ways to restart the Knowledge Counter in a different arrangement.

References

- Azerrad, J. M., and C. H. Nilon. 2006. An evaluation of agency conservation guidelines to better address planning efforts by local government. *Landscape and Urban Planning* 77:255-262.
- Blaauw, G. (2005): *Cruciale kennis, [Crucial Knowledge]*. dissertation State University Groningen, Groningen.
- Bruckmeier K. and H. Tovey (2008). Knowledge in Sustainable Rural Development: From Forms of Knowledge to Knowledge Processes. *Sociologia Ruralis, Vol 48, Number 3*: 313-329.
- Geerling-Eiff, F.A., Kupper, H., Beuze, M. de, Wals, A.E.J. (2007): *Een steen in het water. Een handreiking voor het werken met kennisarrangementen. [A stone in the water. A guide for working with knowledge arrangements]*. Wageningen University and Research.
- Gibbons, M. (2000). *Mode 2 society and the emergence of context-sensitive science*. *Science and Public Policy* 27(3): 159-163.
- Hubeek, F.B., F.A. Geerling-Eiff en P.J. van Baalen (2006) *Supply-versus demand-driven knowledge dissemination: a focus on strategic space*. In: Proceedings ISPIM-conferentie Athene 2006: ISPIM.
- Klerkx, L.W.A. (2008) *Matching demand and supply in the Dutch Agricultural knowledge infrastructure*. PhD-thesis Wageningen University.
- Klerkx, L.W.A. and C. Leeuwis (2009) Establishment and embedding of innovation brokers at different innovation. *Technological Forecasting & Social Change* 76: 849–860.
- system levels: Insights from the Dutch agricultural sector
- Lans, T.L., Kupper, H.A.E., Wals, A.J., Beuze, M., de and F.A. Geerling-Eiff (2006) *Alles is kennis? [Everything is Knowledge?]*, Communication Services Wageningen UR, Wageningen.
- Leeuwis ed. (2005). Equivocations on the post privatization dynamics in agricultural innovation systems. In *Design of an Innovation-Enhancing Environment*. Transforum Working Paper 2, nr. 4, Zoetermeer.
- MinLNV (Ministry of Agriculture, Nature and Food Quality) 2009: *Procesevaluatie innovatieregeling intensieve veehouderij [Process Evaluation Innovation Scheme Intensive Animal Husbandry]*. Letter from the minister to the Parliament, TRCDL/2009/1341. July 1, 2009.
- Mulder, M. (2004). *Agricultural education - building competence for innovation in the agri-food complex*. Wageningen: Wageningen University.
- Nijkamp, P. (2002): *Groei, kennis en overheid: Een meta-analytische verkenning naar kennisinfrastructuur. [Growth, Knowledge and Government: a Meta-Analytical Exploration on Knowledge Infrastructure]*. Royal Netherlands Academy of Sciences KNAW, Amsterdam.
- Oostindie, H.A., H. Renting and H. van der Meulen (2007) *National Synthesis Report on Case Studies in The Netherlands*, Rural sociology Group Wageningen University, Deliverable for the FP6 funded project 'Encouraging collective farmers marketing initiatives', www.cofami.org.
- Prendergast, J. R., R. M. Quinn, and J. H. Lawton. 1999. The gaps between theory and practice in selecting nature reserves. *Conservation Biology* 13:484-492.
- Pullin, A. S., T. M. Knight, D. A. Stone, and K. Charman. 2004. Do conservation managers use scientific evidence to support their decision-making? *Biological Conservation* 119:245-252.
- Renting, H., T. K. Marsden J. & Banks (2003) Understanding alternative food networks: exploring the role of short food supply chains in rural development. *Environment and Planning*, 35, pp. 393–411.
- Roep, D. & Wiskerke, J.S.C. (2006) *Nourishing Networks: Fourteen Lessons about Creating Sustainable Food Supply Chains* (Doetinchem: Reed Business Information).
- Roep, D., I. Horlings, H.E. Wielinga (2009): *De werkvloer van een Kennisnetwerk Vitaal Platteland. Kennismaken met regionale kennisarrangementen. [The Shop Floor of a Knowledge Network for a Vital Countryside. Discovering Regional Knowledge Arrangements]*. LEI report 2009-049. Den Haag: LEI/Wageningen UR.
- Stagl, S. (2006) Theoretical foundations of learning processes for sustainable development. *International Journal of Sustainable Development & World Ecology* 14: 52–62
- Van der Ploeg, J.D., Renting, H., Brunori, G., Knickel, K., Mannion, J., Marsden, T., De Roest, K., Sevilla-Guzmán, E., & Ventura, F. (2000) Rural development: from practices and policies towards theory, *Sociologia Ruralis*, 40, pp. 391-408.
- Vijverberg, A.J. (1996): *Glastuinbouw in ontwikkeling: beschouwingen over de sector en de beïnvloeding ervan door de wetenschap. [Horticulture under glass in development: reflections on a sector and the influence of science]*. Dissertation Agricultural University Wageningen. Delft: Ebubron.
- Wals, A.E.J. (ed) (2007). *Social learning towards a sustainable world*. Wageningen Academic Publishers, Wageningen.

- Wielinga, H.E. (2001): *Netwerken als levend weefsel. Een studie naar kennis, leiderschap en de rol van de overheid in de Nederlandse landbouw sinds 1945. [Networks as Living Tissue. A Study on Knowledge, Leadership and the Role of Government in Dutch Agriculture since 1945]*, PhD Thesis Wageningen University. Uilenreef Publisher, 's Hertogenbosch.
- Wielinga, H.E. (2004): *The Response-Ability of Networks: Healthy and Sick Agricultural Knowledge Networks in the Netherlands*. In: Christovão (ed) 2004: *European Farming and Society in Search of a New Social Contract – Learning to Manage Change*. Proceedings of the Sixth European IFSA Symposium, Volume 2 p.483 – 496. UTAD, Vila Real.
- Wielinga, H.E., Zaalmink, B.W., Bergevoet, R.H.M., Geerling-Eiff, F.A., Holster, H, Hoogerwerf, L., Vrolijk, M. (2008): *Networks with free actors: encouraging sustainable innovations in animal husbandry by using the FAN approach*. Wageningen University and Research.
- Wielinga, H.E., Vrolijk, M. (2009): *Language and Tools for Networkers*. The Journal of Agricultural Extension and Education (15)2 pp 205-217.
- Wiskerke, J.S.C. (submitted) On regions lost and regions regained: reflections on the alternative food geography and sustainable regional development, *International Planning Studies*.
- Wiskerke, J.S.C., Van Huylenbroeck, G. & J. Kirwan (forthcoming) *Sustaining Food Supply Chains: Grounded Perspectives on the Dynamics and Impact of New Modes of Food Provision* (London: Ashgate Publishers).