Villages in landscapes

the importance of appearance

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Proceedings from 10th Annual Conference, Nordic-Scottish University for Rural and Regional Development

By Hanne W. Tanvig (Eds.)

FACULTY OF LIFE SCIENCES
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Introduction

The 10th Annual conference in Nordic Scottish University Network for Rural and Regional Development took place in Denmark 8-10 March 2007. It was hosted by Forest and Landscape Denmark, University of Copenhagen, see www.sl.life.ku.dk. We chose Brandbjerg Højskole (Brandbjerg Folk High School) close to Vejle to be the location for the event, see www.brandbjerg.dk.

This year's conference title was Innovation Systems and Rural Development and papers were presented under the following topics:

- Local economy and new businesses in rural areas
- Education and learning systems in rural areas
- Nature and landscape as an asset to development and innovation in rural areas

The background for these topics is that innovation is crucial to our nations' development and economy. Usually research with regard to innovation implicitly is based on economies of agglomeration, and favour city areas. There may be a need of questioning these logics and examining rural areas as another basis for innovation systems. This might be a new trajectory to follow in rural development issues, looking for alternatives to the agricultural era and its vacuum in the rural areas.

The three chosen topics are each important to rural development in general, but they can also be analyzed in connection with the concept of innovation systems. Each topic provides opportunities for shaping a new framework which could become a part of, or a target for, the setting up of an innovation system. In the following you'll find a number of presentations that are aiming to do so in different ways and from different points of view.

Photo: Jørgen Møller

Our network is both scientifically and practically oriented, and we like to meet in a serious but informal atmosphere and to be open to new ideas and presentations. Publications from each conference reflect this diversity and respect the author's contributions at varying levels. As with this edition, too, most of the presentations have been selected and slightly revised with regard to the language in the editorial process. The contributions have put the debate on rural development issues on a new level and also call upon further theoretical research, maybe in the network or in rural research in general. It is no secret, that there is a heavy need of new rural development theories everywhere in the research world.

We also celebrate 10 years together in this network. In this publication you can find a presentation of the network's background and evolution throughout the decade. It is amazing how this voluntarily, rather informal and barely subsidized network has managed to work and develop, indicating that there is obviously a need for it!
As in previous years a fieldtrip was included to visit an area with relevant activities.

It has been a pleasure to organize and publish the results of the 10th annual conference. Many thanks to all presenters and all the persons involved in the arrangement and in making this publication available.

In particular we would like to thank local experts assisting us in the field trip and introducing us to the particular rural issues in the area, to the secretaries for preparing this publication for print, to the staff of Brandbjerg Højskole and the Ministry of Health and the Interior, for supporting us financially.

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Contents

Does all innovation, creativity and growth happen in Cities?

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Abstract

In this paper, we will build on work done in the TOP-MARD project to explore the relations between a set of rural 'public goods' and territorial rural development[1]. We set it in the context of the discourse on city regions, innovation systems, and the dominant discourse in regional economics surrounding the key role of cities in innovation. Our analysis suggests that this discourse ignores the specific characteristics of rural innovation, both in terms of the conceptual and theoretical framework, and in terms of measurement. In so doing, it marginalises the significant role of rural regions in national development.

Innovation Systems

Recent literature on 'Innovation Systems' is closely linked with the parallel ideas around 'city regions' that have grabbed the intellectual agenda in regional economics in recent years. Although there is lack of agreement in the academic literature about what constitutes an 'innovation system', Edquist (2004) suggests that three criteria must be met if an innovation system can be said to exist, namely:

1. Coherence
2. Unified function
3. Territorially bounded

An innovation system was considered to exist in Scotland by a recent report on the Scottish Innovation System[2], but it was considered to be weak or ab-

[1] TOP-MARD builds on the DORA project which explored the reasons for differential economic performance in 16 rural regions of 4 EU countries, and which found, among other things, that more successful regions made better use of their natural and cultural assets, see Bryden & Hart (2004).

[2] The full report can be accessed at: http://www.scotland.gov.uk/Resource/Doc/89713/0021562.pdf

sent in the predominately rural regions of the Highlands and Islands and the South-West. Elsewhere it was dominated by public sector R&D and large corporate R&D, and a few city based Universities. Other work on EU innovation systems has argued that to the extent that University-led research and knowledge transfer functions are an important part of any regional innovation system, their impact decays rapidly with distance from the core cities in which they are normally based (see e.g. Andres Rodriguez-Pose). The metrics of 'innovation systems research' rely quite heavily on the origin and location of R&D spending and activity, the activities of larger corporate enterprises that have R&D activities, and patent registrations, although not all studies utilise the latter because it relies heavily on the location of Patent offices. It is obvious that these metrics are almost ex definitio going to demonstrate that all innovative activity takes place in cities, and that indeed is what most of the research tends to show! The exceptions are mostly Finnish, and we cite in particular the work of Professor Sami Petri Kurki and his team in the Ruralia Institute, University of Helsinki who have specifically studied 'rural' innovation, but there is also relevant work on Innovation in Canadian rural areas [Fuller & Robinson], and earlier work on 'innovation fiches' in the context of the European Leader Observatory established for LEADER II between 1996 and 2001.

Innovation Systems and City Regions

At any rate, the dominant view is that Innovation takes place in Cities, and that is supported by ideas of the 'creative class' and their gravitation to cities [Florida 2002]. These two notions are what connect the idea of innovation systems to that of 'city regions'. It is probably true that most social scientists, and planners as a subset, would argue that people 'should' live in towns and cities – the French geographer Perroux invented the term 'Growth Poles' ['Poles de Croissance', 1955] , but his ideas closely related to Von Thunen's early 19th Century ideas of the social organisation of space in concentric circles, with cities at the core and uninhabited 'wild land' at the periphery[3]. To massacre history, in 1985 the topic came back on the agenda, despite serious criticisms of the root theories, when a well-received book by Jane Jacobs was published[4]. In the 1990's, the initiative of European Planning Ministries and the European Commission called the European Spatial Development Perspective also reflected 'growth pole' ideas, at least implicitly, as is the case with its successor ESPON programme. Recently, von Thunen's ideas have been revived and even reinvented by the so-called New Economic Geographers, especially Krugman[5]. Krugman's 'general equilibrium model' of rural-urban spatial dynamics shows the 'inevitable' clustering of people and enterprise in cities, but we should recall his von-Thunen type simplifying assumptions of distance-proportionate transport costs, two sectors (one being a constant returns to scale

[3] *Der isolirte Staat in Beziehung auf Landwirthschaft und Nationalökonomie, oder Untersuchungen über den Einfluss, den die Getreidepreise, der Reichtum des Bodens und die Abgaben auf den Ackerbau ausüben, Vol. 1, 1826 [The Isolated State …].*

[4] Cities and the Wealth of Nations. Principles of Economic Life. New York and Toronto: Vintage Books, 1985.

[5] Paul Krugman: *First Nature, Second Nature, and Metropolitan Location*. Journal of Regional Science, Vol. 33, No 2, 1993, pp 129-144.

agriculture, the other being an increasing returns to scale industry)[6]. Such assumptions render the result tautological.

Moreover, a factor providing opportunities for rural communities is the reduced transportation costs for manufactured goods relative to the costs for moving people. This has happened at the same time as technological change has eliminated the historical importance of fixed infrastructure transport in creating natural urban centres (Glaeser and Kohlhase, 2003) and changed to flexible and reasonable cost trailers as major means of goods transport. Further the growth of the services sector and internet/ digital telecommunications connectivity has facilitated 'remote' production of services as well as global marketing and financial activities.

Global city theory considers governmental policy as a response to global economic pressures. These have been increasing since the 1970's and especially since the extension of 'Washington consensus' neo-liberal ideology during the 1980's and up to the present day (Stiglitz, 2002). In this theory, the increasing deregulation of financial markets and privatization of industry that occurred in many 'city regions' can be seen as the consequence of global forces. Fainstein (1999) argues that this deregulation and marketization has "stimulated the growth of the financial services and international-trade-related sectors that are the leading edge of the economies of the global cities". The adverse effects of moves toward freer markets on income distribution and job security have the same cause. If a 'strategy of city regions' (meaning in our case a focus of public resources and development agency activity) is to be followed because of the 'competitiveness' agenda, a crucial question for all of us is that raised by Fainstein and her colleagues[7], namely "whether the growth initially stimulated by deregulation (is) primarily speculative and part of a longer-term destabilization that will ultimately result in increased economic volatility and insecurity". Fainstein argues that the great dependence of global city regions on international financial flows makes them particularly susceptible to fluctuations in the increasingly volatile global financial system.

City Regions Thinking and the Role of Rural Areas

In 'city regions thinking', then, 'rural areas' are not there to generate economic activity, and 'real' 'creative' people don't live there, all the ideas and growth and development come from Cities, which rural areas service mainly through 'green space'. However, the facts hardly support the ideas. According to Fainstein (1999), there is "no convincing evidence showing that the inhabitants of global cities and their surrounding regions fare better than the residents of lesser places". John Friedmann argued that global city metropoli were rather particularly prone to extremes of inequality [Friedmann, 1986]. Whilst the concentration of higher order government, academic and financial sector service in such cities inevitably means that they are usually the most prosperous part of any country, Sassen has demonstrated that "they also tend to have

[6] Given these assumptions his 'finding' is basically a truism. See also Maureen Kilkenny's paper: *Transport Costs and Rural Development*. Journal of Regional Science, Vol. 38 No 2, 1998, pp 293-312.

[7] Fainstein looked at New York, London, Tokyo, Paris, and the Randstad (Netherlands).

large, dense groups of very poor people, often living in close juxtaposition with concentrations of the extraordinarily wealthy" [Sassen, 1991].

Taking a 'rural' perspective, the OECD territorial development work [OECD 1994, 1996], the EU projects RUREMPLOI [Terluin and Post, 2000] and DORA [Bryden and Hart 2004] among others demonstrate that some mainly 'rural' regions are doing pretty well economically, and in some cases better than their national capital city regions. According to the OECD, between 1980 and 2000, between one-fifth and a quarter of the lagging predominately rural regions improved their position against national averages. The DORA work actually compared the performance of 16 rural regions using a 'matched pairs' approach – pairs of more and less economically successful regions in the same geographic and policy context – hence highlighting the factors to do with local places, local economic structures, local institutions, local markets, local networking that made a difference to economic performance. The point for present purposes is that rural places are also 'places' with identity, economies, institutions, etc having differential economic performance over long period of time. They are not merely or even mainly 'green spaces' functioning to provide house sites or recreational space for the alleged metropolitan engines of national and international development, as the city region policy proponents would have us believe! Rural regions and areas have their own kinds of assets and resources - human, natural, tangible and less tangible - which are crucially important for all of our futures.....

What then do our rural areas beyond the commuting belt have to offer today and in future, other than the 'green space' of city regions thinking? And why is it important not to neglect these in our national development policies and institutions? The arguments revolve around three central issues. First, the different nature of rural assets, and hence 'innovation'. Second, the importance of some rather impure public goods in these assets and associated 'innovation'. Third, the question of economic and social cohesion. The question of the role of specifically rural public goods in generating local economic development and quality of life is being dealt with in the 11-country TOP-MARD research project due for completion in summer 2008, and what follows largely draws on the work of this project to date.

Let us briefly look at these three arguments[8].

First of all, what are the assets of rural areas today and for the future?

- Water
- Food, timber and raw materials
- Land for utilization and absorption of nutrients and organic matter
- Renewable energy
- Cultural diversity – Gaelic, Nordic, Doric, Sami, etc
- People who are at one and the same time self-reliant and yet cooperative,

[8] See also the background paper which JB prepared with Laurent Van Depoele and Sophie Espinosa for the Euromontana Conference in Aviemore, November 2005. On the UHI PolicyWeb website www.policyweb.uhi.ac.uk

often highly motivated, possessing important local knowledge, are culture-bearers, and in some cases at least also have high levels of formal education

- Biological diversity and landscape value – almost all of our designated areas.
- Places for tourism and recreation based on our landscapes, biodiversity, cultures, archaeology, history, recreational opportunities.

Such resources or assets form the basis for a sizeable part of the rural economy of Scotland and Scandinavia, and a major part of national product and exports (including food, timber, fish, whisky, renewable energy, music, recreation and tourism). Moreover, a number of them are increasingly demanded by the wider society. They also form a part of that elusive 'quality of life' that determines decisions to migrate to, or return to, rural areas.

One problem with this suite of assets, however, is the fact that they have a high public or quasi-public goods component, which means that those who maintain and enhance the public goods are under-rewarded or not rewarded at all by the market. This in and of itself is an argument for policy intervention and/or collective action.

Nevertheless, it is possible to develop some market related activities around public goods, and also devise other methods of gaining local benefit from them. Public policies are of central importance to what might be broadly considered as 'infrastructural' investments that create such "hidden" externalities. One example would be to shift the focus from large centralised nature-hostile systems, like centralised wastewater pipelines using large highly chemical wastewater treatment and towards a high degree of reliance on natural local systems (such as ecological sanitation), and thus counter the market power that is already established in the systems that create negative externalities. But there are many others, including the nourishment of local cultures and archaeology, creation of parks, mountain bike trails in forests, etc. Equally, public policies can stimulate the supply of positive externalities through incentives to private and community actors. Finally, they can provide incentives to transform these externalities into further private and public benefit (economic activity, quality of life). This is where the local development agencies, and EU LEADER groups, have often played a critical role in rural Europe. Without such policies, and adequate funds to back them, people will not be able to realise the potentials of our rural assets. This will be a loss not only for rural people, but also for our cities.

The point is not to argue that cities are to be preferred over rural places, or vice versa, but rather to suggest a greater recognition both that innovation takes place in both, and that the synergies between city and rural are perhaps what we should pay attention to. Cities and their people need rural areas, and rural areas and people need cities. They provide different resources, opportunities and constraints, and different kinds of amenity. The symbiosis between Bergen and the rest of the county of Hordaland[9] is a good example of this. In addition to the "green areas", which rural areas certainly do have, there are crucially important nutrient flows. Cities consume food and create massive amounts of nutrients and organic matter (in sewage and organic waste) which they need to "import"

[9] The Norwegian study area in the TOP-MARD project.

and "export" to the rural areas [Refsgaard et al. 2006]. Today we do not deal much with the "loss" of nutrients, only in relation to the pollution aspects of it. However there are other nutrient loss issues – not least about phosphorus resources, where only limited amounts are left worldwide. There are also other infra structural dependencies. In some cases, the comparative advantage in providing amenities or other human needs will lie with cities, in others with rural areas. The problem is that we do not consider all these necessary amenities (or needs).

Our third point is related to social and economic cohesion. Lisbon and Gothenburg were also about that! As the debates on city regions suggests, we cannot build 'quality cities' if we neglect issues of social and economic cohesion. The social contract between citizens and the state rests not only on economic efficiency, but also on social, civil and political rights. We cannot build a quality society – rural and urban – without ensuring that public policies of all kinds reflect this. Thus a society ceases to be that if it provides preferential access to, or higher quality provision of, state provided public goods - such as schools, hospitals, transport infrastructure – in one kind of area (cities) than it does in another (rural areas).

Some Specific Characteristics of Rural Innovation

Many if not most areas of rural innovation are not patented. They mostly concern applications of new technologies and especially those which have particular relevance to – or resonance with – rural conditions and people's needs. For example in the 1980's many of the most innovative new applications of information and communications technologies in education, health, research and local development were in the remoter rural areas where provision of these services, or undertaking such activities, posed real challenges (see for example Bryden & Fuller 1986; Bryden, Fuller & Rennie 1996).

Some, but by no means all, innovations in rural contexts do involve real or virtual clustering. Examples are organic farming in Norway, windmills in Denmark, jewellery in the Orkney Islands, health-related industries in Inverness in Scotland, furniture making in W Norway and Denmark. However, many of the assets providing competitive advantages to rural areas are in fact characterised at least in part by dispersion and anti-clustering, for example renewable energy, tourism, recreation, rural residence etc. Moreover, rural areas have been at the forefront of innovative working practices – e.g. workflow management which facilitates working from home and within small communities rather than locating in (or commuting to) large cities.

Innovations relying very much on the natural or rural conditions are also notable. A good examples of this is the development of the small dairy of high repute located remote and rural in a village in northern Jutland, which exemplifies the Danish organic and innovative food company. Thise Mejeri is well known throughout Denmark and beyond for its wide selection of organic rod-

ucts, constant product development and focus on quality[10]. Other examples of innovations closely connected to the local surroundings are related to the utilization of the soil or other natural conditions like ecological or soil-based treatment of wastewater developed in Norway [Heistad et al. 2006, Refsgaard et al. 2006].

Other specifically rural innovations concern service provision, for example one stop shops, multi-use centres, telehealth. Again these specifically respond to rural conditions and needs – the 'original' one stop shop was probably the combined rural post office-shop-fuel station!

Conclusion

According to the much respected Norwegian labour politician and social scientist Ottar Brox[11], an active citizenry was established in Norway that was able for a long time to frustrate the ambitions of utopian planners and 'big capitalists' who sought growth poles, large scale industrialisation, rural-urban migration, the alienation of hydro-electric power rights, and the transfer of fishing rights to large trawling companies. This 'friction' was provided "by popular, anarchic and institutional resistance to modernism". This, to Brox, was a 'good thing' because "what is good for the whole – in the longer run – is not always good for short-sighted and influential actors, with power to control our definition of the situation".

From Brox we learn how the Norwegian post-war planners sought to implement what would now be called a 'city regions' policy, moving people from their small coastal settlements in Northern Norway to larger regional towns, and how people were able to resist this because of an active citizenry and democratic ideals and practices. The subsequent period, far from detracting from Norway's economic development, was central in making it one of the most prosperous small countries in the world.

The ideas which collapse theories of 'innovation systems' and 'city regions' into what is essentially an ideology of centralisation are deeply flawed, depending as they do on drastically simplified assumptions and incomplete understanding of the complex real world, and especially the rural part of that real world --- and the interlinkages/interdependencies between rural areas and urban places and their different resources and differences in needs..... Innovation is indeed

[10] **Innovation the Danish way:** Denmark has a century-long tradition for R&D in agriculture and food production, often in close collaboration between the public and the private sectors. Today, this tradition is reflected in small as well as large companies which are focusing on organic production when developing new products, thereby meeting the demands of the modern consumer as regard new tastes, quality, health, high standards of animal welfare and environmental sustainability. (http://www.organicdenmark.com/indexd61c.html?id=5).

[11] See for example his paper on five attempts at planning in Norway, prepared for a seminar on planning in Dubrovnik in April 1981, organised by the Inter-University Centre. An enlarged Norwegian version was published in Veggeland (ed) 1982 and Brox, Ottar (1993): "Let us now praise dragging feet" in N. Åkerman (ed) : The Necessity of Friction. Heidelberg : Springer-Verlag, N.Y. Brox's work including this one is well represented in Brox(2006).

Photo: Jørgen Møller

happening in many if not most of our rural regions, for example in relation to the transformation of a rather wide range of public and quasi-public goods into opportunities for recreation, tourism, renewable energy, local food and drink, utilization of nutrients and residence with a high quality of life. Should the larger society ignore these facts, and the ideas that accompany them, it will be to the cost of the whole.

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What's wrong with Old Business?

- A contextual analytic framework

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Abstract

Agriculture was originally the decisive power in Danish rural areas both in relation to economic, political and civic organisation as well as overall performance. The obvious and distinct relation between the rural areas and trade implied that the definition of rural areas as well as of their internal and external relations was well defined.

However, the evolution in the latest decades has changed the picture radically. This implies that the mutual destiny in general does no longer exist, and hence agriculture is no longer the crucial power in rural areas per se. The subsequent picture is blurred while it is no longer possible to use the former well defined definition of rural areas and their relations – a general picture does no longer exist but has rather turned into various pictures depending on several contextual factors. Hence, we as social scientists need to investigate new heterodox definitions, concepts, and theoretical approaches in future studies of rural areas and their relations to economic activity and performance.

Thus, it is in the present article claimed that studies of institutional history are prerequisites to obtain necessary knowledge about constraints and possibilities for new business and rural innovation in general. That claim is based on the assumption that deliberative competences and the institutional set up of markets, politics and mental frames is the key to reveal economic opportunities as well as constraints. The article presents an initial attempt to analyse the evolution of the interrelations between agriculture and rural areas in Denmark by means of such a perspective.

Key words: rural areas, agriculture, institutional history, economics, business, politics

The myth of old business - an introduction to the substance

Until a few decades ago, the history of Danish rural areas was equivalent to the history of Danish agriculture. This point is in general not a myth but can without greater effort be established as a fact. The core reason for this is that the

economic, social, and political evolution of Danish society originates from agriculture and that the trade – also for the major part of the 20th century – was the key engine for the functioning of, and innovation in, the entire Danish nation. For a start a single figure can underline the point: in the 1950s more than 60 percent of Danish exports were agricultural goods. Consequently, a mutual destiny was established between trade and its social surroundings. It is also easy to expect that this interdependence gave central agricultural actors a very powerful position in Danish society.

The core position of agriculture was reflected in rural areas for the simple reason that trade was located in rural areas and the inhabitants there (in villages or out in the farmland) were reminded every day of the magnitude and importance of agriculture. Was the family not directly employed on the farm, they would most probably be employed in trades related to agriculture. In this article I will label the span of years from around 1880 to the 1960s as the classical period of Danish rural areas. Rural areas were the physical, social, and mental space where agriculture was the concentric point of departure and where the major institutions were anchored. And the major institutions were (independently of geographic location) church, co-operative dairy, school, and co-operative village hall. Thus, the local communities were organised as units able to cope with daily economic, social, and cultural life and to keep up with the surroundings by means of economic, political, and civic/civil external relations. Obviously, rurality was in Denmark as synonymous to agriculture, and subsequently rural aims and policies as similar to agricultural aims and policies.

However, from around 1960 the classical period approached the end. Farmers found themselves in an income squeeze from the mid 1950s which implied radical changes in Danish agriculture where the number of farms was reduced and an industrialisation of farming started while the dawning Danish industry was expanding and short of labour. As a result radical changes also took place in the rural communities. Gradually agriculture lost its sovereign position as the concentric anchor point. Simultaneously the clear classical picture of rural areas became rather blurred. As social scientists we are now facing difficulties in defining rural areas and thus difficulties in describing and analysing the challenges they are facing. Nevertheless, it seems that the current discourses and policies to a high degree still are based on what in contemporary Denmark is a myth: that rural areas stand or fall with agriculture – hence rural aims and policies are still to a high degree formulated in agricultural logos. Thus, Danish rural aims and policies are limited by an inadequate path dependency that implies the absence of distinction between rurality and agriculture.

The brief answer to the somewhat rhetoric question in the headline of the present article is, that we as social scientists know what a rural area was in the classical period but that we are facing the challenge to redefine the concept and substitute it with richly facetted notions of current rural areas and their challenges and perspectives. As we have realised that agriculture's importance is declining we know why it is necessary to deal with new business in rural areas. However, I would claim that we still don't know how because we don't to a sufficient degree posses the necessary richly facetted notions and concepts of current rural areas in Denmark.

The rural perspective: The establishment of a fractal pattern and its subsequent dissolution

The classical period

The starting point of the classical period was a huge income crisis for agriculture in the 1860s and 1870s. At that time Danish agriculture – and hence the Danish economy (see Table 1) – depended on export of cereals but dramatically declining prices made it almost impossible for Danish farmers to make a living producing as hitherto. So, a major restructuring to enable a new trajectory was obviously needed. [Ingemann 1997].

Table 1: Relative importance of agriculture around 1870[1]

Agricultural share of:	per cent
National labour force	52
National exports	92
National GFI	50
Based on [Hansen 1976]	

Based on Hansen 11976

The new trajectory became based on animal production, primarily milk and pigs. While the favourable markets didn't demand produce but processed food, it was necessary to build up facilities for processing. These facilities were established on a co-operative basis, where the first co-operative dairy was founded in 1882 and the first co-operative slaughterhouse in 1887. In the next couple of decades the number of co-operative associations merely exploded in number, and around 1900 almost every parish had its own co-operative dairy etc. Simultaneously, land was provided for smallholders by means of parcel-out communities on a private basis but it was in general characteristic that the agricultural organisations engaged the governmental apparatus in a corporate manner and that the farmers looked at the state as their obvious servant.

Demography and structure – artefacts

The share of the Danish population living in rural areas of course depends on which statistical definition one is adapting. If we apply the official Danish definition (areas populated with less than 200 inhabitants) 57 percent lived in rural areas in year 1900. Applying the alternative definition (areas populated with less than 1000 inhabitants) does not alter the picture then because that share was 59 percent. At the end of the classical period (1960) the shares were decreased to 26 percent and 34 percent respectively. However, one must bear in mind that there was a heavy increase in national population over the classical period where the nominal figure of inhabitants in rural areas was almost constant – i.e. around 1.4 million in 1900 and 1950 and 1.2 million in 1960 (<200 inhabitants) respectively a little above 1.4 in 1900 and nearly 1.6 in 1960 (<1000 inhabitants).

The artefacts in the rural areas were altered throughout the period. Of course the church was there and village schools were build in the 19th century. But the major artefact that grew up was the co-operative dairies. From 1882, where the first co-operative dairy was established, to around 1900 the number of co-operatives merely exploded and at the turn of the century almost every single

rural community in Denmark had its own co-operative dairy and often other co-operative associations too. Similarly the number of co-operative assembly halls exploded to ensure the provision of space for political debates and a forum for cultural events and propagation purposes.

Politics/policies, municipalities/state – sociofacts and social institutions
The legislative foundation for the Danish municipalities was laid down in the constitution of 1849 when Denmark was transformed into a representative democracy. It was here stated that self-government was a constitutional right in line with the ideas about democracy and governance as a bottom-up process. However, the municipalities should carry out a double function; they were authorities for local self-government and simultaneously local representatives for the central authorities. [Hansen 2002]

Around 1250 municipalities were established. In the rural areas – which dominated Denmark – the municipalities created a new field where the awakening farmers' movement could use and shape their organisational and deliberative skills for a great part acquired at the Folk High-schools. From 1882 it was those skills that made Danish farmers able to establish the unique Danish co-operatives. The political work in the municipalities was obviously sharpening the deliberative competences amongst the farmers; this was also the case because the status of Danish municipalities implied that there was no borderline between the political and administrative tasks and responsibility. "The elected council is the supreme authority for all municipal matters and has authority in political decision making as well as administrative-executive matters" [Hansen 2002, p. 51]. Further, the farmers established The Liberal Party to coordinate their civic and parliamentary actions. Thus, the farmers obtained possibilities to practise and learn both political and administrative organisation and processes.

As part of the transformation of Danish agriculture to employ the animal strategy a lot of organizations were established. In retrospect the co-operatives became a cornerstone. Via co-operative societies, it comprised the majority of the companies that processed and distributed produce or delivered inputs to the farms. A co-operative consisted of two sides, association and business, which fused into one unit. The association side required the farmers to exercise democracy while the business side required joint and several liability. Thus, they had to take joint economic and political responsibility, which they were able to do due to their deliberative competences [Ingemann 2007] – competencies that was also sharpened by learning from participation in the municipality councils.

Several special and general organizations were established too by the agriculturists and their intellectual supporters. Special organizations were founded jointly to handle service tasks such as breeding, insurance, savings, banking, technological development and communication. General organizations were established to handle the business and social political interest among which Farmers' Union and The Danish Family Farmers' Association are the most important. Characteristic for these organizations is that they – also chronologically – developed bottom-up. The associational structure was thus based on "the association of associations" – in other words of local associations which formed regional associations, which formed national associations. From 1919,

the cooperation between these associations was institutionalized in the Agricultural Council, regardless of political objective. Another effect of this system of association building was that the elected leaders were – and were perceived as being – elected by and among equals. [Ingemann 1999; 2007]

The result of the organizational efforts was that Danish farmers established a unique potential for coordination. By means of the system they could coordinate between local, regional, and national levels, i.e. vertical coordination. Further, the system incorporated both the political praxis field and the economic praxis field (farms and the co-operatives' business side). Hence, both an agro-political and agro-industrial complex was established enabling them to coordinate political as well as economic actions (horizontal coordination). The agricultural sector thus obtained the possibility to appear as a united, homogenous actor. [Ingemann 1997; 2007]

The foundation of the huge organizational system included certain relations to the Danish state and its political and administrative apparatus. From the beginning of the transformation in the 1880s government became integrated in the dawning agro-industrial and agro-political complex. Seen in retrospective, the policy process appears unambiguous and well structured; this is characteristic both for policy formulation and implementation, where it is very difficult to distinguish economy and politics as well as private and public sector. The genetic origin of this intertwined system is to be found in the history of the Danish nation, which – until late in the 20th century – was to a large extent identical with the history of agriculture. This has been decisive for the establishment of institutions related to the policy process, and thus the foundation of a peculiar policy style. Of course, it has also had a crucial influence on the evolution in form and substance, which in retrospect is visible throughout the period. It has affected the conceptual foundation and the learning that determined which institutions have endured, which were reorganized, and which ones were abolished. It has also influenced which fields of society – economic and political, respectively public and private – were delimited as agricultural policy and the substance to put into it [Ingemann 2002]. All rural matters were seen as included in agricultural policy and the substance was a matter of opportunities for agricultural enterprise and formation of favourable business opportunities for the trade.

However, it should also be underlined, that the establishment of this organizational and complex network – involving business and politics – constituted the foundation for what can be labelled as the Danish institutional comparative advantages (see e.g. Campell & Hall 2006) and thus as a foundation of and trait to the modern Danish welfare state. The system did not only institutionalize a certain policy style but did also institutionalize certain ways of corporation – in other words, the system laid down certain rules of the game that still influence Danish society and its way of dealing with conflicts and corporation (see also Jørgensen 2002; Campbell, Hall & Pedersen 2006).

Cultural life – mentefacts

The efforts to overcome the agricultural crisis around 1880 resulted in a major restructuring of Danish agriculture, i.e. a transformation. This, however also implied major changes in the entire Danish society and laid down traces for

the future evolution of economic, political, and civic culture in Denmark. The origins of the present Danish welfare society – a small open economy doing very well, with a low degree of social inequity and few social tensions (except for some xenophobia in relation to migrants [Hedetoft 2006]) – can be found here.

The mental key to the transformation can be found in the reaction to the geopolitical catastrophe Denmark was facing due to the loss of Norway, Southern Sweden and in 1864 the northern part of Germany [Østergaard 2006]. The reaction was a popular nationalism (opposed to state nationalism [re Korsgaard 2006]) to a high degree based on the ideas of the Danish philosopher, poet, theologian and social debateur NFS Grundtvig (1783-1872). Among his ideas were what constitutes the inhabitants of a nation, binding them together as a 'people' are the common history and the mutual native language which carries the mutual system of interpretation and a frame of reference. He was also influenced by impressions from industrial Britain and astonished by the social inequity which he found inhuman. He was thus marked by the same social indignation as Karl Marx but Grundtvig's answer was quite different; he argued for a more equal distribution of wealth by giving all inhabitants property rights to means of production (in the Danish case especially farmland) so that every citizen would be able to provide for himself and his family [Ingemann 1997; Vaahlin 1990].

The transformation of Denmark into a constitutional and representative democracy took place under the inspiration of Grundtvig – he participated himself in the process and was elected as member of the first parliament. His ideas also founded the basis for the reaction against the loss of the Northern part of Germany. The elite were shocked by the loss that implied that Denmark was transformed into a very small, rather poor and mentally battered nation. Grundtvig called for mental and cultural rearmament as the adequate reaction; i.e. regain strength by means of empowerment in the Danish peoples' mythology, history, poetry as well as in present human and social competencies and skills. Grundtvig thus expressed the necessity to care for both the "hand" (the material framework and efforts) and the "mind" (the mental framework and efforts). Simultaneously, Grundtvig underlined his view that the power of the nation was embedded in the people (individuals and their ability to establish powerful communities at the local, regional and national levels) and hence it was necessary to empower and provide the basis for the optimal evolution of deliberative competences [Ingemann 1997; Thanning 1972].

In line with this philosophy, the foundation for the modern Danish nation was buildt. The peasants (that obtained their property rights in the late 18th century) played a key role in the project and were thus engaged in a learning process that supplemented the skills they obtained at the new Folk High Schools etc. (based on Grundtvigs' cognitive ideas). When the agricultural crisis appeared in the 1870s they where equipped with competencies, empowerment and belief in individual and relational resources to overcome the crisis.

The peasants and their intellectual supporters managed to organize a successful transformation of Danish agriculture; and hence to transform life in the rural areas. According to their involvement in both the democratic and the ag-

ricultural project – and off course in line with the fact, that agriculture dominated Danish economy – the peasants thus understood themselves as the real backbone of the Danish nation [Østergaard 2006]. This popular understanding was maintained throughout the classical period (and to a high degree still prevails) underlined by the establishment of a strong agricultural class of petit bourgeois and the very late industrialization of Denmark [Campell & Hall 2006]. The principles of the co-operatives similarly became an integrated part of the Danes self-understanding and thus a foundation for the mental frames for interpretation, corporation and negotiation; and the mental model for understanding the mutual destiny (with agriculture as the concentric anchor point) was laid down too [Østergaard 2006, see also Campbell & Hall 2006]. This mental model also influenced the Danish social democratic party in the beginning of the 20th century. Opposite to many other European social democratic parties, the Danish party reformulated their socialistic views so that they could integrate the special consideration for the agricultural actors and their beliefs concerning their own importance and consideration for the special Danish political culture based on consensus and corporation [Østergaard 2006].

In this environment it was obvious for Danish agriculturists to make use of government as a key mean to provide strategic actions and to make use of its powers and political and administrative capacity to enhance business opportunities for trade. They saw nothing wrong in using the state as an allocation and planning tool for all trade. Politics and administration were – like the co-operatives and thus most of the agro-industrial complex – them and theirs. A tight and narrow policy community, with agricultural organizations and the Ministry of Agriculture (established 1896) as the only participant, was the result. This policy community negotiated solutions to agricultural challenges (e.g. wars and crisis) throughout the classical period. It implied a strong coordination of market activities [Kaspersen 2006] and on several occasions the agricultural organizations used governmental authorities to enable monopoly conditions and hence monopolise the home market [Ingemann 2002].

In general, the entire economic and political system was distinctly bottom-up in design and governance and agriculture was the core. This construction established and maintained a notion of a common faith by means of the intertwining of agriculture and the nation and hence business of the trade and policy of the national government.

Sum up – the classical period

Presented in bullets my chain of arguments is as follows for the classical period:

- The income crises in the 1860s and 70s marked the starting point of a new trajectory for Danish agriculture.
- The specific Danish answer to this multinational crisis was founded in deliberative competencies evolved during the preceding decades from the ideology and matching rationality of NFS Grundtvig.

- The Danish answer (high quality, manufactured and branded production of animal food) implied a major reorganising of the entire Danish society based on the same mentefacts.
- The reorganisation implied a bottom-up structure of the society where the borders between market, politics, and civil society were altered and given a certain Danish touch, including a regime that can be labelled as 'negotiated economy' and 'mixed administration'. [Pedersen 2006, Hernes1978].
- In rural space relative autonomous relations was established in the communities (in Danish labelled as "sogne") with institutions like the church, the co-operative dairy, the co-operative village hall, and the school as very conspicuous artefacts.
- The internal human relations were regulated on the basis of the above mentioned mentefacts that created relatively fixed and common rules of the game for market, politics, as well as for civil society.
- The external relations were guided by the same rules of the game.
- The entire system was based on the – then obvious – assumption that the destiny of the rural communities was closely linked to that of agriculture. Subsequently all major institutions and organisations were anchored in agriculture.
- The artefacts, sociofacts, and mentefacts were thus almost similar independent of geography.
- As a nation Denmark were depending on agriculture and hence the activity in the rural areas.
- The special organisational model applied by Danish agriculture was also adopted as an organisational model for the entire Danish society. The model originated at the bottom level but enabled agriculture to coordinate actions horizontally (economic, political and civil/civic) and vertically (local, regional and national) which gave rise to an agro-industrial and agro-political complex with a huge overall coordinative potential and a unique set of rules of the game.
- The entire system implied that the model of social organisation, and the rationality on which it was based, was similar at local, regional, and national level. Subsequently Denmark could be interpreted as one big "sogn" (local community – see footnote 3) mirroring the institutions, structures, and ideology and rationality of the local level. In other words, Denmark was buildt and was functioning as a fractal pattern. Aggregated or disaggregated, the pattern and rules of the game were similar as a 1:1 reflection.

The post-industrial period

The classical period approached the end during the 1950s. Farmers found themselves in a new income crisis but the response this time was not to start a new trajectory based on new products but rather to produce more of the same by means of industrial technology and heavy governmental subsidies. In consequence labour was substituted by capital and the number of farms currently reduced through amalgamation. Amount produced increased but income was simultaneously reduced. Thus, economic importance of agriculture declined both in relation to rural areas and the national economy (see table 2). More

than four decades after the end of the classical period, Danish rural areas today find themselves in a quite new situation.

Table 2: Relative importance of agriculture 1910 - 1996

	1910	1951	1996
Number of farms		206,000	65,000
Share of GFI	30	19	4
Share of exports		64	15
Share of labour force	42	23	7

[Hansen 1976; Ingemann 1998]

Demography and structure – artefacts

As indicated above, not only the proportion but also the nominal number of inhabitants in rural areas began to decrease already in the 1950s. In 1960 the share of the population living in rural areas was 26 percent (<200) respectively 34 percent (<1000) and in 2000 15 (<200) respectively 23 percent (<1000). In nominal figures the population in rural areas decreased too from 1.2 respectively 1.6 in 1960 to 0.8 to 1.2 million in 2000. Independently of definition the nominal number of inhabitants declined around 400,000 which – seen relative to the narrow statistical definition – amounts to a reduction of one third.

Looking at the immediate artefacts of Danish countryside and villages, the transformation is obvious too. The highly visible institutions from the past (the classical period) are still present but for the major part they appear quite different and have quite new functions – if any at all – with almost all churches and some of the assembly halls as typical exemptions. The picture that now catches the eye tends– in contrary to the classical period – to depend on geography; rural areas furthest from the expanding towns tend to fall into decay while areas close to towns marked by high economic performance tend to flourish.

In the classical period, many business units were established in the rural communities to provide inputs and services to the farms and related activities. The railway towns (typically average sized cities in a Danish context) became centres where communication, transport, some educational institutions and special input and service providers were concentrated. A great part of the precedence industrialisation took its starting point in these towns where small craftsmen and agricultural service providers made up for reduced demand from farmers by evolving industrial production of their own [Kristensen 2006].

Politics/policies, municipalities and the state – sociofacts and social institutions

From an immediate point of view, the most obvious new appearance in these fields is the show down with the "sogn" municipality as the local political governance-unit. In 1970 the around 1250 local municipalities were forced to merge into so-called "greater municipalities" (in Danish 'stor-kommuner'). The rural population interpreted that decision, taken at the national political level, as a threat against rurality and as an attempt to set aside the democratic rights of the rural communities which had established the basis for the evolution of the entire Danish democracy, politics, policy, polity, as well as of the

formation of the Danish welfare society.

Simultaneously the rural population was facing centralisation in form of a decrease in public as well as private service in the rural areas – e.g. schools were closed, shops were closed. A public discourse about such matters arose in various rural areas in the beginning of the 1970s and in 1975 the local forces were united in the establishment of a national movement of Danish villages . However it is interesting to notice that the particular establishment of that national organisation to a high degree contained some arguments for the restructuring of Danish municipalities. The village movement was indeed a symbol of "new horizons" and new rules of the game for Danish rural areas due to the fact that agriculture had lost its presidential importance. Consequently the new movement was founded by and on behalf of social groups now occupying rural areas. There were almost no agricultural organisations behind the movement and almost no agriculturists took part in the new organisation. Besides, there were almost no agricultural matters on the agenda. The agenda was on the contrary loaded with policy matters calling for revitalisation of the rural areas in the form of new economic activity and in particular provision of public and private service.

Thus, two points are crucial. First, in relation to the reduction of the number of municipalities the new movement reflected that the old structure could not cope with the new challenges and realities in rural Denmark. Second, the new movement reflected that the rural areas were no longer exclusively anchored in agriculture, and that agriculture was no longer the concentric core of Danish rurality.

The new association of villages managed to launch a new discourse of rurality where agriculture wasn't the core but where fundamental cultural values of rurality were stressed; however the new discourse was primarily addressed by means of newcomers while many indigenous inhabitants in rural areas were not keen to accept it [Svendsen 2004]. On the other hand, the answers from the national level to the questions raised by the new rural movement did only to a very limited degree reflect the new reality. The discourse about rural matters at the top political level was still at most founded in the myth about rural areas as anchored in agriculture. The reduction of farms – and the general structural transformation of agriculture based on industrial technology – was seen as inevitable and hence the decline in rural activities (including public and private service) seen as inevitable too. In other words, rural problems were still interpreted as agricultural problems, so rural solutions had to be agricultural solutions. The central position based on that myth was reflected in the first political victory of the new village movement; i.e. the formation of an official village commission.The villages' movement only obtained one seat, while agricultural organisations took two seats, ministries 9 seats and various, mostly business organisations, took 12 seats.

However, the non-agricultural discourse did have some impact on national policies. The declared central ministries related to rural policy are Ministry of the Interior and Health and Ministry of Food, Agriculture and Fisheries; in addition Ministry of Environment has played a role too. The Ministry of the Interior launched The Rural Community Fund under the motto "Let a

thousand flowers bloom". However, in general central government funds allocated to rural policy (except the agricultural part) have been small and funds obtained from EU have been used primarily in connection with agricultural purposes, including environmental improvements in relation to farming. The projects that have obtained support have primarily been small and aiming at deepening local engagement. Further, rural policy has (again except for the agricultural part) been thrown on local and regional levels and without any obvious coordination or mutual policy aims. [Tanvig 2007]

Policy addressing rural challenges was still to a very high degree agricultural policy but with supplementary, broader, uncoordinated projects as appendices.

Cultural life – mentefacts

There is a path dependency that also implies that the frame for interpretation of rurality is still founded in the picture of rural areas in the classical period. In spite of the fact that the rural areas are now populated with people who are not related to agriculture, and that the agriculturist are no longer neither the economic, political nor cultural engine in rural areas, the myth prevails (Frandsen 2007). The major proportions of the current inhabitants are parts of new virtual and physic networks based in urbanity. This rurbanisation and virtualisation of rural life is not yet clearly reflected in the mental patterns. The national association of villages tried hard – as a deliberate campaign institution – to alter the general discourse about rural agenda into a more post-industrial trait. However, the efforts haven't been convincingly fruitful yet.

The mental pattern is possibly also reflected in Danish rural research. It's only during the last few years that rural researchers have begun to make research without agriculture as the focal point. Attempts to lay down a more comprehensive perspective, reflecting the new realities and challenges of current rural areas, are still vague and preliminary [Tanvig & Svendsen 2007].

Sum up – post-industrial period

For the rural areas in the post-industrial period the chain of arguments is:

- From around 1960 the transformation of the agricultural sector into an industrial, technological regime gradually implied radical changes for the rural areas.
- Relative economic importance of agriculture declined in general.
- The industrial technology applied to farming, implied that the number of farms declined, that the workforce engaged on farms declined, that the local manufacturing and servicing of agriculture was concentrated on few plants, often in urban areas, etc.
- Due to the decreasing number of rural inhabitants engaged in farming, and also to some degree due to a cultural shift amongst farmers (the peasant identity substituted by a business identity), agriculture also lost its presidency and dominance as political and cultural dynamo and power.

- Rural inhabitants gradually changed so the rural constituency to a still larger degree consists of wage-earners engaged in urban trades.
- The interdependence, and hence the mutual destiny between agriculture and the rural communities, was gradually dissolved.
- Thus, rural areas are no longer anchored in agriculture.
- The nation is in general no longer dominated by agriculture but to a higher degree by secondary and tertiary trades.
- The political structures have been altered in consequence. For instance local authorities have in 2007 been concentrated into around 90 municipalities consisting of a varied mix of rural and urban areas.
- The general evolution of a polycentric society has also influenced societal life and structure in the rural areas. The local physical space is no longer the basis of the inhabitants' actions related to market, politics and civil society. Virtual space and physical space in local urban areas have become just as – and even to some degree more – important than local space. [Quortrup 2003; Castells 2000].
- The prosperity outlook and social challenges for Danish rural areas are no longer equal or similar. Now they depend on the distance and relation to growth centres.

So, what's the lesson?

It follows from the above that the general and universal fractal pattern has dissolved and has been substituted by a much more blurred and differentiated picture of Danish rural areas. Consequently, the reflection of the disaggregated level at the aggregated does no longer exist and simultaneously the equity between the various Danish rural areas has disappeared. The rules of the game are different on local and national level and different amongst various local communities too. To maintain a mental model based as if the fractal pattern still exists is thus inadequate as it block up possibilities to meet current challenges with adequate answers.

The challenge seen from a policy angle is then that the various rural areas in Denmark are facing different challenges and possibilities and hence must be treated by different policy means. Similarly, the economic challenges and possibilities are different which imply that acting as economic agents the answers and responses must be different too. Finally, also the civil societies as well as civic structures are different and must be handled in that respect. However, the general problem in Denmark has been – and to a high degree still is – that rural areas are conceptualised and understood as if they were still functioning in the classical period – that is still anchored in agriculture. Hence the actions taken are inadequate both in the fields of economics, politics, and civil society. It's not so much old business that's the problem facing us now; the problem is rather lack of foresight. To obtain a new conceptualisation and understanding of the current realities in contemporary rural Denmark is a necessary (although not sufficient) condition to evolve new adequate business opportunities enabling us to find adequate innovative substitutions for old business.

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Akureyri's Regional Growth Agreement

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Abstract

This paper aims at looking at Akureyri´s Regional Growth Agreement. This agreement was made in 2004 in order to enhance the Eyjafjörður area as a popular place to live. The programmer adheres to theories on company clusters, whereby business firms, institutions and municipalities join hands to stimulate the economy.

Migration from the Icelandic countryside and provincial towns to the capital area is a serious problem in Iceland. Since 1978 the national government has presented Regional Development Plans for periods of four years at a time. In spite of these plans they have not been able to stop this population development. The "new" approach in Iceland to try to stop this is by growth agreements based on the cluster concept. The aim of this agreement is mainly to strengthen the Eyjafjörður area as an attractive place to live and increase its economic growth and competitiveness. Four clusters are operating, i.e. the food innovation cluster, education and research cluster, health cluster and tourism cluster. Over 500 people have participated in cluster activities, with around 150 companies and institutions sending their representatives to workshops and introductory meetings. It is very clear that the growth agreement has had a positive influence in the area. Akureyri's Regional Growth agreement ends in 2007 but it can be expected to last longer, but not under the auspices of government agencies, but under the auspices of the companies themselves.

Key words: Cluster, Growth Agreement, Regional Development Plan and Economic growth

Introduction

This paper aims at looking at Akureyri´s Regional Growth Agreement, an agreement which aimed at speeding up the pace of economic growth and enhancing the overall quality of life. It was late in 2004 that work, based on a cluster concept, began on Akureyri's Regional Growth Agreementas a continuation of preparations for a special Regional Development Plan for the area surrounding Eyjafjörður fjord,. The project continues until end of 2007 (Annual Report 2005).

Clusters represent a new way of thinking about national state, and local economies, and they necessitate new roles for companies, government, and other institutions in enhancing competitiveness. Clusters, or critical masses of unusual competitive success in particular business areas, are a striking feature of virtually every national, regional, state, and even metropolitan economy, especially in more advanced nations (Porter, 2000). The success of Silicon Valley and a few other places has triggered a substantial amount of theoretical and empirical research in order to understand the underlying forces that propel such vibrant and dynamic geographic clusters. All over the world policymakers have tried to copy the success of Silicon Valley and similar international growth poles.

The area of Eyjafjörður is the part of Iceland which is most often suggested as closely approaching the capital city area in the options offered for people choosing a place to live. In many respects, employment developments in the Eyjafjörður area have resembled those in some other parts of Iceland in recent years. The number of jobs in primary production sectors has decreased proportionally, at the same time as jobs in public services have increased. It is clear that the area of Eyjafjörður possesses much strength which can provide a basis for development programmers comparable to Akureyri's Regional Growth Agreement. This area has the image of a counterbalance to the capital city area. It has natural beauty reputed throughout the country, its economy has a tradition of production and manufacturing, its culture and history offer strengths for developing tourism – the list goes on and on.

Why growth agreement?

Social and economic changes in Iceland in the last decades of the 19th century resulted in changes in the population, which had two main characteristics. Firstly, the population increase in the 20th century was among the highest of any western nation and secondly, the population accumulated in towns and cities to a larger extent than in the other Nordic countries. Thus by the end of the 20th century more than 60% of Icelanders were living in the capital area. So in short, the population in Iceland tripled from the year 1910 and until 2000 but this increase ended almost entirely up in the capital area, Reykjavik and neighbouring municipalities and to a much lesser extent in the Eyjafjörður region in north Iceland (Ólafsson and Gíslason, 2006).

In the past 100 years or so, politicians have regularly expressed concern about the population development. Since 1978 the national government has presented Regional Development Plans for period of four years at a time. In spite of these plans they have not been able to stop this population development and one thing is certain: migration from the Icelandic countryside and provincial towns to the capital area is a serious problem in Iceland. Many locations worldwide have concluded growth agreements based on the cluster concept and have achieved admirable success. As Professor Michael Porter has emphasized, 'Clusters are the building blocks of a productive, innovative economy'.

Clustering is one of the key drivers of economic growth in localities, cities and

regions. However, adopting a cluster approach is not the only way of encouraging regional economic growth. Informal networking, developing supply chains and improving workforce skills all have a role to play in improving competitiveness and creating growth. But taking on a cluster-based approach to economic development can prove to be very useful because the concept represents both a method to analyze the economy as well as a new approach to practice economic development. By focusing on clusters, forms(?) firms/companies often are much more interested and engaged than they are in broad efforts that necessarily gravitate to general issues such as tax policy and export promotion. Business-government-university dialogue moves to a more concrete level at which action can be taken. Cluster initiatives not only can bring focus to questions of government policy but also can reveal and help to address these issues within the private sector (Porter, 2000).

Clustering can bring a wide range of benefits to both business and the wider economy.

These include:

- Increased levels of expertise. This provides sourcing companies with a greater depth to their supply chain and allows for the potential of inter-firm learning and co-operation.
- The ability of firms to draw together complementary skills in order to bid for larger contracts than as individual units.
- The potential for economies of scale to be realized by further specializing produc-tion within each firm, by joint purchasing of raw materials to attract bulk discounts or by joint marketing.
- Strengthening social and other informal links, leading to the creation of new ideas and new businesses.
- Improved information flows within a cluster, for example, enabling financers to judge who the good entrepreneurs are and business people to find who provides good support services.
- Enabling the development of infrastructure of professional, legal, financial and other specialist services.

What is a cluster?

Clusters have long been a part of the economic landscape, with geographic concentrations of trades and companies in particular industries dating back for centuries. The intellectual antecedents of clusters date back at least to Marshall (1890/1920), who included a fascinating chapter on the externalities of specialized industrial locations in his Principles of Economics[12].

Clusters provide a vehicle to bring companies, government, and local institutions together in a constructive dialogue about upgrading, offering a new

[12] Readers can find a full treatment of the intellectual roots of cluster thinking in Porter (1998a).

mechanism for business-government collaboration. Professor Michael E. Porter defines clusters as follows: "Geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (for example universities, standard agencies, and trade associations) in particular fields that compete but also co-operate" (Porter 1998a:197).

Clusters are concentrations of highly specialized skills and knowledge, institutions, rivals, related businesses, and sophisticated customers in a particular nation or region (Porter, 2000). The links between firms are both vertical, through buying and selling chains for example, and horizontal, through complementary products and services, the use of similar specialized inputs, technologies or institutions, and other linkages for example. Most of these linkages involve social relationships or networks that produce benefits for the firms involved (A practical guide to cluster development).

Clusters develop over time; they are not a phenomenon that just appear or disappearover night. While the exact understanding of the evolution of clusters is still the subject of much research, a number of observations emerge from case studies and the conceptual thinking. For many clusters, the roots of their development go back many years. The steel industry around Pittsburgh, for example, owes its existence to the deposits of coal in the region that provided affordable energy. Today, there is still a huge cluster of steel and other production technology companies located around the city, although the local coal deposits are of little remaining importance. Natural factors like resources or the location at a major trading route or river can have effects on the presence of specific clusters that are felt many years after they have lost their direct influence. Another root for cluster development can be the existence of initial institutions, such as companies or universities, which over time act as an anchor for the cluster spinning-off new businesses and attracting the investment from companies outside the region. In San Diego, the presence of the U.S. Navy with a leading communications research facility provided the ground for the development of a dynamic telecommunication cluster around Qualcomm. In North Carolina, the network of universities in the Research Triangle in the 1960s led to the development of one of the leading biotech clusters in the U.S. (Ketels, 2003).

Clusters develop and are important because they create economic benefits. The benefits of a cluster come in three dimensions[13]: First, companies can operate with a higher level of efficiency, drawing on more specialized assets and suppliers with shorter reaction times than they could in isolation. Second, companies and research institutions can achieve higher levels of innovation[14]. Knowledge spillovers and the close interaction with customers and other companies create more new ideas and provide intense pressure to innovate while the cluster environment lowers the cost of experimenting. Third, the level of business formation tends to be higher in clusters. Start-ups are more reliant on external suppliers and partners, all of which they find in a cluster. Clusters also reduce

[13] See Porter (1998a).

[14] Because of the critical importance of innovation for advanced economies 'innovation clusters' have become a particularly popular topic. See OECD (2001) and Monitor Company, Council on Competitiveness, and Michael Porter (2001).

the cost of failure, as entrepreneurs can fall back on local employment opportunities in the many other companies in the same field.
These benefits are important both for cluster participants and for public policy. For companies, they create additional value that outweighs the often-higher costs of more intense competition for specialized real estate, skills, and customers at the location[15]. They are thus the reason that clusters emerge naturally from profit-maximizing decisions. For public policy, higher productivity and innovation in clusters are critical because they are the factors that in the long term define sustainable level of prosperity in a region. Note, however, that the interests of these groups are not identical: Public policy is not concerned about the distribution of the cluster benefits among companies, employees, and owners of critical assets such as real estate, while company owners clearly are (Ketels, 2003).

Akureyri's Regional Growth Agreement in brief

Akureyri´s Regional Growth Agreement started 2004 and the first entire year of operation under the Growth Agreement was 2005, when the activities of every cluster were launched. Growth agreements are a novelty in Iceland, which means that this undertaking involved ground-breaking work. Icelanders are most familiar with the growth agreement at Oulu, Finland, which served as a model during the preparation and implementation of Akureyri's Regional Growth Agreement.

The aim of Growth Agreement is mainly to strengthen the Eyjafjörður area as an attractive residence option and increase economic growth and competitiveness. Stronger population centre in Eyjafjörður brings significant benefits to neighbouring districts of Skagafjörður and Þingeyjarsýsla.

The objectives of Akureyri's Regional Growth Agreement are to achieve the following:

1. Enhance the Eyjafjörður area as a popular place to live.
2. In the period of 2003 to 2007, encourage an area population increase of 1.500.
3. Raise area competitiveness and nurture economic growth.
4. Develop and strengthen the area's growth sectors.
5. Increase the number of competitive companies and jobs, augmenting the supply of products and services.
6. Exploit the possibilities created by joining in international projects.
7. Attract international investment and knowledge.

It is a programme in which public and private bodies cooperate on building up the area's commercial sector, based on government strategies in regional development and priorities of the Minister of Industry and Commerce. The growth agreement is led by Akureyri's Region Business Agency. The parties to the

[15] For the implications of clusters on company strategy see Porter (2000b) and Ketels (2002).

Agreement are obligated to contribute funds and/or expertise to Akureyri's Regional Growth Agreement. Funds contributed directly to the Agreement total IKR 142.5 million during the period of the Agreement, in addition to contributions of ISK 35 million in the form of specialized expertise (Annual Report 2005). The growth agreement sets out a framework for practical action centered on the four clusters that form the foundation of the growth agreement.

Governments at central and local levels have key roles in initiating and supporting clustering initiatives. It is often assumed that government should either leave clusters to the private sector or perform a very limited role. While it is certainly true that governments should avoid trying to create clusters from the top-down, they still have a very important role to play at various levels. Firstly, like all other firm in an economy, those within a cluster need the right environment to perform effectively. Therefore, government has a key role in ensuring macro-economic and political stability, and to establishing the appropriate institutions which promote economic activities. Secondly, cluster development/support is but one of a number of initiatives within a wider local economic development (LED) strategy. For LED to work, local government needs to be assigned appropriate levels of responsibility and resources.

Looking specifically at cluster development, government has a significant part to play in promoting and facilitating local co-operation. There may be intense rivalry between firms operating in the same sector. These firms may have never considered talking with their competitors let alone working with them. Therefore, government has a role to play in kick-starting the clustering process, so that clusters do not simply remain clumps of collocated activities, but begin to reap the benefits of deliberate joint action. Nonetheless, the residents' own knowledge, interest and energy are what matters most.

The Akureyri's Growth Agreement ends in 2007. If all goes well, it can be expected to last longer, but not under the auspices of government agencies, but under the auspices of the companies themselves.

Clusters in Akureyri's region

Every region has some distinctive characteristics and one or more concentrations of interdependent firms that are above national average concentrations, even if they do not meet commonly accepted definitions of "clusters". We do not intent to settle the question of just what constitutes a cluster, but we will set out seam of the assumption about them that underline the subsequent suggested actions (Rosenwelt, 2002).

No one has decreed the Hollywood should be the world's entertainment capital or the Silicon Valley should become the pre-eminent hi-tech cluster globally. Wall St. has evolved to become the financial centre of the Americas; Udine in Italy the main chair manufacturing location globally; Bundaberg in Queensland the main capsicum exporting region in Australia; Sialkot in Pakistan the world's largest producer of soccer balls; and the Medicon Valley the primary

pharmaceutical centre and garments producers. These concentrations of specialized economic activity have naturally developed over time. The origins of each of these concentrations, or clusters, certainly differ. Professor Michael Porter identifies three main "determinants" which lead to local industry or cluster formation:

- In initial advantage in factors of production,
- The presence of related and supporting industries and
- Demand conditions.

The three main determinants of cluster formation constitute three out of the four corners of Porter´s "diamond"[16]. Added to the mix is competitive rivalry between firms, which promotes innovation and upgrading. It is the interaction of these four factors, which helps build the competitive advantage of the cluster, which is strong in just one or two areas, for example the presence of a local resource, needs to address its weaknesses in the other areas if it is to fully develop.

Those branches of employment which already have a solid foothold in the Eyjafjörður area are the point of focus, and they receive added support in dealing with international competition. Companies in the Eyjafjörður area can, however, be said to have greeted this novelty with enthusiasm; they thus play key roles in all four clusters that are operating, i.e. the food innovation cluster, education and research cluster, health cluster and tourism cluster (Annual Report, 2005).

Food innovation cluster

The core of North Iceland's economy and rural Iceland as a whole are primary industries. These are mainly fishing but also agriculture and the processing of agricultural products. The area holds some of the largest and most modern fisheries in Iceland with many specialized service companies, among those are a shipyard, fisheries equipment, ship engineering etc. The fisheries sector is an export industry and has therefore more multiple effects on the economy than other industries and therefore it can be said that fisheries is the most important industry in the area. The food innovation cluster aims to: (1) show how the industry's competence can be further enriched through increased investments in research and education, (2) stimulate continued improvement and growth for the local food production, (3) improve knowledge generally about the significance of the business, and thereby market the region to make it even more attractive for both people and companies and (4) work to assure that the food industry in the region enjoys conditions comparable to those in other parts of Iceland as well as abroad.

Education and research cluster

The education system in the area is, considering its population size, very good with two secondary schools and one university. There are about 23.600 inhabitants in the area. The primary schools are considered to be very good with qualified teachers coming again from the Seminar at the University. Educa-

[16] For more information of the "diamond", see Porter (1990).

tion is therefore a big part of Eyjafjörður economy and as a support for other industries. The future vision of the Leadership Group in the Education and Research Cluster states the group's aim of becoming a vigorous platform for cooperation among companies, institutions and students in all field of education and research, with special emphasis on the concerns of the Far North and environmentally friendly energy (Annual Report 2005).

Health cluster

Another important service is health care that is extremely good in the area. The biggest hospital outside capital area is in Akureyri with many other institutions in this field. Health care is another cornerstone of the economy. The Health Cluster is a forum for the cooperation of companies and institutions in or near the Eyjafjörður area which work in the health services and health-related services. While the most extensive operations are hospitals, along with health care and geriatric services and the educating of health professionals, there is an assortment of other activities supporting these operations, directly and indirectly. The goal of this cluster is to improve services to customers, both those nearby and farther away, by means of active cooperation, product development and research (Annual Report 2005).

Tourism cluster

Tourism has been growing fast in Iceland for the last few years. Number of tourists to Iceland now exceeds the total population (320.000) and is Iceland among few countries in the world where this has happened. North Iceland has got its share of this and tourism is now a big industry but it is however seasonal with tops in the summer and few are arriving during the high winter time. The Tourism Cluster's task list and action plan at the beginning of its activities in 2005 was based on discussions that had taken place in the Cluster's Leadership Group. Work was based on the approach of the balanced scorecard, whose strategy encompasses four perspectives: financial, the customer, internal business processes, and learning and growth. The main areas of emphasis in the cluster's undertakings were arranged with reference to the focal points of the Tourism Marketing Office. It is clear that cluster efforts will hinge around the so-called learning and growth perspective, i.e. that the strengthening of education in the field and the development of knowledge and communication of information within it will reinforce its foundations and thus enable the industry to grow and prosper, at the same time making it increasingly competitive.

Much work has been done in each cluster and during the term of the Growth Agreement so far, some 500 people have participated in cluster activities, with around 150 companies and institutions sending their representatives to workshops and introductory meetings. But some clusters are doing better than others and in some it is easy for people to work together and harder in other clusters. Why is one cluster more successful than another in less advantaged regions? Even holding market conditions constant, some clusters, for example, do better because they are able to innovate and develop new comparative advantages or perhaps because they have the foresight to shift their competencies to new markets. Rosabeth Moss Kantor has attributed economic success to three factors: concepts, connections, and competencies[17].

[17] Rosabeth Moss Kantor, World Class, New York: Simon & Schuster, 1995.

- Concepts: Innovation, imitation, and entrepreneurship are what propel virtually all competitive clusters. While the success of an individual firm may depend on its ability to protect its own technological advances, new products, or designs, the success of the cluster in which it operates depends on the opposite-widespread diffusion, access to new innovations and information, and spin-offs of new enterprises. The porosity of clusters presses competitors within the cluster to continually improve and innovate in order to maintain their advantages over imitators.
- Connections: The most successful clusters build mechanisms that can speed the movement of ideas, innovations, and information from firm to firm throughout the economy. The dynamics of clusters, not the individual accomplishments, create the learning region and innovation cluster. The mechanisms and entities for collecting and dissemination knowledge -the gatekeepers, brokers, and intermediaries that encourage and facilitate all forms of associative behaviour – provide the value embodied in social capital that is so important to cluster competitiveness.
- Competencies: Although many factors affect the competitive advantages of clusters, none is as important as the competencies they embody. Learning and knowledge transfer represent the lifeblood and skilled labour the gene pool of clusters. (Jane Jacobs, 2000)

Measuring of Akureyri's Regional Growth Agreement

It is clear that establishing a set of metrics that are capable of tracking the performance of a cluster over time and space is important for:

- Assessing the impact of cluster measures; and
- Benchmarking performance.

Understanding the different elements of clusters and their respective performance is an important step in identifying where clusters might be strong or weak and where subsequent intervention might be appropriate. This involves quantitative and qualitative analysis. Quantitative analysis might include statistical or numerical analysis on variables such as employment or output. Qualitative analysis might include discussion with businesses in the cluster over the innovative content of projects, or an assessment of the 'softer' dimensions of the cluster.

Policy makers will want to know whether interventions adopted to improve cluster performance have achieved their intended goals. They will also want to know why interventions have not been successful. This can help to identify whether a particular policy approach is effective, whether it is efficient and whether it is appropriate. Measuring success can be undertaken in an absolute sense, i.e. has the intervention achieved the aims it has set itself, but might also be considered relative to other possible actions, or similar approaches adopted in other locations. Regular monitoring will also help to ensure that the intervention is being implemented as planned, and having the intended effects, act-

ing as an early warning of any potential difficulties.

Measuring the success of different interventions contributes to the monitoring and evaluation of cluster development policies as a whole. It is important to understand whether success or failure is due to the interventions adopted or to outside factors beyond the control of policy makers.

According to 'A Practical Guide for Cluster Development' cluster measurement may seek to identify three key things:

- The appropriateness of interventions: Assessing whether the policy or intervention is relevant with regard to the technical, social or economic problems it is meant to solve.
- The effectiveness of interventions: The fact that expected effects have been obtained and that objectives have been achieved. Calculated by relating an output, result or impact indicator to a quantified objective.
- The efficiency of interventions: The fact that the effects were obtained at reasonable cost. An efficiency indicator is usually obtained by dividing the budgetary inputs by the quantity of effects obtained.

In Akureyri's Regional Growth Agreement we evaluate the seven objectives of the agreement. What we really did was that we analyzed each object of the growth agreement separately, found appropriate indicators for each one of them and started to collect data. We evaluate those objectives every year but we have decided three breaking points during the lifetime of the project. That means we collect a lot of data about „point of departure", (year 2003) then we measure again in the middle of the project and finally at the end of the agreement period. We use both secondary data and primary data, primary data are mainly surveys. We evaluate the companies, both the core and the periphery. We evaluate selected R&D along with other institutions. We evaluate selected relationships; both core and periphery and finally we evaluate the "degree of mobilization" to the clusters. In other words we evaluate current conditions (inputs) and current performance (output). We accept that we are not evaluating everything. We also use a lot of information from the cluster work.

One of the purposes of the evaluation is to demonstrate value for money to government, to facilitate business planning to ensure objectives are met and to decision making by Akureyri's Region Business Agency management regarding ongoing funding and initiative objectives. The purpose of the m evaluation is also to provide data to benchmark growth of cluster and influence over time, facilitate strategic planning for cluster as a whole and to facilitate business planning to respond to cluster needs. Basically we can say that this evaluation is a late stage of a continuing cycle to answer question like: What are we doing? Why are we doing it? What are we getting out of it? How can we get more? The key word is learning. The more that evaluation is part of the cluster development process, the easier it is to understand and analyse that process.

Conclusion

Clusters represent a new and complementary way of understanding an economy, organizing economic development thinking and practice, and setting public policy. The state of clusters reveals important insights into the productive potential of an economy and the constraints on its future development. A cluster approach to economic development encourages behaviour that is procompetitive. (Porter, 2000)

Migrations from the Icelandic countryside and provincial cities to the capital area and uneven economic growth between regions is a serious problem in Iceland. Using growth agreement based on the cluster concept is a way that has considerably increased the pace of economic growth in certain regions such as the Eyjafjörður region. First indications show that population in the area has increased a little bit, but not nearly as much as the agreement expected. It is still rapid positive population development at the capital area from the countryside but not nearly as rapid as three years ago. Many projects have been established through Akureyri's Regional Growth Agreement and people in the regions have become more optimistic than before. It is very clear that Akureyri's Regional Growth Agreement has had a positive influence in the area although the agreement has not yet nearly reached its ambitious objectives. Much work has been completed and much still to do. Our experience is that cluster work is a long-term project which requires thorough preparation. It is not a quick fix. You can not expect it to have impact on the society until after at least two or three years. But it is definitely working in a positive way.

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Horse farms as a factor for development and innovation in the urban-rural fringe with examples from Europe and Northern America

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Abstract

Rural areas around the world are facing increasingly complex land use and development issues. To have truly vibrant and innovative rural areas, attention must be given to current trends in rural land use. One trend that has been noted in several developed countries in recent years is the increasing popularity of horse keeping.

Sweden and the province of Ontario, Canada are prime examples of this trend and similar patterns can also be found in countries such as Ireland, UK, and the USA. Horse keeping is an interesting land use topic as horses are generally not kept strictly for economic profit, such as cattle would be, but are instead often kept for recreational purposes or simply as companion animals. This means that there is an excellent example of multifunctionality related to horse keeping as this industry connects with a number of different areas e.g. agriculture, recreation, landscape aesthetics, cultural heritage and rural planning. This paper will discuss issues related to horse keeping in rural areas including the economic impact of the horse industry, social and environmental issues, and areas of potential conflict and opportunity. Special focus will be on similarities and differences between Sweden and the province of Ontario, Canada.

Both Sweden and Ontario show similar trends in horse keeping and provide an interesting case for comparison. The number of horses in Sweden is estimated at 280 000, while in Ontario, the number is about 330 000. In Sweden, the estimated number of horse facilities is 56 000 which is only slightly higher than the estimated 53 500 horse facilities in Ontario. The economic impact of the horse industry in both areas is substantial with the Swedish horse industry estimated at an economic turnover rate of 6.6 billion dollars. The annual economic impact of the equine industry in Ontario is estimated at 579.1 million dollars and the investment in fixed assets is estimated to be 5.9 billion dollars.

Currently, there is a lack of understanding and research regarding the ecological, social, and economic functions of horse keeping in rural areas, particularly

as it would apply to innovation in the urban-rural fringe. As society continues to place increasing levels of demands on rural landscape and as the equine industry continues to grow in popularity, there will be an even greater potential for both conflicts and innovative opportunities. Issues of potential conflict include right of access for trail paths, multiple uses of trails, smells and dust from equine facilities, traffic concerns and public safety. Opportunities for rural areas to benefit from an increased number of equine facilities include the potential for preservation of aesthetic landscape scenery, economic spin-offs for the local economy, increased tourism and recreation opportunities, and a population with a vested interest in the region. The equine industry in developed nations must be more closely examined to understand the role that it will play in the future development of rural areas.

Key words: Horse, landscape, farm, rural-urban, land use, multifunction, planning, de-velopment, innovation

Introduction

Rural areas around the world are facing increasingly complex land use and development issues. To have truly vibrant and innovative rural areas, attention must be given to current trends in rural land use. One trend that has been noted in several developed countries in recent years is the increasing popularity of horses and equestrian activities. The urban-rural fringe area surrounding larger cities is becoming increasingly important as an area where horses and horse farms are becoming more popular but along with increased numbers and popularity, there are indications of an increase in the potential for conflict with competing demands on the landscape. To further investigate this issue, two different studies of the impact of equine activities in the urban-rural fringe have been started independently of each other in Sweden and Canada.

The studied area in Canada is the Greater Golden Horse Shoe Area (GGHA) surrounding the city of Toronto. The area covers 31 465 km^2 and the total no of inhabitants is.4.2 million; in average 136 inhabitants per km^2. This area is compared with Sweden which covers an area of 449 964 km^2 and has 9.1million inhabitants; in average 21.9 inv/km^2.

General Trends

Horses are consistently gaining in popularity. In many western counties they have today surpassed traditional agricultural commodities such as poultry and egg, beef cattle, and vegetable production in terms of gross farm receipts. The number of horses in Sweden has increased from 70 000 in the 1970's to 283 000 in 2004, which results on an average of one horse for every 30 people in Sweden (Swedish Board of Agriculture 2004). These horses are kept at approximately 56 000 horse facilities (Swedish Board of Agriculture 2004). It is estimated that there are 325 000 horses living in Ontario on approximately 53,485 horse facilities (Wright 2005). The number of horses has increased by 8.9% since 1986 in Ontario and it would appear that this trend will continue into the future (Wright, 2005).
The annual economic impact of the horse industry in Ontario is estimated at 579.1 million dollars and looking at the current number of horses in Ontario

of 325,156, the average annual expenditures on horses may be calculated at approximately 557 million dollars. In Sweden the corresponding figure is 6,6 billion dollars, 2.8 billion of this is directly attri-buted to the equine industry and the rest is attributed to indirect and induced effects(Johansson 2004)..

In Sweden every 30 horses create one fulltime employment (Johansson 2004). Wright and Cation (1996) estimated that there is an annual average expenditure of $1,713.00 per horse in Ontario on items such as feed, bedding, veterinary services, training, equipment, transportation and employment. The investment in fixed assets is estimated to be 5.9 billion dollars in Ontario and (Wright 2005). In Sweden the horses create business directly to agriculture for boarding, fodder, hay and grazing land equivalent to approximately 270 million dollars (Bexelius 2003).

At the same time as the number of horses has increased in Sweden, figures from the Swedish Board of Agriculture (SBA, 2004) show that the number of dairy cows in Sweden has declined by 18 % between 1995 and 2005 to a total of 393 300 in 2005. The number of farms with dairy cows has decreased by 52 % between 1995 and 2005, but the size of the production units has increased by 69 %. If the trend with increasing numbers of horses continue, the number of horses are soon equal to the number of dairy cows in Sweden. Since 1995 the average unit size has increased by 50 % (SBA, 2005). Similar trends are noted in Ontario where the number of farms has decreased from 68 633 farms in 1991 to 59 728 farms in 2001. However, at the same time, farms are becoming larger and more intensified to meet global market demands.

The horse keeping in the urban-rural fringe

Horse keeping seems to be filling in the gaps that appear in the landscape, with new animals for grazing pastureland, new people moving in to rural areas, and new uses for farms that are too small to compete in the global market place. Projects and research about development and innovation in rural areas often examine new types of enterprise in rural areas, but small land-holdings where lifestyle and recreation is combined is often forgotten since each unit is often small and not meant for economic production.

75 % of all horses and 66 % of all the horse establishments in Sweden are situated within larger cities and in the urban-rural fringe areas (SBA, 2004). At the same time the amount of public accessible land generally decreases with the size of the city. Within a radius of 1 000 meters from the city edge about 56 % of the land can be considered as accessible for the public. The main part consists of different types of forests. If the zone is expanded to 5000 meters the available land increases to 60 %. The proportion of accessible land is generally smaller the bigger the city is. Around cities with 10 000-20 000 inhabitants the accessible land within 5 000 meter is 65 % but for cities with more than 100 000 inhabitants the amount of accessible land is only 51 % (Statistics Sweden, 2000).

The horse as a tool for nature conservation and development of landscape aesthetics

Another important aspect of landscape is the aesthetic. If we want to establish a connection between the natural sciences and social sciences, we must also understand the cultural importance of landscapes and this is often portrayed through the aesthetics of landscapes. "The cultural necessity that could make patterns for healthy landscapes recognizable exists ready-made. We are deeply attached to beautiful landscapes, and we have strong cultural conventions for how an attractive landscape should look" (Nassauer, 1997). Nassauer (1997) points out the fact that both the scenic aesthetic and the "aesthetic of care are culturally ingrained and conceptually well developed". These two aesthetic concepts are also resistant to change and they create a powerful cultural force to both protect and create landscapes that serve multiple ecological and social functions (Nassauer, 1997).

This concept of aesthetic care points out an important connection to the role of the equine facilities in the landscape as horse farms are often described as scenic and picturesque. One author has noticed that this concept of horses 'improving a landscape' is a recurring theme in popular literature about horses: "Imagining horses in a suburban setting is about putting nature into existence, in one motion, wiping away what is there and replacing it with something better, something anterior, something more primitive: horses" (Holbrook Pierson, 2000). Nassauer (1997) brings up an important point in relation to protecting, maintaining or even enhancing landscape. On the other hand, there are also voices raised that claim the "horsi-culture" is a threat to the traditional farm land due to the new elements brought in to the landscape such as new stables, walkers, white fences, paddocks, riding halls and other features connected with horse farms (Svala 2002).

Obstacles and Potential Conflict

The expanding equine activities in Sweden and Ontario, Canada, may lead to potential conflicts between horse farms and the use of horses in the landscape, and various stakeholders in the community in different ways. Some of these potential conflicts include issues such as:

- Landscape aesthetics
- Accessibility
- Health and safety
- Disturbances (smell, noise, dust, insects, allergens)
- Environmental aspects
- Competing land uses.

The main objective of the present study is to enhance the knowledge of the prerequisite for horse farms in the peri-urban fringe. The specific objective is to identify current knowledge within the area with specific reference to possibilities and obstacles in the development of horse keeping. Finally the work presented in this paper aims to explore and compare the role of the horse industry in peri-urban areas in two different parts of the world, Sweden and Ontario, Canada.

Materials and Methods

This paper is based on analyses of information gathered from mainly three different sources:

- Official statistics
- Reports from official studies and political governing documents
- Research reports and personal information exchange.

Official statistics

Official statistical material about the development and trends of horse keeping in the peri-urban environment was gathered from the Government of Ontario, Statistics Canada, The Swedish Board of Agriculture, Statistics Sweden and other official reports about the economic impact on society of the horse industry in Sweden and Canada. Statistics describing trends and current development in agriculture was used to give comparable figures.

Official studies

Reports and other documentation produced by authorities, on municipal, regional as well as national levels, many of them EU- supported projects, were examined. This material was mainly from Sweden, where the development of horse keeping is better documented and the needs for further development are expressed more profoundly than in Canada. This material was reviewed in order to get an idea of the current state and needs for better knowledge about issues connected to the impact of horse keeping in the western society.

Research reports and personal information exchange

Extensive internet searches were conducted during a period of two years. Research data bases, were searched from both Sweden and Canada in order to find research material concerning the topic of horse keeping and conflicts between horse keeping, stake holders, comprehensive planning, access to landscape, and urban rural fringe. Key words used were: horse*, recreat*, equine*, plann*, conflict* culture* agriculture* combined in different ways. In addition an exchange and study tour between The University of Guelph, Canada and The Swedish University of Agricultural Sciences was performed in order to map out similarities and differences between the two countries. Thus material from both parts of the world could be included.

Results and discussions

The structure of horse industry

The horse farm in Ontario and Sweden is an example of the combined elements of production agriculture, sport, recreation, ecological management, and social and cultural values, often referred to as landscape multifunctionality. The amount of available land is decreasing rapidly when the size of the population centre increases; within 1000 meters from the edge of population centre with more than 100 000 inhabitants, there are 11 hectares per 1000 inhabitants of accessible land while the inhabitant in a population centre with 10 000 to 20 000 generally has 8 times more available land (Statistics Sweden

2000). At the same time table 1 indicates that the number of horses/km^2 is higher the closer to the city centre you are. The two areas are not directly comparable to each other, since they differ in scale, but they both give an indication of the ongoing process in rural areas.

From table 1 it is also possible to see a trend that the size (average number of horses for every horse farm) increases the closer to the city they are situated. In Sweden one region is different from the rest of the country with respect to the size of the horse farms and that is Stockholm, which is the largest city in Sweden. This is probably due to higher prices on property and land and more competition from other interests for the land. Larger horse facilities might increase the potential conflict areas between other interest groups. In GGHA the size of the horse farms increase closer to the city of Toronto. It is not comparable to Sweden because of the difference in scale between the two maps. However, the trend seems to be similar in the two areas; larger units closer to the city.

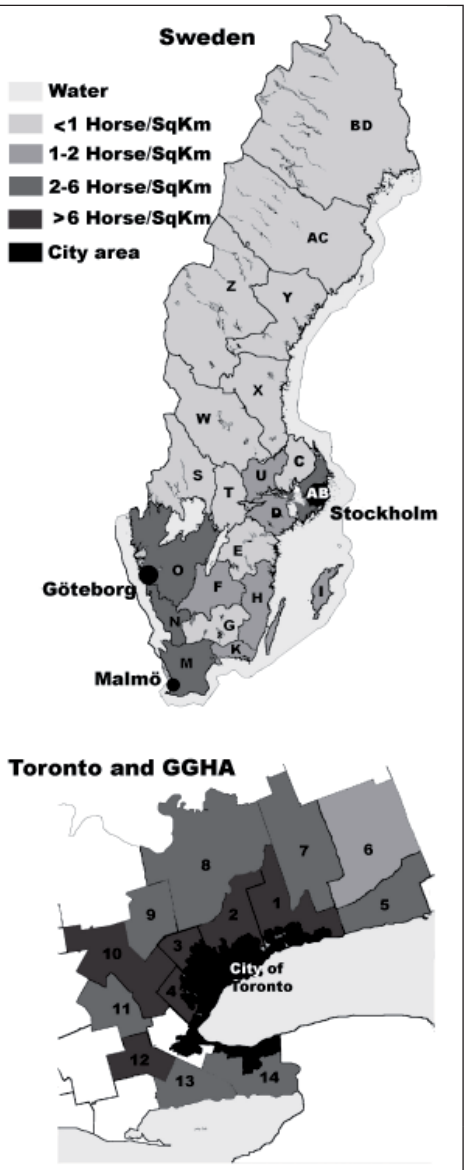
Horse farms occupy a unique space in the rural landscape, as there is high interaction between 'rural' and 'urban' within the horse industry. There is considerable heterogeneity within the horse industry ranging from 'hobby' farmers who may keep a small number of horses for personal enjoyment, to small-scale entrepreneurs, to professionals who may be involved in a large range of sport, breeding, and racing industries. This considerable range of activity reflects the difficulty in creating appropriate planning policies for the horse industry. When other agricultural commodities are declining, equestrian activities are actually gaining in popularity and will continue to occupy more tracts of land in the rural-urban fringe. As we look at policies to protect farmland in the rural-urban fringe for societal functions such as food production, water quality protection, wildlife habitat, and recreation areas, it will become increasingly important to understand how horse farms can either assist or hinder in meeting the multiple demands that society is currently placing on rural landscapes.

The current trend is to have horses increasingly concentrated in larger stables rather than having the horses dispersed throughout the countryside and this results in increased pressure on the neighbours rights of way (Ravenscroft and Long 1994). Reactions to this type of development with the characteristics of "Not-In-My-Backyard" (NIMBY) are easily started (Eklund Erland et al., 2006).

From the density perspective large areas in Sweden have got less than one horse/km2. This does not mean that these areas have no impact from the horse farms or may benefit from the growing interest of horses. From a potential conflict point of view these areas may be less interesting and this suggests the need for different planning policies and planning tools depending on what area you are looking into. This may be a matter of scale and within large areas smaller plots may have the same issue as the more densely populated areas further south.

Table 1: The number of horses compared to the population, horse farms and land area in Sweden and in GGHA, Ontario

County	Sign	No horses/ horse farm	No horses/ km²	No people/ km²
Blekinge	K	3,9	1,6	51
Dalarna	W	3,7	0,3	10
Gotland	I	4,5	1,8	18
Gävleborg	X	3,7	0,5	15
Halland	N	4,8	2,1	53
Jämtland	Z	4,9	0,1	3
Jönköping	F	4,9	1,2	32
Kalmar	H	5,0	1,2	21
Kronoberg	G	3,3	0,9	21
Norrbotten	BD	3,5	0,1	3
Skåne	M	5,3	3,2	107
Stockholm	AB	10,1	4,2	295
Södermanland	D	6,6	1,8	43
Uppsala	C	5,4	1,2	44
Värmland	S	4,3	0,7	16
Västerbotten	AC	4,9	0,2	5
Västernorrland	Y	4,0	0,3	11
Västmanland	U	6,9	1,9	42
Västra götaland	O	4,8	2,1	64
Örebro	T	4,9	1,2	32
Östergötland	E	5,5	1,5	40
Durham	1	9,9	6,3	210
York	2	12,9	8,0	431
Peel	3	16,3	6,8	829
Halton	4	14,1	10,2	403
Northumberland	5	6,4	3,0	42
Peterborough	6	6,8	1,8	15
Kawartha Lakes	7	6,8	2,9	24
Simcoe	8	8,6	3,5	52
Dufferin	9	8,5	5,0	36
Wellington	10	7,4	7,9	32
Waterloo	11	6,5	11,2	333
Brant	12	8,5	4,5	32
Haldimand	13	6,6	2,6	16
Niagara	14	7,1	3,5	229



The maps show the number of horses per km². The figures are based on information from; Statistics Canada (2006), Wright and Cation, (1996)), Government of Ontario (2006), Statistics Sweden (2006), Swedish Board of Agriculture (2004).

Identified needs of new knowledge

The reports and the seminars point out a major need for further research on issues dealing with how horse farms can be fit into society and planning systems (Peterson & Elgåker, 2007). The expressed needs of research are in the intersection between horse keeping, planning and social structure and are discussed below:

Planning tools for equine activities outside the facility

The decline of grazing animals, the economic struggle for agriculture and the

need for new business in rural and the expansion of urban settlement at the expense of agricultural land makes the issue of farmland preservation become more contentious for policy-makers and the public alike (Caldwell et al., 2007). While there has been increased attention paid to the loss of agricultural land in terms of commodity production, there has been little research on the role of the horse farm in the urbanizing zone often referred to as the urban-rural fringe.

The equestrian development has some implications when it comes to the matter of government intervention and planning for new activities outside the built up areas. There are potential conflicts connected to this sector when it comes to the use of land; the equine activities in the landscape do differ from other recreation by the fact that the horses demand space, not only for riding or driving, but also for keeping it and feeding it, this recreational tool need food, stables, fences and pasture, and the use of the horse also demands space; riding halls, arenas and bridle ways. The access issue seems to be a crucial point when development of this industry is discussed. The people performing recreational riding need to be able to ride outside their property. They want access to training facilities and nature and they also want to be able to ride circular routes (Mulder et al. 2006).

The needs of the equine sector has not been acknowledged in the comprehensive planning for recreation and as Ravenscroft and Long (1994) puts it: "Sport, recreation and tourism has become an integral part of the countryside and the rural economy and furthermoren they conclude that "the development of the equine sector is to some extent depending on what happens with the relative prosperity of farming, the intervention of government in the shape of countryside management initiatives and production controls". This point at the fact that the development of the equine sector is depending on concurring factors; development of agriculture, comprehensive planning, economic development in society as a whole and lifestyle issues. It is important to assess and understand the development of the industry connected to horses and also to proceed further research in the development of "equestrianism" on farms on the urban rural fringe (Quetier and Gordon 2003). The experienced disturbances from equine activities in densely populated areas regarding smell, dust, noise, insects and allergens has also been acknowledged as an important topic for planners in Sweden. Additionally how to fit the horse facilities into the city structure, making it a benefit for the people living there, not a threat to their wellbeing, safety and health is also regarded as an important issue.

Equine activities promoting rural and regional development

In recent studies in the Nordic countries, it has been observed that equine industries bring new market driven opportunities to local farms and businesses as the people involved in equine farms tend to 'out-source' a significant amount of farm-related functions such as fieldwork, feed, and bedding (Rantamaki-Lahtinen & Vihinen 2004). As many equine facilities, such as the smaller 'hobby' farm, would not have any 'farm income' to report their importance for the development of the equine industry often becomes underestimated. It is important to remember that all the surrounding industry with farriers, veterinarians, food suppliers, trainer and so forth are actually made possible because of all the small horse farms. They also create a customer potential for big-

ger enterprises. The other aspect of this is that from a municipal tax payer perspective, it might be better with several "hobby farmers" paying their tax, having their children in the local school and buying their milk locally. Providing equine services has an advantage of being a known technology for the farmer and making use of machines, land and labour. Another advantage is that the market is relatively closed, meaning that the competition is limited (Bailey, Williams et al. 2000).

The economic importance of horses for leisure, not just for sport or gambling, has also been acknowledged (Sumelius 1991). The knowledge of the structure and potential problems connected to this growing sector has been neglected, both from a research perspective and from society. As Bailey et al point out "there is a lack of research carried out into the economics of equine services". The whole structure of the equine industry must be investigated in order to be able to understand the full extent of the economic importance of equine activities especially in the urban-rural fringe. Bailey et al (2000) also point out that: "as long as sufficient population density exists within easy travelling distance, then the production of equine services will provide a viable 'land using' service alternative to traditional commodity production for many farmers. This is also concluded by (Ilbery 1991). The main rural recreation sites are found in the least populated and peripheral (tourist) areas, whereas most demand comes from the more heavily populated and prosperous agricultural lowlands".

New technology for horse farming

The horse keeping is at a low level when it comes to horse management and modern stable design. The technology for housing, health, safety (both for the horses and humans) and working environment is underdeveloped. The need for research in this area is clearly expressed (Peterson & Elgåker 2007) and necessary to deal with if the industry shall have a successful future. Even small and semi large horse farms need modern technology that fits together with the developed technology within modern agriculture. As mentioned earlier in this paper, the addition of new elements in the landscape may not always be a benefit to accepted landscape aesthetics. This is an important topic of future research; how to convert old farm buildings into new equine commodities and how to make new horse farms fit into the landscape.

Nature conservation, biodiversity and other environmental issues promoted by equine activities in the landscape

As far as the ecological functions of horse farms in the rapidly changing urban-rural landscape, there is potential for important roles in terms of groundwater recharge areas (particularly since large tracts of land are generally left in pasture), wildlife habitat, soil fertility, and surface water control. However, at this stage it is not fully known what impacts the typical equine operation has on the environment or what the owners' attitudes are towards ecological functions. This would be an important field of study as we continue to see increasing numbers of horses and horse facilities in rapidly developing regions such as Southern Ontario and Sweden. This sentiment is echoed by Herlin (2004): "Horse keeping has a potentially great importance in the transition of the rural landscape from a production landscape to a multifunctional landscape". Herlin (2004) further on suggests that many of the most well know natural areas in Europe, such as the New Forest in the United Kingdom and the Ca-

marque in France, have a long-standing association with horse grazing and that these areas are also important for recreation and eco-tourism. However, there is little known about the interactions of horse farms with the landscape in the fringe areas near urban centres (Herlin, 2004). This also makes the horse more interesting as a tool for nature conservation, both aesthetically and economically.

The impact of horse keeping with respect to nutrient leakage and other environmental questions connected to keeping animals on many but small units without economic gain can be discussed. What demands can be made on these small units when it comes down to sustainable development and recycling? Because the development of the equine industry has been quite rapid these questions are urgent but research focused on the emerging issues related to horses and horse farms in the urban-rural fringe is not up to date.

The horse as a part of the culture, both within the rural society today and historically

In order to make the equine industry a sustainable and beneficial element in peri urban and rural areas the historical and cultural aspects need to be understood. To be able to understand the development, the factors that have led to the present situation need to be acknowledged and interpreted. The horses and the horse keeping have different prejudices that come from their different uses by man; as a tool for power, wealth and oppression but also as a necessary transport aid, and for managing land (Svala, 2002). To be able to manage this growing sector and to make it less incoherent and dispersed, it is important to understand the historic role of horses, today and in the future.

Conclusion

If the trend of increasing interest for horse keeping continues this will have some important implications for planning the horse keeping and the use of the horses in the urban fringe areas;

- The structure in the landscape created by the horse farms need to be investigated further: the amount of grass land, the bridleways, locations of hot spots and expressed needs from the people that have the horse.
- Big horse farms often become hotspots, they also tend to attract the development of small farms because they often have good riding facilities and service within reach, making clusters that need to be planned with respect to health, safety and accessibility issues.
- Many horses on one spot may accelerate conflicts with other residents and stakeholders.
- The wear and tear on roads and properties increase in a cluster.
- The environmental impact from the horses may increase when they are brought together in fewer spots.
- The horse farm provides an excellent object for analyses with a multifunctional approach as it combines interactions with production agriculture, recreation, economic spin-offs in terms of investments and employment,

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and socio-cultural elements such as aesthetics and the strong connections between horses and humans.

The equine sector is becoming too big and the phenomenon is too world-wide spread to ignore as it as a very important source of income for farmers and other entrepreneurs on the urban-rural fringe, and a force for environmental quality, and landscape aesthetics but also as a potential conflict with all those interests. Horses provide a variety of factors for development and innovation in the urban-rural fringe, but further research is required to fully understand the interactions.

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Villages in Landscapes - the importance of appearance

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Abstract[18]

For more than 30 years the physical environment (buildings, gardens, roads and spaces, etc.) in Danish villages has undergone dramatic changes. Many villages close to the bigger towns have grown and are dominated by modern, architecturally maladapted buildings, and as one of the results other villages especially in the periphery are declining with physical impoverishment and decay.

Mainly due to the structural rationalization processes in the agricultural sector throughout the last generation the physical rural structures are under pressure. The changes in the countryside are highly visible, and the physical appearance of many villages and detached farms can at best be characterized as shockingly inferior.

It can be argued that the Danish society has grossly omitted to take care of the largest and most important part of its cultural heritage in the Danish landscape; 6-7,000 large and small villages dispersed in the Danish cultural landscape. These villages are crucial to the future of rural areas and are normally neglected.

Key words: Rural development, Villages, Building culture, Superfluous farm buildings, Village planning

Preface

During 2003 and 2004 it occurred to me that quite a number of villages in Denmark were in the process of physical decay and that as an architect and urban planner (village planner) one could not avoid noticing the decay in all parts of the country. To me, however, it looks as if it is a neglected fact and

[18] The conference paper is an updated and expanded version of the paper: The physical impoverishment and decay of Danish Villages. Causes and Consequences (Møller, 2005 b and Møller and Mogensen, 2007).

Foto: Jørgen Møller

"nobody" apparently does anything about it[19]. Neither local authorities, arhitects or planners[20] or the building trade sector have shown particular interest. Since then I have made a number of studies in the area. So far I have taken more than 3000 digital photos of both the good and the bad physical conditions in villages of varying sizes and locations[21]. My observations point out that the decay and the physical poverty does exist in all sizes of villages and all over the country, and maybe surprisingly also at a fairly short distance (7-12 km) from larger towns such as Randers, Horsens, Skanderborg, Tønder, Aalborg, Svendborg, Fåborg etc.

The underlying reasons for the physical decay of these villages affected by the development are to be found in a mixture of strong, international, national and regional development traits in the economic cycle, that has favoured the major cities and their surroundings, particularly in and around the capital and the eastern part of Jutland. Consequently, a number of areas away from the major towns can be designated outskirts or hard-to-supply areas,for more information see the Government's latest two Country Planning Statements from 2003 and 2006, respectively.

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[19] An exception, however, is the large equity fund Realdania which since 2002 has promoted and in part financed a series of important development projects both at property level and in large contexts in the Danish rural districts (www.Realdania.dk). Recently, few municipalities have initiated preparing the so-called Cultural Environment Atlasses or Municipal Atlasses, where conditions are recorded but where it is neither a question of protection nor of duty to act in relation to preserving or improving the physical conditions.

[20] For many years the professional interest among architects and planners has been mainly absent as opposed to the situation in the 1970s and the early 80s where Dansk Byplanlaboratorium published a series of books on village conditions. Damsgård, O. and Johansen, J. (1998, p. 34-39).

[21] My village definition is dynamic and fluent, and when I write villages I mean built-up areas from 2-3 farms and a few houses and up to areas with 999 inhabitants. You will in "Ordbog over det danske sprog" (Dictionary of the Danish language) (Gyldendal, 1931, Mogensen and Møller 2006b, p. 32), find a robust and useful definition, where a village is defined as "an accumulation of farms and (or) houses in the country". Own, approximate calculations show that the total number of villages amount to at least 6,000.

These development trends have strong, local consequences for the cultural environment of buildings in rural districts and villages, and we are witnessing a drama of impressive dimensions that also is influenced by structural change in the farming sector. The number of independent farms has decreased drastically, and many million square metres of agriculture buildings have become superfluous and are falling apart. Studies concerning the new possibilities given by the Danish planning act for other utilization of these many depleted agricultural buildings do not indicate, that the problem will easily be solved (Bille, T. et al. 2004).

Likewise a multitude of former service industries in the villages are dying, all leaving empty buildings, e.g. 8-9,000 village shops.

Systematized observations from field studies

In order to clarify what I mean by physical decay and impoverishment my definitions are as follows:

- Physical decay means that buildings to some degree are falling apart.
- Physical impoverishment means that buildings in general are maintained, but rebuilt incorrectly using bad materials and poor workmanship

There may exist gradual transitions between decay and impoverishment, and you can only fully document the extent of the problems through a thorough, actual registration of the buildings.

The front gardens

The first thing you inevitably notice in a village is the front gardens[22] which often fall into disrepair and are used as a parking place and/or a rubbish dump, filled with garden furniture from last year together with the demolished bicycles, the children's plastic toys, the cars without number plates and with flat tyres as well as building materials that never came to use after all. Visions for the future were never realized!

The old houses

I also stated for myself that many old[23] houses were in physical decay, some of them no longer occupied by people, some of them offered for sale[24,] but diffi-

[22] In the 50s and 60s the front gardens were always well-kept, the hedges were trimmed before Midsummer Day, and everybody took pride in the front gardens being ok. The front garden thus served to contribute to the self-respect and reputation of the household and was a visiting card showing the family's consciousness about itself, its prosperity, energy, order and beauty (Bavnshøj, 2004). The spread of the passenger car in the country through the 60s was, as we remember it, the starting signal of the come-down of the front gardens, because the new vehicles demanded garages, carports and drives with or without surfaces. And they got it – without having a petty eye to the ornamental bushes, roses and perennials of the front garden.

[23] The concept "old houses" is not defined keenly, but covers in my consciousness houses built before 1975, for which reason also the problem about the detached houses from the 60s and ahead, which fills up quite a lot in the housing supply of the villages, can be treated in this note.

[24] The most traumatic you can see I suppose is the many cases where the curtains in the empty windows quite clearly show that the last resident was an elderly person, who is now lying in the cemetery or has moved into an old people's home.

cult to sell. However, the majority are still occupied, maybe by elderly people, who can no longer manage the maintenance, or maybe by younger people who do not seem to know how to maintain the buildings. The occupiers may also be low-income or unemployed; single parents, elderly bachelors who never left home or divorced, middle-aged men. The point is that the physical decay and impoverishment is rapidly advancing, and we do not know why people allow the decay or how we should influence them.

Architectural style 2007

Another aspect of the physical decay or impoverishment – is in my opinion the bungled and unsuccessful building projects which also are prevalent in the villages. You may argue that it is preferable that people maintain, rebuild and extend their houses rather than allowing their buildings to falling apart. And still. Many houses are irreparably damaged by using wrong materials, and much money is spent on works which have to be redone after a few years, but also raising the price so that they are becoming more difficult to sell. This has also been found by Ærø et al., 2005.

In the countryside the "do-it-yourself" cultureflourishes, maybe also due to economic necessity[25], and inspired by the catalogues from e.g. DIY centres. People who rebuild and set up one building project after the other, have neither technical skills or knowledge about the material handling, the plan or the legal aspects of building, the functional nor the architectonic/aesthetic aspects in a given building project. At the same time the individual building very often visibly is ignoring the surroundings and is signalling indifference or ignorance to the local community.

The new residences

On the rebuilding side within the residential housing in the villages we have, for the last 10 years, seen a lot of Swedish wooden houses or American inspired log houses and log cabins which are not natural extensions of Danish building tradition in the villages. At the same time a lot of package-deal houses are constructed with integrated car shelters, kitchen bays and pagoda curves etc., all being indications of a widespread lack of appreciation of local construction traditions and culture.

The superfluous farm buildings

The superfluous farm buildings in the villages is a complex problem. In spite of the various reforms, even 150-200 years after the villages are still influenced by big farms that cause environmental problems, are smelling, causing heavy traffic, are noisy and visibly are appearing shabby and disordered.

Besides these active farms we find the part time or hobby farmers, that usually do not affect the village in the same way as the professional farms do. Many farm buildings are no longer in active use[26] after structural rationalisations.

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[25] Tanvig talks about a kind of survival economy in the fringe areas of the country. Lecture at DGI, Vingsted 25.04.2005.

[26] Birkkjær et al. (2006) estimate that there are about 100 – 120 million m^2agricultural buildings. Of these about 40 mill. are used for the current production. This means that there are between 60 and 80 mill. m^2 which are unused in relation to the primary agricultural production. 40 to 50 mill. m^2 are worthy of preservation, which means that between 25 and 30 m^2over a number of years should be cleared away at an estimated demolition and removal price of about 7.5 billion DKK

Some are just kept empty and just as they were left. Others are being transformed to other purposes.

The challenges are different

Farming buildings
It is interesting and obvious that the challenge of the superfluous farm buildings in the villages is strongly characterized by the local topography and the methods used for dividing up the estates in each village from around year 1800.

The superfluous farm buildings from the various epochs of the *smallholdings*[27] *rarely became a problem. Normally, they have been maintained, probably because the size of land and building mass makes it manageable financially and physically feasible. They have become attractive to well-to-do people who realize their dream of rural life having a small plot and a couple of horses, or where the outbuildings can be used for workshop or garage.*

Today we experience the greatest problems with the middle-sized farms, 18 to 50 hectares, built 80 to 100 years, and since taken out of production. Many are demolished and there is a heavy need for solutions respecting the historical and cultural value. To most owners restoration will be financially impossible.

The solutions are not easily tangible. Even if new acts have made openings for the use of the building for other purposes, this type of superfluous farm building is not that old and its value does not attract preservation funding. New legislation is needed to meet and solve this problem and to create new opportunities to develop the villages attractively. This will be expensive, costs are estimated at about 7.7 b. DKK (Birkkjær et al. 2006).

The agricultural buildings are *residences,* which is a part of the problem. Birkkjær (Ministry of the Environment, National Forest and Nature Agency, 2003) points out that we are talking about 120,000 homes of which it only 50% will be needed for agriculturally related settlement over the next 10 years. 30,000 houses will pass to other owners, and 30.000 ought to be removed, although nobody today knows which. A special phenomenon or problem is that the houses belonging to the disused farms, are often used as rented accommodation for employees, single young men working on the large farms.

Also a wide range of the 800 – 860 *manors* spread around the Danish cultural landscape are now more or less deserted. Erichsen, J. and Venborg Petersen, M., (2006) describe: "In the countryside the large courtyards lie deserted, and in the main building, which used to buzz with activity, very often inhabited by one small family. A dog or two are the only animals at the farm – unless the estate produces pigs. The situation has resulted in a very direct problem: How are the large and demanding building stock, the many small houses and the single elements to be maintained? Most of these old buildings, many of which are timber framed, and of dimensions which do not give access to today's large

[27] Among the various forms of real estate in the rural districts the price for just that kind of small properties has increased by up to 50 % over the last 2-4 years.

machines, are impractical and on the whole useless in modern farming".

The village as a whole

It is becoming increasingly urgent to analyse and discuss what can be done to the often extremely run down village main streets which previously oozed of life, just as it is with the handling of the farm buildings rendered superfluous. This also accountsfor a considerable, but probably not very acknowledged urban planning problem in a number of villages..

In short, the present situation is that the *village main street* no longer accommodates liveliness and active common functions of a market town. Today, a typical main street in a village would therefore be characterized by shops etc. depleted of function and with their fronts rebuilt with fairly little architectonic and aesthetical consideration, although many hold a considerable potential in terms of narrative value to the village through their "public image" appeal (Møller and Mogensen, 2007).

At the same time many of the *oldest houses* in the streets have been poorly built from the beginning and have not been maintained and are now occupied by lower-income or unemployed persons or families who cannot alone do very much to alter the situation.

Unfortunately, it is also a fact that the local authorities apparently have given up in many places. We witness everywhere badly maintained, local *public infrastructures e.g.* holes in the road surface, smashed and run-down pavements, razed bus stops and upset road and town signs. The local authority's lack of efforts contribute seriously to drawing the village further down into the negative spiral

Foto: Jørgen Møller

Is the appearance of the villages an important element in the development of the rural districts?

The aesthetic impacts

One important aspect is the negative, aesthetic impacts of the physical decay. A country or a municipality which does not treat all its villages with respect, and which also does not encourage it's citizens to take an interest in the building culture in all its aspects, has let an essential element of development slip from it's grasp, as it may be a question of a long and perhaps impossible re-education process, where politicians, municipal employees, advisors of every sort, craftsmen as well as the people living in the villages, are to be equipped with the competence and insight in why and how building culture is handled. In all decency we cannot have areas and villages which look devastated by a civil war.

The villages and the social element

In the debate questions about the physically dilapidated villages can be raised. Firstly, the political and moral aspect should be debated. The signals which are sent out from the extinct main streets of the dilapidated villages are hopelessness and poverty, physically as well as socially. You could ask if this is appropriate in a wealthy country. You can also ask if, we through lack of effort during 30 years, have created a "Sub-Denmark", which can be compared with the so-called "White Trash"[28] – and "Redneck areas" in USA or the crisis-stricken areas in the eastern provinces in the former East Germany (Bølsche. 2006, Byscher, W. 2006) or in Russia, where many villages are populated by old, single women and summer cottage visitors. The resident men have drunk themselves to death and the young people moved to the towns. Or are we as Hansen (2006) asks: "developing factory farming areas reeking of slurry, and where only large farmers and people from the social groups 4 and 5 live" (Dalgård, P. 2006) ??denne sæting eller den forrige??.

One could ask a rhetorical question: "Who wishes to live in a dump site" (Møller 2005a) or as Abild (2007) expressed: "Who wants to live in the middle of a heap of ruins?", implying that physically dilapidated villages will put off most people, and will only attract people who are consciously looking for villages and houses in disrepair, or who can afford nothing else. A village can in a very short time get into the unfortunate development process previously called *the spiral of death* (Møller. 2005a, 2005b), meaning that physical decay and the spiritual poverty no longer "just" are consequences of the development in the society, but also in themselves become part of the reason for some villages' (physical) down-fall. A village receives a negative reputation, which causes house prices to fall, which again over time results in even more in-migrants with low incomes and/or deviant social behaviour.

One could say that a dilapidated physical environment in a village seems deterring, or at best only slightly attractivefor potential newcomers. This is presumably valid both in relation to year-round inhabitants and to people looking for a "second home" in the Danish rural districts.

[28] See References at the end of the paper concerning a clarification of these two concepts

Yet, there is hope!

Among the many badly kept buildings in the countryside there are those which possess great architectural qualities that deserve to be preserved. Also, many buildings and villages possess so much cultural historical and architectural value that with a changed approach and a renewed professional basis, they could provide the framework for a concerned social and common life in the future (Mogensen and Møller 2007).

The cultural historical quality of the place can be used as a starting point. Hence, if you live in a gamekeeper's lodge, belonging to the environment of a manor, or in a house of an unskilled labourer, not to mention if the village you live in is part of an intact architectural environment with well-proportioned and unspoilt houses grouped beautifully around the village green along the village street, the distance to the market town or a larger town with a centre may probably be of less importance. Many people would presumably be ready to accept a series of disadvantages, as the benefits obtained are of such a high quality that they would be worth the price, see Ærø et al. (2005).

Places with cultural historical qualities, often possess amenity values related to the landscape, bringing nature closer to everyday life, and allowing physical activities, such as hunting, fishing, sailing and horseback riding, not to forget mental and sensuous stimulation such as tranquillity, fresh air, birds singing and the changes of the seasons. Country-living also is attractive and affordable for urban people, and many more may consider to become in-migrants if the physical situation is taken care of.

Inspired by Jensen (2007) it is obvious that a village cannot sell itself on cheap housing and bad building standards, but rather on its qualities and by ensuring that it holds something special. The physical circumstances, the cultural environmental heritage and the story of the place can be used as a lever in the subsequent branding of the village. An upgraded or regenerated village, where the citizens and municipalities jointly and over a period of several years have improved the physical environment, will be in a favourable position in the combat of attracting new inhabitants, be it as full time residents or as owners of second homes.

The Danish planning system dealing with the villages

Briefly, the Danish planning system around rural districts and villages is structured as follows:

The Region must set up a Regional Development Plan which is to contain strategies for e.g. the development of rural districts (Region Central Jutland 2007). This could be supported by the Regional Growth Forum's prioritization of financial means for this purpose.

The planning duty covering the use of "the open land", which also may include the villages, lies within the municipalities. The municipalities do also have to set up a strategy for the local development and detailed planning, among others binding local plans as mentioned below, taking into consideration the factors of substantial importance to the villages' future.

The Danish Ministry of Food, Agriculture and Fisheries , who interact with the regions and municipalitieshave, however, far from adequate means : This is a part of the Rural Development Programme 2007 – 2013, that offers money that can become attractive to village development and that is being delegated to Local Action Groups. (Jeg er ikke sikkert at jeg har forstået denne sætning helt rigtigt)
If a municipality being the main player in the field, is interested in (re-)creating more beautiful villages by working with the building culture, planning is necessary, and there is no doubt that all good village planning starts with a screening of all the villages in the municipal district in order to get a survey of the actual state. Then it is up to the politicians at the strategic level in the municipal planning process to announce clearly which and when specific villages can expect to receive municipal support for the rebuilding of the physical environment (Hansen. et al. 2007). The next step in the process is then a detailed planning for each village in a binding, mutual co-operation with the citizens, based on dialogue.

This will, of course, open a battle against the "indifference" and the widespread "doing-nothing attitude" at the personal as well as municipal levels. Over time, the process is to (re)build and maintain the residents' and the municipality's pride and involvement in the continuous development of the village. Evidence, e.g. Hedegård and Møller (2006), shows that a combination of "soft" and "hard" cultural heritage elements are pedagogically convincing, and if as a starting point, one uses "the importance of the place" the good story and the exciting experiences, it is possible to involve the villagers.

At the physical level the planning effort in the broad spectrum is about building credibility and mutual respect between the local authorities and the citizens, through the planning process and small, perhaps symbolic acts. One could even say that a social capital is accumulated (Putnam, 2000; Svendsen, 2001) as a precondition for working with the more solid physical matters such as houses, streets, market places and equipment in the public space, which certainly need a "firm, loving and knowing hand ".

Tools

Local plans

The rehabilitation of the physical expression of a village is a lengthy process over time and the point is that house owners continuously maintain their houses. Small and large remedial actions are carried out on the building stock regardless of whether you can apply for subsidies from pools and funds, and the overall impression is formed by the sum of hundreds of large, small and perhaps even insignificant remedial actions on the building stock.
The most potent planning tool in the battle for a more beautiful village environment is the local plan, which sets the legally binding rules for the outer appearance of buildings, the application of buildings, protection of free areas, hedges, etc.[29].

Being aware that a couple of incorrectly rehabilitated houses will blemish a village for more than a generation, the rehabilitation process is needed and has to be conducted according to clear guidelines, ensuring a continuity in the basis of planning and a uniform construction project processing over time. Already

[29] Act on planning §15. stk 2. nr. 7,9,10 and 14.

in 1989 Groth and Mølgård (Groth og Mølgård, 1989) wrote that the daily, current construction project processing is a cornerstone in the creation of the physical environment at the local level.
In order to ensure that this continuous care of the building stock of a village supports the aim of creating a beautiful and authentic village in time, it is also extremely important that the plan is carried out in co-operation with the citizens who from the outset should preferably be positive, as the investments of the citizens form the all-important basis for the rehabilitation of the physical environment.

Written guidelines
As a supplement to the physical plans it would be obvious to work with guidelines for a good building code in the local area, which means that guidelines should be devised, pedagogically structured, easy to use and with a lot of photos to substantiate the text.

Such guidelines should be part of every real estate deal, and should therefore be handed out to all potential and new owners of real estate in the villages.
It would be ideal if the estate agents selling real estate in these places were to hand over such guidelines. One would thus hope that house owners undertaking remedial measures, which do not demand planning permission, will not already from the outset commit an offence on their estate.

The local authorities should finance the preparation and distribution of such guidelines, which should also be distributed to the professional advisors in the building sector, and last but not least such guidelines should of course be distributred to all master craftsmen.

Guidelines on the internet
Such local guidelines should be available on the internet for all to download. This is furthermore becoming increasingly important since the building sector in Denmark is becoming more and more electronic, and all mobile workmen's huts are hooked on to internet 24 hours a day.

Awards and campaigns
For some years many municipalities have awarded prizes for worthy projects, where beautiful building works in the villages and the open land are rewarded. This could be new buildings, as well as reconstruction or regeneration projects on older estates.

Conclusion

After the new structural reform, rural development and the villages may have gained more attention than beforehand, Both the new municipalities, the new regions and in many villages an understanding of the importance of the physical environment as a (perhaps) decisive provision for future survival and development seems to grow. After many years with closed eyes and a structural change in the rural areas leaving many villages and the physical environment in a bad condition, the problems now have become evident to many. But this growing awareness does not yet mean that much is done to alleviate the prob-

lem. Instead, it is mainly rhetorically and none of the public authorities are seriously facing the extent of the task, and among others allocating strategies, operations and funds for the purpose. We are talking about 6-7,000 large and small villages spread all over Denmark, a hugh resource base for further development that is neglected.

The national programmes for rural development and for urban renewal, e.g. allocate very little money for upgrading the physical environment of the villages, and they can only be spent on small, single projects, that will never be assessed.

As well as there is no strategic prioritization regarding village development, and things are left at the local level and to individuals, it is also strange that no public authorities are working on a scenario of village Denmark with fewer villages than today. However, this may be one of the realistic outcomes in the near future.

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Higher education and life-long learning – their contribution to the development of rural areas

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Introduction

This paper does not purport to be a detailed analysis of this topic nor a complete assessment of the issues involved. In truth a topic so vast cannot be adequately addressed in a paper of this nature. Rather it is a series of observations on some key issue that appear to me to be of current importance to the questions of higher education and life-long learning in rural development. It is based significantly in the Irish context but acknowledges that there is a great variety of rural areas throughout Europe, many different models of interaction between rural development and education and many different administrative and governance structures used to implement projects and programmes. It is also acknowledged that the issues for higher education and life-long learning in developing countries are considerably different an even more complex than those in the developed world, which is the focus of this paper.

Higher education, life-long learning and rural development

Some of the key challenges for higher education and life-long learning in rural areas relate to the difficulties of facilitating access to these activities by rural communities; of responding to the specific characteristics of individuals and organisations in rural communities; of being clear about the outcomes that should be sought from higher education and life-long learning in this context; and of education within an overall holistic approach to the development of sustainable communities.

The characteristics of a rural population

The rural areas of Europe vary considerably in their nature and characteristics. The vary in terms of their environment, the extent of their socio-economic development, climate, population scale and density, remoteness from major urban centres, degree of infrastructural facilities, main economic activities, wealth of natural resources and so on. Even within an individual national territory there can exist a wide variety of rural areas. To try to say generic things about all rural areas, and of the role of higher education and life-long learning does, therefore, present difficulties. The following are, however, some important features of rural communities in the context of education and lifelong learning.

1. Literacy issues tend to be more prevalent in rural and marginalised communities

While there is little research on rates of illiteracy in rural areas it is generally accepted that rural rates of literacy globally are considerably lower than those in urban areas.

As well as issues of illiteracy, however are those of marginal literacy. This refers to those that have lower levels of literacy scores than the population average. A Canadian study suggests that this is a significant issue from a work-place perspective.

> Workplace literacy programs often target individuals at the lowest literacy level (IALS level 1). However, there are a large number of Canadians - approximately 4.7 million - with upper level 2 and low level 3 scores whose limited literacy skills pose a significant challenge to their workplace performance and success... improving the literacy skills of this group would have a significant impact on productivity, innovation, quality, labour market outcomes, income and lifelong learning.

This indicates the scale of marginal literacy in a developed country. Marginal literacy may well act as a barrier to participation in further and higher education. The same report noted that those with lower levels of literacy had certain characteristics.

Respondents in the Target Group, when compared with respondents in the Higher Literacy Group:

- are older;
- have fewer years of formal education;
- are more likely to be unemployed or retired;
- if employed, are just as likely to work full time;
- are more likely to work for a small organization (with fewer than 20 employees); and
- receive less training and education while employed.

These characteristics reflect many of those of more traditional rural communities. It is reasonable to suggest, therefore, that marginal literacy may well be an issue that needs to receive considerable attention if higher education and lifelong learning are to be taken up in rural communities.

2. Low participation rates in upper second level education (especially in traditional agricultural communities) which in turn has led to a legacy of non participation in third level

Particularly in traditional agricultural communities there is a history of early departure from the second-level education system in order to take on a productive role in the agricultural holding. This has led to a lesser likelihood of participation in higher education and highlights the need for transition pro-

grammes for those in these circumstances and for whom further or higher education is now more of a requirement.

3. The decline in farming activity which gives rise to an added challenge of a residual labour force with little employability in terms of current skills

Agricultural employment in Europe is in decline. The skills of this community are, in many cases, difficult to transfer into a modern economy. In many parts of rural Europe as well there is a lack of alternative employment even for those that have the capacity to re-skill. This issue varies considerably from place to place. It does, however, highlight the importance of education in all its forms in seeking to retain population in rural areas and facilitate the retention of sustainable rural communities.

4. The danger of traditional rural dwellers being absorbed into manual type labour such as construction with its vulnerability to changing economic trends

Many of the skills that are associated with those in traditional agricultural employment may be classified as unrecognised manual and craft-type skills. These skills are in danger of being absorbed into manual occupations with low levels of pay, opportunities for advancement and job security. It is noticeable in Ireland, for example, that those engaged in the building and construction industries is high in rural areas, particularly those near large urban centres, while those engaged in the knowledge economy is low.

While the Irish economy is strong and growing with a vibrant construction industry this may not be a critical issue. However, if (and probably when) there is a down-turn in the construction industry it is those with unrecognised and unaccredited skills that will be more vulnerable.

5. Farmers are reluctant to enter into learning environments (unless very informal ones) due to negative perceptions of formal schooling and their possibly low academic achievement. In many cases those that had the educational capacity to leave the farming environment did so

Speaking within an Irish context again, the experiences of those that exited the schooling system at an early age were often negative and their perception of schooling is negative. There is, therefore, a perception that education and training is neither necessary nor possible amongst this group, as well as a sense of personal inadequacy. This is reflected also in the Canadian study referred to earlier which states that

Thus, the majority of Target Group respondents (over 80 per cent) rate their literacy skills as good or excellent for their main job... In addition, over 80 per cent of the Target Group respondents indicate that their reading, writing and math skills do not limit their job opportunities.

These considerations indicate the need for an approach to higher education and life-long learning that is attractive to the target group in rural areas. There is, therefore, a need to promote lifelong learning as something positive, tangible and not necessarily assessed or exam driven and to change both the percep-

tion of it amongst those that have suffered in the formal education environment and those that are involved in its provision.

6. Rural areas have many enterprises, both agricultural and other, that require technical and other skill-based supports

While the observations in the earlier points refer largely to those in rural areas with lower skill levels, this is not to ignore the support required by businesses whether farming or otherwise. These supports are similar to those required by businesses in urban areas, though there area specific issues (limited mobility for some due to proximity to raw material; access to markets; isolation; additional costs of services and so on) that do distinguish them from their urban counterparts. In the context of rural firms, as well as the normal technical and management supports, the development of their capacity to establish and manage networks, to engage in collaborative processes and to participate in community activities may be important elements of learning.

7. Rural areas can become marginalised and, in essence, forgotten in an urbanised, globalised world

While many policy pronouncements and strategic goals and objective statements seem to support this proposition, it is not clear that these statements represent the real opinions of policy-makers in many countries. The widespread decline in rural services that is driven by a market-based approach to service provision and the focus on the agglomeration of populations into large urban centres. For example, Ireland's National Spatial Strategy as reflected in the National Development Plan 2007 – 2013, suggests that fine words not-withstanding, the actual commitment to sustainable rural communities is limited.

Professor Malcolm Moseley, speaking at the Irish LEADER Conference in 2005, reflected on the issue of rural service provision and noted the challenge of squaring the triangle of quality, price and ubiquity of service provision. It is fair to say, though I do not have clear data to support this view, that ubiquity is being sacrificed for quality and price. Thus, high quality services will be available but only if they can be provided in circumstances in which the level of demand is such that they are commercially viable. This is not to say that support and services are not provided in rural areas and, indeed, the Rural Development Programme of the EU will provide significant support. However, for every support that is provided another service seems to be withdrawn or compromised and the overall commitment to rural areas seems to be declining. In Ireland rural Post Offices are due for closure; the population of many rural communities is in decline, the rural public house which has been a feature of rural social life over many generations is under threat; environmental protection issues have huge impact; the social capital of rural areas is being gradually eroded; communities are finding it difficult to sustain voluntary activity. Many of these situations are not caused by deliberate decision. They are often the outcome of other and indeed admirable policies. The worrying thing however, is that they often do not seem to be considered of sufficient importance to warrant specific attention of policy-makers.

The concept of 'rural proofing' policies and programmes is often put forward

as an important step in policy creation. I have, however, rarely seen such a step implemented in practice. Indeed the recently published National Development Plan, referred to above, while it has a specific section on Rural Areas and identifies a range of rural programmes, does not give significant attention to rural development outside the specific chapter devoted to it. The main thrust of the regional focus is on the development of the large urban Gateways as defined in the National Spatial Strategy.

8. Rural areas are experiencing substantial change which is particularly high when compared to the relative stability in the post-war and EU era

Europe's rural areas are, in general, facing significant change over the next period of time. The nature of this change varies greatly. In some areas, particularly in the southern parts of Europe, there is a considerable outflow to urban centres. In other regions, however, there is considerable flow in the other direction, particularly in peri-urban and peri-metropolitan areas. These areas are experiencing an increase in population as those employed in the large urban centres seek a quality of life and environment that is offered by rural areas. There is great variety in the nature of these changes.

Even within regions there is considerable difference in population movements. The Irish Census of Population indicates the great variety in population change in Ireland between 2002 and 2006. While many areas show an increase in population and some show a considerable increase, there are a significant number of areas that show a decrease. These areas are widely distributed throughout the country and are both in the more remote areas and in those closer to urban centres. However, when areas showing decline and small rates of increase area aggregated it is clear that the Western part of the country is suffering greater population loss than the East. Therefore, while Ireland may be shown as having a generally stable and/or growing population at a regional level, there are many parts of the country that are in danger of decline and decay. And this is in the context of a country with one of the fastest growth rates in the EU and with high in-migration rates and predicted population growth.

As well as the change in demographics, there are considerable changes likely to take place in the nature of land-use, occupation and employment. Agricultural employment is set to decline in many parts of Europe with a consequent change in the occupational structure of rural areas. In addition, as noted in Scenar 2020, greater parts of rural areas are likely to suffer a decline in agricultural employment and an increase in the use of land for recreational and other purposes associated with an urbanising society.

A further factor that influences this area is that related to population flows throughout Europe which, at least in certain areas, are increasing. It is interest to note from an Irish perspective, foe example, that some rural areas have high percentages of non-Irish people living in their communities. While this is not causing any particular difficulty it does indicate that some of the focus of lifelong learning and higher education may need to change to address the specific needs of these populations. Indeed, some programmes to address these issues have been developed at community level but many of these have difficulty in translating to the formal education processes.

This change has implications for rural communities and individuals. These changes can be social, economic, cultural, individual and so on. Adapting to change is a complex and subtle process, and to adapt to it successfully requires skills and understanding that go beyond the instrumental and functional and that address the cultural and personal as well.

A vision for rural areas

The previous section has outlined some characteristics of rural areas that are relevant in the context of higher education and life-long leaning. In this section some assumptions and objectives of the promotion and implementation of higher education and life-long learning programmes are suggested.

That rural communities would continue to exist as sustainable entities

This is a fundamental proposition that must be accepted by the political and bureaucratic policy-making establishments if it is to be achieved and, if it is accepted, needs to be reflected in policies, programmes and proofing.
Of course the question of what constitutes sustainable rural communities has to be addressed. This is as much a matter of philosophy and values as it is one of fact. Assuming, however, that the concept of sustainability includes social, economic, environmental and equity considerations, then the following might be said about a sustainable rural community –

- It would value, protect and preserve its natural and built environment.
- It would participate in developing technologies and seek the development of the capacity of all its members with regard to such technologies.
- It would be aware of and respond to its global as well as its local responsibilities.
- It would have a vision and purpose regarding its future character.
- It would be welcoming and responsive to those of other cultures and ethnicities.
- It would provide equitable access to those services and facilities needed for a high quality of life.
- It would provide a nurturing social context in which the lives of all its members might be lived.
- It would be a caring community in which the needs of the marginalised and excluded would be addressed.
- It would be economically viable either in its own right or in partnership with adjacent communities.
- It would have the capacity to involve itself in the decisions that affect its future and to advocate on behalf of its needs in an effective and outcome-focused way.
- It would be respected and included in decision-making by others through real participation and collaborative processes.

- It would seek to ensure a high quality of life for its members.

If there is an acceptance that sustainable rural communities should be the focus of rural development, then the actions that are needed to bring about such an outcome and the environment within which such actions need to be set can be addressed.

An important purpose of higher education and life-long learning with regard to rural areas would be part of the process for achieving this outcome

It will be noted that the definition of a sustainable rural community addresses many matters other than economic sustainability. It suggests that the development of the capacities of individuals and groups within rural communities to assist them in addressing social and cultural as well as narrow economic issues should be an important focus of higher education and life-long learning. It also suggests that the development of these skills is important to the economic as well as to the social sustainability of those communities that are experiencing substantial change. Further comment on this issue is outlined below.

Individuals and communities in rural areas would be responsive to the change that constantly faces them

As was noted above rural areas are subject to significant change that is likely to be an ongoing feature of life. It will not be possible to resist this change in any meaningful way. However, what will be possible is to enhance the capacity of rural communities to respond to, manage and mitigate the negative effects of such change. This may ultimately be the key vision required for rural areas – that of communities and individual with these capacities.

Rural communities would retain, value and recognise their traditional crop-production skills as a protection against possible future need and other skills and knowledge as valuable in their own right

Many reports and other documents speak of international trade in goods and services as if it were an inevitable and continuing reality over the coming years. It is at least possible that this may not be the case. There are a number of factors that are not having a major direct effect at present but that may have an increasing impact in the future. Amongst these factors are the increasing cost of fuels and, therefore, the cost of transport, particularly of bulky goods such as agricultural produce; the increase in threats from transmissible produce-borne disease; concerns about global warming and the emissions of greenhouse gases and the contribution of international transport to these impacts; increasing ethical and animal-welfare concerns; and at the more dramatic end of the scale, international political instability, war and terrorism and the threat they pose for international movement of people and goods.

While some of these may seem somewhat remote concerns at present, as a combination of factors that may have an impact in the future, it would be unwise to ignore them and their implications for rural areas. The role of higher education and life-long learning in addressing these issues can relate to the

ways in which informal learning can be recognised, valued and transmitted to the next generation, so that traditional skills are not lost..

Rural communities would be able to embrace the new opportunities for sustainable living that become available to them

This aspect of the vision would require that such new opportunities are, in fact, made available in rural areas, that new skills and capacities are learned in order to benefit from such opportunities and that ongoing skill enhancement would become the norm.

Implications for higher education and life-long learning

When all of these matters are taken into account a number of key considerations emerge that both indicate some possible roles of higher education and life-long learning in rural development and that suggest some of the key issues that need to be addressed if that contribution is going to be effective.

Higher education and life-long learning in all their manifestations will need to play a number of roles - enhancing the personal and social capacity of communities to become analysts of their situations, advocates for their needs and challengers of the status quo; enhancing the economic capacity of rural communities through responding to the needs of the economic actors within those communities and by challenging potential economic actors to become active; enhancing the quality of life of rural dwellers throughout their life cycle and help them to respond to their changing needs; using education within a holistic, localised approach and finding mechanisms to implement that approach.

Enhancing the personal and social capacity of communities

Enhancing personal capacity and understanding as well as knowledge and skills in technical processes

Rural areas are experiencing change and will continue to do so. While change is a societal matter in many ways and social and economic change is managed and mediated by social structures, effective and positive response to change is often related to the capacity of the individual to address such change.

Many inhabitants of rural areas and particularly those in the agricultural communities are experiencing change in many ways. The response to this change is often fearful and resistant in the context of the fear of the unknown. Life-long learning in rural areas, therefore, should acknowledge this reality. Making additional training and education opportunities available to those in rural areas is unlikely to be particularly effective unless it is accompanied by targeted, tailored programmes of personal development that will assist those in rural areas to become more embracing of change and more positive towards the need for the education and training that accompanies it.

A project in Ireland that was associated with an EU Leonardo Project has sought to address this issue through the use of Life Coaching techniques. Such techniques are more and more being used in the business world to enhance the careers and improve the quality of life of management level staff. Traditionally

the training support provided to the farming community has been technical in nature and has been very effective in improving the standard of Irish agriculture. However, it seemed evidence that in a period of change such training was insufficient on its own.

Arising out of evidence emerging from this project that examined the life-long learning needs of the agricultural community, group and personal coaching sessions were offered to a number of members if the farming community that were experiencing change in association with the national agricultural training authority.
The response to the sessions was far greater than was anticipated and the results exceeded all expectations. As a result attempts are being made to have this type of training included in the National Development Plan, either through the Department of Community Rural and Gaeltacht Affairs, the Department of Agriculture and Food or the Department of Enterprise and Employment.

This approach to developing personal capacity can be linked with the concept of Life-long Career Guidance. In a changing world where certainty of employment and even of occupation is much less than it was, this can provide considerable added value to the coaching approach mentioned here.

A final element under this heading relates to the literacy issues referred to earlier. Those with low and marginal levels of literacy are unlikely to be able to participate in a wide range of the programmes that might be made available either directly in local training establishments or over the internet. It is important, therefore that this issue is addressed and placed high on the national priority list – which it is not in Ireland at the moment. Adult literacy training is an under-funded programme that is essentially voluntary in nature.
As noted in the Canadian study however, the effort needed to bring those with marginal literacy to a higher level of literary competence is less than that needed to bring the illiterate to the same level.

Developing strong communities to better manage change

It has been noted in the earlier discussion that the development and maintenance of sustainable rural communities is critical to the future of rural areas. Sustainable rural communities are more than collections of individuals; they also require strong organisations that participate in decision-making, service provision and the development, management and maintenance of networks.

A variety of knowledge and skills are needed in order to facilitate the development of such organisations and communities. Historically and in simpler times and in Ireland at any event, self-managing organisations operated at a simple level of structure and process. However, times have changed and the context within which such organisations must operate has also changed radically. In order to obtain grant aid and other assistance many organisations must transform themselves into limited companies; once they become companies and employers they become responsible for the implementation of health and safety regulations, employment law and the financial and fiduciary responsibilities of company directors. In order to obtain resources and deliver services the voluntary and community organisations require some of the knowledge

and skills of an accountant, lawyer, engineer and human resource specialist. The demands that are being placed on volunteer run and managed organisations are huge. The role of the Chair, which used to be largely titular, has now become a responsible and operational role and the work involved in strategic direction and performance review and management requires a high level of skill.

The development of the skills and knowledge to operate a successful local community or voluntary organisation becomes, therefore, a critical focus for life-long learning. And even if professional support is available to such organisations, the volunteers need considerable skill and understanding in order to make proper use of the supports available.

Developing capacities in collaborative processes of decision-making, which are more sustainable in the long-term and which give rise to more cohesive communities, better social capital and a higher quality of life

The approach to decision-making within democratic countries has been based on a representative model of democracy. While these models are, of course, the predominant mechanism for decision-making and are likely to remain so, decisions that are local in nature and that relate to the specific characteristics of a particular rural community respond well to a model that has a greater relationship to participative democracy models. Approaches such as those based on deliberative democracy and collaborative decision-making offer real opportunities for the creation of a more responsive and effective civil society sphere.

As life has become more complex, national and international systems of governance make greater and greater demands on individuals and tend to take decision-making power further and further from the communities they affect. There are, I recognise, considerable differences between jurisdictions with regard to this matter and some systems are far more centralised than others. However, even in those circumstances in which there is considerable opportunity for smaller communities to participate in decision-making, the increasing complexity of the context within which the decisions must be made is making it more and more difficult for communities to respond.

An important element of life-long learning, therefore in this context is the learning that is related to the creation of effective and efficient local community and voluntary organisations that have the capacity to govern themselves well, that are in a position to engage in a purposeful way with the public sector and that make an effective and positive contribution to the social capital of their areas.

As well as becoming more competent and skilled in these areas, it is important that rural communities develop powers of advocacy. If, as it seems, there is a tendency towards agglomeration and cultural if not physical urbanisation, there is a need to develop a body of articulate and reasoned advocates who can promote the needs and aspirations of rural communities.

As well as this form of life-long learning for the inhabitants of rural areas, that associated with the development of the capacities of public officials is also cru-

cial. Continuing professional development is important for those that work for and with local communities. This form of development often focuses on the skills and knowledge that lies at the technical end of the public officials' roles. However, if the approach to governance is to become truly more localised and participatory the skills of public officials in these areas should form an important part of their professional development.

Related to this is the whole area of advocacy, policy influence, networking and so on. The development of these skills can be a life-long learning exercise par excellence.

Facilitating the retention and maintenance of traditional rural skills at both an individual and communal as a key requirement of responding to possible future needs for localisation

As noted in the earlier part of this paper, while at the present time the demand for local produce is compromised significantly by the global trade in food and other commodities, there is no guarantee that this situation will continue indefinitely. It is important, therefore that the local skills and knowledge regarding the best use of land as a productive resource are not lost. While the development of organic produce, the concept of food miles and the uncertainty regarding the health status of imported food may have a modest impact, there is no guarantee that production skills will be retained within a sufficiently large population to secure the future with regard to these matters. Therefore, both higher education and life-long learning need to consider and value this knowledge and these skills and give them due recognition. This can be done in a variety of ways, some of which are referred to below.

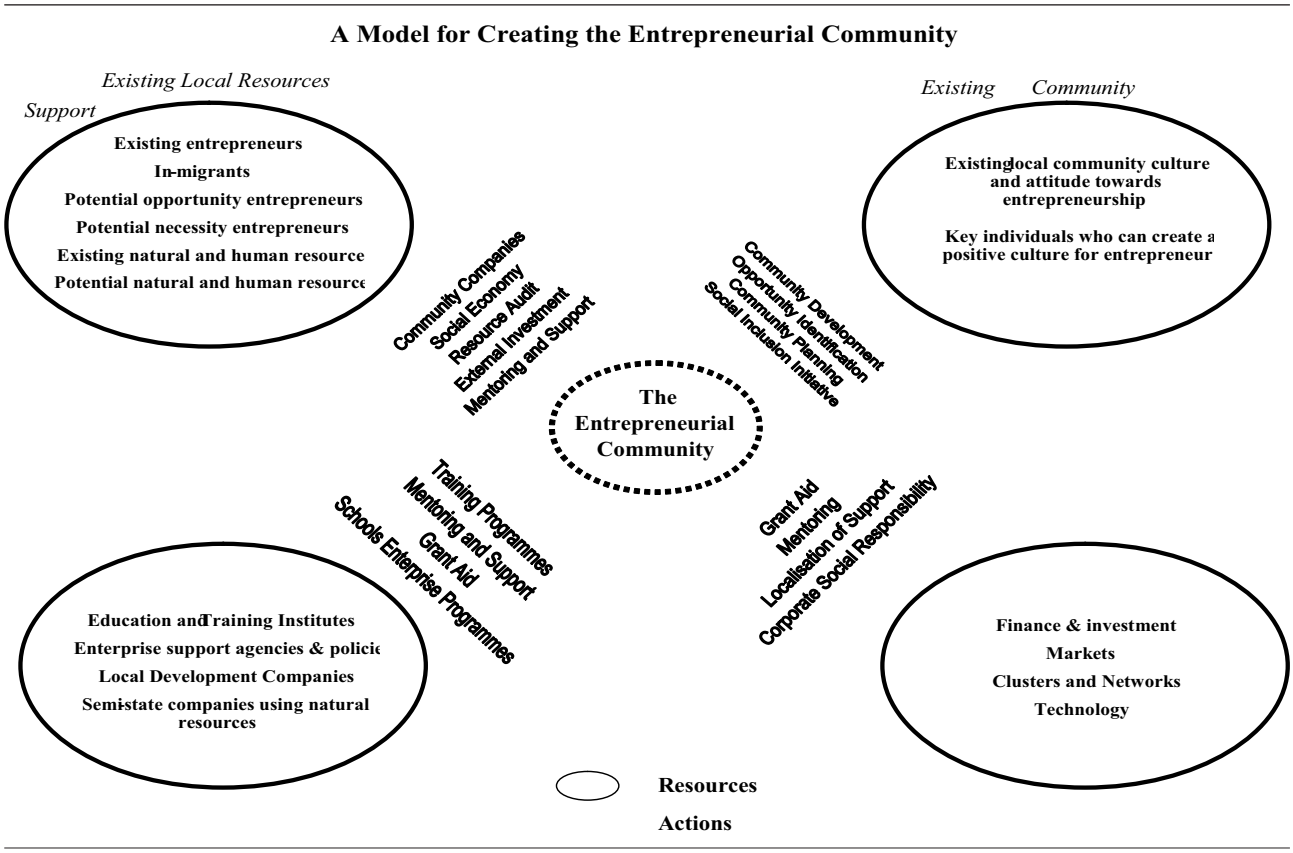

Figure 1: A Model for Creating the Entrepreneurial Community

Table 1: A typology of rural entrepreneurs

Ambition	To provide a sustainable livelihood as far as possible through current occupation	To establish and sustain a micro–enterprise to support own family	To expand a micro-enterprise or establish and sustain an SME with wealth-creation possibilities
Expectation	Rely on current occupation to the greatest extent possible. May be forced to develop some entrepreneurial activity or become an employee to provide sustainable livelihood.	Own, manage and work in a home-based or service business mainly serving the local community.	Own and manage a small community or home based business with the intention of growing beyond the local community market
Potential to be employer of others	Very low	Low	Moderate to high
Agencies normally providing support	Teagasc if farm family Local development Companies	Teagasc Local Development Companies County Enterprise Board LEADER	Teagasc Local Development Companies County Enterprise Board Enterprise Ireland Shannon Development LEADER

The Entrepreneurial Continuum

Towards the necessity entrepreneur **Towards the opportunity entrepreneur**

Source: Tipperary Institute

Enhancing the economic capacity of rural communities

Supporting the appreciation and recognition (both formal and informal) of informally acquired rural skills as an important requirement for the maintenance of strong and confident rural communities

It is often the case that we do not fully appreciate the informally acquired skills and knowledge that go to make up the body of knowledge with which we run our daily lives. Much knowledge and skill is informally acquired and is, therefore, not formally recognised. This is particularly true in rural areas where much of the skill and knowledge is handed on from generation to generation through informal apprenticeships rather than through formal courses of study. If this knowledge is to be more transferable and more flexibly applied, however, it needs to be acknowledged in some formal way that can provide a level of certainty and clarity to an employer or other seeker of such skills.

There are many examples of such skill recognition systems throughout the world. However, one of the difficulties that may be experienced by those that are experiencing the need for change in the agricultural sector is that many of these systems are associated with specific occupations or occupational sectors if not associated with individual organisations. Those that need to add additional income-generating activities to their current employment may need to identify and have recognised their skill sets in a more generic and non-specific context. This will require that they have available to them a system where specific generic competencies can be identified and recorded even if these competencies do not have an occupational reference.

A second element of this issue relates to the need to have occupational competencies recognised. This will require that gaps in knowledge are addressed and that mechanisms for providing such learning are readily available to residents of rural areas.

Much skill development and/or training takes place either in occupational or educational settings. These are likely to be difficult models to follow in more remote and sparsely populated rural areas and a community-based model of learning may well be more appropriate.

The need for individual mentoring and coaching has been outlined above. This approach to the education and training needs of individual would be an important precursor to any attempt to recognise and record accumulated skills. It should also be recognised that examination-based systems of evaluation are less likely to be effective or suitable in this particular context. The experience of those in the rural population that would benefit from the recognition of experiential learning will often not be positive with regard to school experiences and their level of literacy may also be marginal.

While the economic benefits of the recognition of informal skills may be of particular importance, however, the non-academic recognition of actual skills can be somewhat more problematic. Systems for recognising skill without theory are not very well developed in Ireland, for example. The case of the teaching of traditional Irish music is a case in point. There are many fine teachers of these skills who cannot read music, who have no idea about music theory or the history of music and could barely analyse what they are doing. At present there is no mechanism for recognising the skills of these very accomplished people. A system of recognition based purely on practical ability and not on any other criterion would be an important contribution to the recognition of rural skills, many of which are practical in nature. The old idea of the master craftsman needs to be reintroduced.

Providing education and training in the positive and appropriate use of technology as a means of learning and earning

It has been noted above that access is an important issue for rural communities. Access can be limited personally, geographically, socially and culturally. Internet communication can help address the geographic access issue to some extent. High-quality internet communication can encourage more wide-spread location of individuals and enterprises. It can also help in the delivery of services such as health monitoring and treatment and a range of service administration opportunities such as banking. There are, however, limitations to the internet as the solution to rural access problems. For example, the distribution of high-quality, effective broadband in rural areas varies widely throughout Europe; the cost of broadband in rural areas can be prohibitive; many in rural areas are not able to effectively use computer-based services; the provision of internet-based services is not universal; home-based working and living has social implications which may, in turn have impacts on psychological health.
In addition, the issue of literacy earlier above will have negative implications for the use of the internet as a key service provider in rural areas at least for some time to come.

It has also been suggested by some that while internet provision can help overcome some of the disadvantages of distance it cannot overcome the disadvantages of low population densities and isolation. Therefore, while the provision of learning at all levels with regard to internet use is of great importance, it cannot be regarded as a panacea. It does suggest, however, that if the internet is to become a significant mechanism for communication, enterprise and service delivery in rural areas, a continuous, ongoing and widespread programme of skill development will be required.

Enhancing the general quality of life

This discussion has focused largely on the personal, social and economic roles of life-long learning and higher education. While these are important contributors to quality of life, there are other aspects that life-long learning can address. There are many aspects of this issue that there is not space to address.

With regard to the concept of life-long learning in this regard I can do no better than quote an EU *Communication, on making a European Area of Life-long Learning a Reality,* in November 2001, which defined lifelong learning as 'any learning activity undertaken throughout life with the aim of improving knowledge, skills and competences within a personal, civic, social and/or employment-related perspective'.

In a way this highlight the principal point I wish to make. While functional and operational training and education are important, rural areas, if they are to contain sustainable rural communities require much more. They need to come to the rural community where it is and respond to its needs as they are; and they need to consider the overall social and personal capacities of the community and not only its technical and production capacities.

Higher education, life-long learning and integrated approaches

The approach to higher education and life-long learning needs to be thought of as a holistic process and needs to be tailored for the particular needs of specific rural areas

The discussion to date has identified a range of individual contributions that life-long learning and higher education could make to the development of rural areas. However, these will be less effective if they are considered in isolation and individually. It is also true to say that rural areas and rural communities vary widely in their education needs, their potential for enterprise development and employment provision and their demographic and education profiles. It is important, therefore, that integrated programmes of life-long learning and higher-education be developed at a community level. The integration of provision can have regard to literacy levels, extent of recognisable skills, internet availability and so on. Since the approach will need to respond to local needs it is clear that nationally managed and developed programmes are likely to be less effective. A positive response to the needs of local areas, therefore, requires a proper governance response as well as a response related to education provision

The role of education needs to be related to a wider range of community and economic supports if the outcome of economically sustainable rural communities is to be achieved and needs to be set in an integrated enterprise development context

This paper considers the 'contribution of higher education and life-long learning' to rural development. This title is deliberately chosen as it reflects the fact that education is one element only of a complex series of rural development issues. The Canadian study referred to earlier states that

> Relative to rural areas, urban areas on average also get an additional per capita income boost from the interaction between human capital and higher levels of social capital, private sector jobs, higher population density and natural amenities. The only factor for which rural areas have an advantage over urban areas is in the interaction between high-tech establishments and high school graduate shares: here the interaction effect in rural areas (+9.5) yields a greater increase in per capita income than occurs in all areas combined (+2.1).

This highlights the extent to which rural communities are impacted on by a range of factors other than education. In combination with other factors referred to earlier, it suggests that the effective development of rural areas requires an integrated, targeted, multi-sectoral approach that will respond to the specific needs of individual communities. Tipperary Institute is working with a number of communities in Ireland to pursue a model of collaborative integrated area planning that seeks to achieve outcomes that improve the quality of life of the community while seeking a sustainable lifestyle for all its inhabitants.

Higher education and life-long learning needs to respond to the psychological, social and cultural aspects of rural dwellers as well as to their roles as units of market production and consumption if sustainable enterprise development is to be successful

This is an important proposition for the purposes of the issue of the role of education and life-long learning in rural development. There is a danger that when considering an issue such as rural development, rural change and so on, the focus of education and life-long learning is on the economic capacity of the individual. This tends to lead to education being considered as a functional skills development exercise alone. There is also a tendency for skills development to focus on the needs of existing employers and to concentrate on the development of the individual. Even if the personal capacity of the individual is part of this consideration, it can give insufficient weight to communal needs. This proposition is that the contribution of higher education and life-long learning to communal as well as individual development is a critical element in rural development.

An example of this form of thinking relates to a piece of research carried out by Tipperary Institute for ADM in Ireland. This research, which was largely literature based, posits a model of entrepreneurship development in rural areas that is social and cultural as well as personal. The diagram above outlines the model. It will be noted that the model addresses social and communal as well as enterprise supports and the need to provide for the development of a culture of enterprise as well as the provision of supports to individual entrepreneurs.

This model is related to another important proposal that is indicated in the following diagram.

This suggests that there is a distinction between entrepreneurs of opportunity and entrepreneurs of necessity. The former are those that have an entrepreneurial instinct and need the forms of assistance that will allow them to successfully exploit that instinct. Entrepreneurs of this nature need little encouragement or social support as they are driven by individual needs and instincts.

The latter, however, are driven to become entrepreneurs because they have little choice. Their instincts are to be employees or life-style actors rather than business actors. These entrepreneurs require social and cultural support and networks within an entrepreneurial community in order to survive. Therefore, the social and communal context becomes particularly important for this group as well as the individual capacity and intention.

The particular role of higher education

Higher education has a particular role to play in rural development. Higher education can, of course, be part of life-long learning as well as an introduction to adult learning. When considering higher education a distinction must be made between education within a rural community and education for a rural community.

Higher Education within rural communities

The discussion to date has, it is acknowledged, has tended to focus on the issues of life-long learning other than higher education. This is not to underestimate the impact of higher education on rural development and the benefits that it can bring. It does, however, also recognise that many of the needs of the populations of rural areas are at the pre-higher education stage.

Figures from the 2002 Irish census indicate that many rural areas have a considerable education deficit to make up. However, it also indicates a form of enterprise/employment/education vicious circle. Since most enterprises that employ significant numbers of graduates are employed in urban areas, the provision of third-level education for a rural population may have the effect of moving the population out rather than moving it up. The 2002 Census emphasises this point, demonstrating a very high concentration of financial and administrative employment in urban areas, This is particularly important in the context of the emerging knowledge economy based employment that is likely to be of particular importance in the future.

One of the issues of Higher Education in rural areas is, of course the 'educating out' phenomenon. There is a concern in parts of Ireland, for example, that while third-level education is accessed by many who originate in rural areas, the majority do not return to the areas from which they originated following graduation. There are also concerns that many people are spending long hours each day commuting from their rural homes to the large towns and cities which are the centres of employment. While this is feasible for a period of time, many find it extremely difficult, it detracts from the development of community social capital, it damages family life and, in general detracts from the overall quality of life of the community.

These considerations point to the importance of Higher Education being designed specifically for the needs of the rural communities and the rural enterprises that are located within them at a very specific level. This, can be a problem for third level institutes, which have resource difficulties, academic quality issues and discontinuity of demand to deal with.

The existence of third-level education facilities in rural areas has, however, a greater impact on the rural community than the production of graduates. More and more enterprises seek to have the support of the research and investigation available from third level education institutes. Therefore, rural communities that do not have access to such facilities are less likely to attract high-quality enterprises.

The development of new skills for rural communities in specific emerging enterprise areas is also of critical importance if the potential of these areas are not to be lost and transferred to more urban locations. Renewable energy development is a good example of this issue. Owners of agricultural land may start to change to energy crop production as an alternative land use. However, the returns from the crop production itself are likely to be low relative to overall returns. It is important, therefore, that landowners engage in the processing as well as the production of the raw materials. In order to engage in this processing and to seek to ensure that the benefits are provided within rural communities a range of higher-level skills will be required. It is important, therefore, that higher education institutions develop programmes of study that will provide those with the skills necessary to maximise the return of emerging technologies to rural areas.

Higher Education for rural communities

Another aspect of the contribution of higher education to rural development is, of course, location independent. As the EU and other bodies develop specific programmes to address the needs of rural communities it is important that third-level institutes provide the graduates that will work closely in and with those communities in order to facilitate their sustainable development. This will require that graduates with technical skills specific to the rural economy continue to be produced but also that graduates and post-graduates with additional developmental skills, such as those relating to coaching, personal development, communication, community development and so on, who have a specific understanding of the rural context are available. While many skills are generic in nature the contexts in which they are used are also significant and it is important that the specific needs of rural areas are acknowledged and addressed. As we live in societies that are becoming more and more urbanised, it is important that professionals with the specific skills and insights needed to address the needs of rural areas and to be advocates for their specific situation are available.

An example of a specific institute

Tipperary Institute

I am going to conclude this part of the paper with a short reflection on the nature and role of Tipperary Institute within the Irish system of higher educa-

tion. The Institute was established about ten years ago in order to respond to the perceived needs of rural areas and to assist them in realising their potential. The Institute is a company owned by the Minister for Education and Science and provides third level education programmes and programmes of life-long learning across a variety of topics – sustainable development, sustainable energy, personal and organisational development, business development, ICT, community development and environmental management. The Institute is located on two campuses in the rural part of Ireland.

As well as its role in providing a variety of education programmes, the Institute is also required to provide support to communities and businesses using about 40% of its resources for this purpose. These activities range across a variety of areas of focus but all fall within the area of life-long learning and capacity building. Some of this work is accredited but much of it isn't.

Within its accredited programmes the Institute has had an unusually high number of mature and disadvantaged students. Many of these have come to the Institute because of the programmes of study on offer, but many have come because of its accessibility to them
The Institute has established a number of centres that reflect some of its areas of focus. These include the National Centre for Rural Development, the Centre for Developing Human Potential and the Centre for Sustainable Energy Development.

One of the principal aims of those that established the Institute was to link practice and teaching so that all lecturers were also involved in practical activities with communities and businesses in rural areas, thereby enhancing both their work with the communities and the quality and applicability of their teaching. As it developed, the Institute added to this a philosophy that seeks to facilitate the development of individuals, communities, groups and organisations and not merely to advise them or carry out research for them

A number of the specific projects undertaken by the Institute that reflect the commitment to personal, community and organisational development referred to above are –

The coaching element of the New Futures programme. This provided no accredited or marketable skills to members of the farming community facing change but did provide them with the skills to consider their own futures and to come to decisions as to the paths they wished to follow in the future. This activity is reflected in the Institutes academic work in the Life Coaching Programme, Adlerian Counselling and Transactional Analysis training that is provided within the Institute.

Integrated Collaborative Planning with rural communities. This seeks to facilitate rural communities to develop visions and actions for their own areas in an inclusive collaborative process with local government and local development bodies. Again it gives rise to no accredited qualifications but certainly enhances the skills of the participants, their capacity as advocates for their own area and their links with important public-sector actors.

This is linked with modules on the BA Degree Programme in Rural Development.

Sustainable Energy in a Rural Village Environment. This is a collaborative project funded under the Concerto programme that seeks to enhance the sustainability of a new community and the existing community within which it is being located. This project is linked to the Renewable Energy academic programmes run in the Institute.

Tipperary Institute is not a paragon. It struggles with many resource issues; with the difficulties of engaging in distributed learning; with addressing the variety of needs of the community; with the demands of Government; with competition from other institutes; with the declining school leaver demographics. Nor is the Institute unique, though it is unusual in an Irish context. It does however, in its philosophy and structure, suggest some of the characteristics that I believe an institute of education that serves the needs of rural communities might possess.

Conclusion

The paper suggests that higher education and life-long learning have a real contribution to make to the development and maintenance of sustainable rural communities. It also suggests, however, that education is part only of a wider, complex process and that integrated approaches between agencies and community organisations are needed if a successful outcome is to be achieved.

While it is difficult to say for sure, it is also suggested that life-long learning of less than higher education level is of particular importance in many rural communities in providing individual and groups within those communities with the skills, knowledge and understanding necessary to cope successfully with change and to participate in charting the path to a sustainable future.

Education is important and has a significant contribution to make. It is not, however, sufficient and one of the key benefits it may bring to a community is an enhanced capacity to address the other factors that will determine its future.

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School Goes to the Farm – action model for rural-based sustainability education

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Abstract

Maintenance of the cultural landscape of the rural areas and the biodiversity of the agro-environments is crucially dependent on farming and agriculture. The rural agricultural landscape is an essential part of the Finnish cultural heritage and national identity. The present generation is gradually losing the contact with this heritage, and in the modern technology-based information society its appreciation is in danger of becoming eroded. At the same time the family farms are struggling to find new means of survival.

'School goes to the farm' project has taken the challenge and aims at promoting socio-cultural sustainability and education for sustainable development by improving knowledge among children and youth about the relationship between nature and culture and about the role of the rural areas in the society. This is done by developing local co-operation between schools, farms and the regional nature centres. Co-operation is one form of the so called Green Care services and provides the farmer with an innovative source of supplementary earnings.

The project is carried out in collaboration between MTT Agrifood Research Finland, the WWF, the local Vihti 4H association and the University of Tartu. The financiers of the project are the European Community Initiative Programme for Southern Finland and Estonia INTERREG III A, the State Provincial Offices of Southern and Western Finland and the Estonian Ministry of Internal Affairs.

The present discussion paper captures the background and the set-up of the project, and discusses the benefits and the future challenges in view of the experiences obtained so far.

Key words: socio-cultural sustainability, rural-based sustainability education, farm-school co-operation, diversified farms, green care.

Background

The lost role of the rural areas. In the modern, technology based service society the citizens have become gradually detached from the basic facts and praxis of

life and living. In the information society the personal experiences are increasingly based on virtual reality and on the services of the commercial adventure production. Technical devices often replace even personal contacts in human relationships.

Globalisation of the food systems has increased the complexity of the food markets. The choice of processed food products has expanded and new food trends are constantly presented. Today the food basket contains products from all over the world. Consequently people have become increasingly detached from the origin of the food and the means by which food is produced. The process from field to fork is blurred, as is the interaction between man and nature. People in general, and children and young especially are loosing their ties to rural areas and culture and to agriculture. The phenomenon is not restricted to the big cities, but is met increasingly also in the countryside.

In Finland the share of agriculture from the gross national product (GDP) is only about one per cent, and its share from the employed labour force is about 3 % (Statistics Finland 2005). It is clear that in a society where the status is based mainly on the economic performance, agriculture is notparticularly highly valued. However, the total economic turnover of the food sector is tenfold compared to that of agriculture (Niemi & Ahlstedt 2006), and thus the indirect contribution of agriculture to GDP and employment is considerable. It is also easily forgotten that through food production agriculture has a marked impact on national health and welfare. This is evident in the number of illnesses and deaths caused by food-borne diseases, and in the occurrences of the various food crises worldwide (e.g. Mead et al. 1999).

The basic task of agriculture is food production, but farming has other functions as well; agriculture is multifunctional, because farming produces so called public commodities due to the by-product of the food and feed.,. These are the rural cultural landscape and the various ecosystem services (Brunstad et al. 1995, Daily 1997, Cahill 2001). The Finnish cultural heritage and national identity are firmly rooted in the rural landscape. This landscape together with the surrounding nature constitutes an essential part of the diversity at different levels. The interaction between man and nature is plainly visible in the countryside, and farming has an important role in society. So far the public commodities have been taken for granted, and their link to agriculture has not been necessarily realised. However, the significance of multifunctional agriculture is already acknowledged (MMM 2001, OECD 2001, CEC 2002, Brunstad et al. 2005), and the concept is being gradually established and translated into practical actions (Lankoski & Ollikainen 2001).

Survival of the family farms at stake. Over the years Finnish agriculture has experienced profound changes. In 1995 Finland became a member of the EU and consequently, part of the open markets, free trade and international competition. The competition is tight also on the food markets, and it has accentuated the structural change within the Finnish agriculture, which has been going on since the 1970'ies (Katajamäki 1999, Kola 1999).

Within the Finnish agriculture, there is a survival struggle going on, and the sector is becoming strongly polarised. The area of cultivated land has been

stabilised to about 2 million hectares (Figure 1), but the farmland is being redistributed. At the same time when the number of farms is decreasing, the number of large farms (over 100 hectares) has rapidly increased (Figure 1) (MMM 2006) and, consequently, the average farm size has increased. The change is evident in specialisation and concentration of production both at the farm and regional level (Niemi & Ahlstedt 2006).

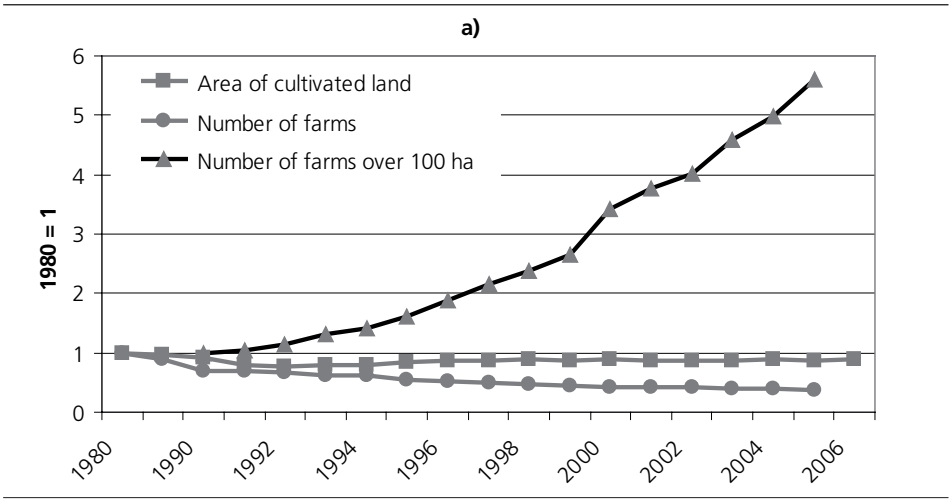

Figure 1: The change in the area of cultivated land, in the number of the farms and in the number of the farms over 100 hectares 1980 to 2006; 1980 = 1

In contrast to the trend of increasing specialisation and concentration, the opposite or diversification of the farms has also been rising lately; from 2000 to 2005 the increase in the number of diversified farms has been 11% (Niemi & Ahlstedt 2006). On the diversified farms, farming is not the sole income source, but there are other activities as well, or farming is part-time and there are incomes from working outside the farm (Jervell 1999). Pluri-activity has gained a foothold especially among those farmers who for one reason or another have not entered into expansion, but who nevertheless want to continue living on and running small scale farms (Rantamäki-Lahtinen 2002).

Already before the EU membership the agricultural income was well below the average Finnish per capita salary income. The gap between the income level of the salary earners and farmers has not been mitigated after 1995, rather on the contrary. Especially during the past few years, the GDP and the salary income have continued to increase, but the farmers' income seems to have more or less stagnated (Figure 2) (Statistics Finland 2005). From the farmers´ point of view, this is not economically sustainable, and because the development increases inequity within the society, it erodes also social sustainability.

School education and the society. The task of the school is to prepare the pupils to become active citizens who are able to make conscious decisions about the matters concerning their own lives. Today the knowledge increases in an accelerating tempo. The schools should provide the pupils with the basic knowledge and skills in the various school subjects and at the same time, they have to keep pace with the information flow. Education should be timely, correct and relevant.

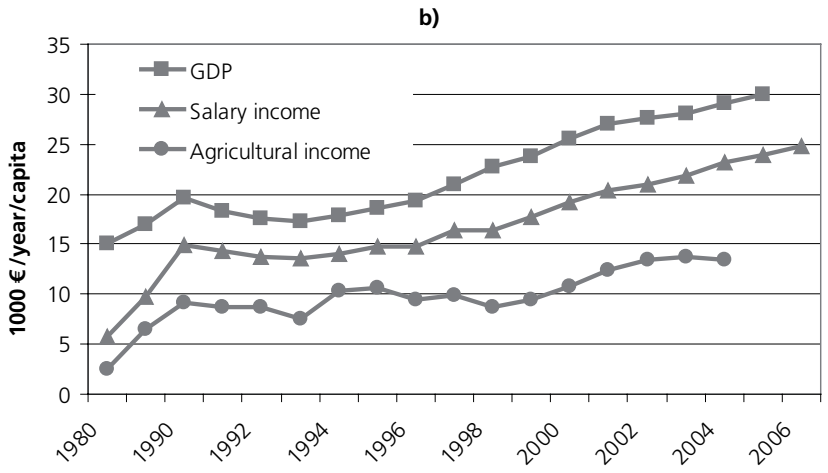

Figure 2: The gross domestic product (GDP) per capita, the salary income per wage earner and the agricultural product per agricultural worker in 1980-2006 in Finland, 1000 euros a year

Learning the subject-specific and unconnected facts is not enough, the information needs to be considered in relation to the social reality which the school is part of. This widens the perspective, and often disciplinary borders are crossed. From the overflow of information the teacher has to pick up the essential and formulate meaningful entities in order to enable the pupils to discover links and to understand cause and consequence of relations between various things and phenomena.

From August 2006 the new national curriculum for basic education has been introduced in all Finnish schools. The curriculum stresses the links between the school and the world outside the school by integrating the teaching through the so called thematic entities such as "Responsibility for the environment, health and sustainable future", "Active citizenship and entrepreneurship" (OPH 2004). Using the integrative approach in education, the pupils have to consider from different points of view the matters and phenomena according to their own lives. The aim is to help the analysis of the many-facetted and controversial phenomena of the present day world and, thus, to contribute to their objective and critical evaluation. The integrative education supports the growing of the pupils into active citizens by highlighting the interaction between human activity and the phenomena of the world.

The concepts and knowledge alone are not sufficient, but personal experiences and emotions as well as the social interaction between people have also focal role learning. The education should aim at comprehensive learning involving emotions and all the senses; personal experiences strengthen sensibility and empathy (e.g. Palmer 1998, Chawla 1999, Jeronen & Kaikkonen 2001). Ethical principles are similarly necessary, as the values and norms are formulated according to them, and they, therefore, define the attitudes towards the various questions (Jeronen 1995). In addition, one needs to know the means and channels of the citizen activity. Only then can the knowledge be concretised nto practical actions for the benefit of everybody(?) (Serageldin & Steer 1996, Gretschel 2002, Åhlberg 2005).

The problem

The key problem that is addressed here is the eroding social cohesion. There are two separate worlds which hardly meet each other; on the one hand there are the small family farms, which are not very well equipped for the fierce international competition. If they do not wish to expand the production volumes, but still want to continue with farming and living on the farm, they have to find additional income sources. On the other hand there is an increasing number of people without any connection to the country side and with rather vague knowledge about the basic prerequisites of human existence.

Lack of interaction and dialogue may lead to ignorance and even to arrogance, and this erodes the community-based cohesion. The gap between the two realities needs to be bridged by bringing the two worlds together and making them face each other.

Bridging the gap

The School Goes to the Farm -project (INTERREG 2007) has taken the challenge by developing local co-operation between schools, farms and regional nature centres both in Finland and in Estonia[30]. In the pilot project, there are ten farm-school partners and one regional nature centre in Finland. In Estonia, the three participating farms are located within the Karula National Park and the schools are the local lower grade schools nearby.
The local approach is not only the matter of community-based cohesion, but also a pragmatic matter. The costs for the school are minimised which is an important aspect in the reality of the continuously shrinking resources of the school. In the pilot phase the participating schools have no extra allowances; the farm entrepreneurs instead receive a small compensation which is funded by the project. The teacher and the farmer plan the activities together, this increases the commitment of the farmer and guarantees, that the educational goals are realised. The program is easier to tailor according to the specific needs of the school and to the rhythm of the farm. In the co-operation, the farm provides the framework for the outside classroom teaching, and the teacher has the pedagogic responsibility.

Why the schools?

Schools are an excellent target group, since through the compulsory education system the all age groups are reached. The perspective is forward oriented, because the project activities focus on children and teenagers, who are the future decision-makers and consumers.

Finland has also previous experience on rural-based environmental education.

[30] The project is carried out in collaboration between MTT Agrifood Research Finland, the WWF, the local Vihti 4H association, and the University of Tartu. The financiers of the project are the European Community Initiative Programme for Southern Finland and Estonia INTERREG III A, the State Provincial Offices of Southern and Western Finland and the Estonian Ministry of Internal Affairs.

Within the framework of the EcoLearn project (2002-2005) the basic model for rural based environmental education was created. The project focussed on the farm camp school activity and the entrepreneurs were also engaged in planning (Siltala & Kaivola 2003, ECO LEARN 2006). The local 4H association in Vihti had already started with co-operation by developing school gardens in the nearby farms. So there were already existing contacts between the local schools and farms (Ikivihreät 2006).

Elonkierto is an agricultural demonstration park in connection with the MTT. The function of the park is to familiarise the public with the history, past,present and future of Finnish agriculture as well as with the research of the MTT. There are many kinds of activities, among other things thematic tours guided by the experts and researchers from the MTT, and some of these are especially tailored for the children. Also the local schools use Elonkierto and expertise associated with the park as an input in their education.

Encouraging examples on comprehensive learning in the farm environment are already available also from Norway, where the farm-school co-operation has been developed since 1995 (Krogh et al. 2003, Parow & Jolly 2003, Nergård & Verstad 2004a, Nergård & Verstad 2004b, Lyngstad 2005).

Benefits and beneficiaries

Local co-operation between farms, schools and nature centres increases dialogue and interaction between the local actors and increases therefore community-based cohesion. It also strengthens the ties of the children and teenagers to their home district and to their roots. The co-operative action model is developed together with the farmers, teachers and the pupils. This brings the actors together to work for a common goal, and co-operation among the local actors is one cornerstone in building up community-based cohesion and in strengthening the socio-cultural sustainability. The factual content of the co-operation deals also with the ecological aspects, such as environmental knowledge and environmental impacts of human activities, so the ecological sustainability is indirectly promoted.

Education is an excellent way of promoting sustainable development. This is done in the 'School goes to the farm' project by improving the knowledge among children and young people about the relationship between nature and culture, about the environment and about the role of the rural areas in the society.

For the farmer, co-operation is a way to get additional income. This contributes to improving the economic situation of the family farms, and has thus positive impact on the economic sustainability of the farming sector. The idea of the project is active participation in various everyday duties on the farm. When running smoothly, the school visits are scheduled so that the pupils´ contribution really provides a helping hand.

For the pupils the farm offers knowledge, skills and learning by doing. The pupils have been e.g. familiarised with the soil and its functions and expanded

their species recognition. Through practical work they have become acquainted with the production route of the food, with management of the environment and the forest work as well as with the care of the animals. Working together improves the solidarity within the group and the ability to pay attention to other people and their needs.

The pupils learn by doing, which gives positive experiences, also for those pupils who are more practically oriented. Personal contact to and experiences on the farm work contribute to understanding and appreciation.

Besides the actual co-operation, the project activities include also training of the teachers and entrepreneurs, and there will be a guide to help them to get started with the co-operation. The ideas and examples of practical realisation of the sustainability education in the farm environment will be distributed in form of teaching material on the project web site.

In addition to the participatory development task the project contributes also to the research. At the start of the project a pre-study was made dealing with the environmental education and education for sustainable development in the lower grade schools in Finland and in Estonia (Risku-Norja 2006, Tomson 2006). Attitudes and learning are studied with qualitative methods of interactive action research using open questions, statements, learning diaries, interviews and situational observations and blogs on the project web site. The aim is to capture the impact of the farm visits on the pupils' attitudes and on the level of their knowledge. The teachers' views and opinions about the school-farm co-operation will be clarified as well. The research is carried out both in Finland and in Estonia, and the comparison of the results gives wider perspective on the needs and approaches of the rural based sustainability education.

Discussion

Farm-school co-operation is one expression of the so called Green Care activities, which are closely linked to farming and to the farm setting, and constitute one option to diversify rural livelihoods. Together with farm tourism, the various therapeutic services related to social or health sector are examples of the activities that have been increasing in recent years among the diversified farms in Finland (Rantamäki-Lahtinen 2002, Niemi & Ahlstedt 2006). The phenomenon is well known in Europe, and the number of farms specialising in horticulture, gardening, animal therapy, riding therapy etc. is increasing rapidly (Relf & Lohr 2003, Elings & Hassnik 2005, Elings 2005, Hassink & Dijk 2006). In Norway the focus has also been on schools (Haugan et al. 2005).

The project activities take place in the countryside, the co-operation increases knowledge about the countryside, and the activity is beneficial for the countryside. Opening the farm gates gives the farmer an excellent possibility for PR-work. The farmers have often difficulties in being heard. Partly, this is because they speak from their own point of view, which people are not necessarily familiar with. People speak "different languages". Outsider viewing on the farm work helps the farmers to see things also from another perspective and to adjust his communication accordingly. The green care services are also an inno-

vative source of supplementary earnings (Nergård & Verstad 2004a, Frey et al. 2005).

Rural based education for sustainable development excellently meets the needs of the contextual, situational and experiential learning. It is in compliance wih the goals of the integrative teaching of the new national curriculum and is, therefore, easily justified with educational arguments. The major challenge is to widen the pilot phase experiment in southern Finland and Estonia to cover other areas as well. The goal is to implement the action model of the farm-school co-operation as a part of the schools' educational programs so that it is accounted for already in the schools' curricula and necessary resources are secured for its realisation. In view of the future, it is urgent to find permanent funding that guarantees reasonable compensation also for the farmers.

From the school's point of view the co-operation is a way to develop education by expanding the learning environment. From the farmers' point of view the co-operation deals with diversifying the farm activities asa means of their survival strategy. The overall benefit for the society is in improved social cohesion which is brought about by the increased interaction and dialogue among the local actors.

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Facilitating Agricultural Innovation and Learning through Systemic Action Research

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Abstract

This paper presents and discusses the process and findings of a Systemic Action Research (SAR) project aimed at facilitating agricultural innovation and learning on a farm in the south of Norway. Systemic Action Research is a participatory paradigm that seeks to create desirable change for the people involved, while at the same time stimulating their learning. In the current project, the nature of the innovation was defined by the farm family, through a series of activities facilitated by the systemic action researcher. This process developed the farm situation in two ways; 1) innovation of the agricultural practice from vegetables to high-bush blueberries, and; 2) building of learning competences in the farm family. By involving the people in the inquiry process as co-researchers, and explicitly focus on their learning, their competences to handle future challenges are most likely improved. In this way, the SAR approach, in addition to immediate innovation and learning on the farm, also contributed to the long-term resilience of the farm system, by building its capacity to become a learning system. In conclusion, this paper therefore suggests that SAR is a promising approach for increasing learning competences in rural areas.

Key words: Agricultural Innovation, Action Research, Systemic Thinking, Learning

Introduction

Agricultural innovation and rural development is an area of increasing political interest in EU and in Norway. The question is how to approach agricultural and rural innovation and development. At one end of the scale policy changes can stimulate the incentive for development, and academic research can theorise about feasible innovation strategies. At the other end of the scale, rural people, with their perception of the challenges and their knowledge about the situation, constitute the actual driving force of an innovation and development process. In this regard, it becomes evident that rural people must participate in a processes aimed at improving rural situations. This is not only because participation implies greater efficiency, as regards the implementation process, but also because it is their right (Packham & Sriskandarajah, 2005).

A farming system can be viewed as a situation where value influenced human interests of social, cultural, economical, or political character meet the complex nature of ecological communities. Such complex constellations provide a diverse and demanding challenge in an innovation process. There is increasing evidence that the traditional scientific paradigm within agricultural science and extension does not have the capacity to treat the complexity of these irreducible challenges (Packham & Bawden, 1998, Röling & Wagemakers, 1998). Facilitating innovation in these situations implies considering the "whole" of the situation, and explicitly focusing on the creation of self-perpetuating learning processes, where farmers are involved as co-researchers (Bawden & Macadam, 1991). This is very different from usual extension and scientific practice aimed at agricultural innovation through mere transfer of knowledge (Röling & Wagemakers, 1998, Leeuwis, 2004). Systemic thinking, action research, and learning methodologies are strands of a new paradigm, that have emerged in the search of appropriate methodologies to deal with complex, unpredictable, and conflicting situations such as farming systems.

This paper describes and discusses the process and findings of facilitating agricultural innovation and stimulating learning on a farm in Redal, Grimstad, in the South of Norway. The farm case was chosen based on the farmers desire to innovate. The farmer had expressed an innovation interest to the local research station, but had not made any decisions on what or how. Currently, the main crop in the area is early potatoes and a few vegetable crops, in addition to egg laying hens. The community is however, experiencing declining prices, increasing international competition, and threats of increasing pest and disease pressure.

In the following the concepts of Systemic Action Research, Innovation, and Learning are first described. They constituted the conceptual framework of the research approach used in the present case study. Hereafter, the case study is presented – i.e. the methodology, the process, and the findings. Finally, the outcome of the project will be discussed in relation to future perspectives of agricultural and rural innovation and learning.

Systemic Action Research and Innovation

Systemic Action Research (SAR) is a research approach that merges systemic thinking with action research. In the following concepts of systemic thinking and action research will be presented and the merging of these justified.

Systemic thinking

Systemic thinking is an inquiry approach aimed at facilitating improvement with the people in complex and problematic human influenced situations (Checkland, 2000). Thinking in systemic terms, implies a holistic approach to the world, which assumes that the whole is different, if not bigger, than the sum of its parts; that everything is connected with everything else through relations and dependencies, and therefore looses essential properties if reduced into parts. In practice, this assumption implies that complex "messy" human situations cannot be improved by reducing situations into their components, because some problems are irreducible (Wilson & Morren, 1990; Bawden, 1990; Sriskandarajah et al., 1991; Midgley, 2000; Checkland, 2000). Systemic thinking therefore argues that attempts to improve complex systems should begin by considering the whole of the situation in participation with the relevant people involved (Bawden, 1990; Wilson & Morren, 1990). Agricultural situations can be viewed as such complex systems constituted by a set of "hard" sub-systems of bio-physical components and a set of "soft" sub-systems of human activities, and the emerging farm system a result of the relations between these sub-systems (Röling & Jiggins, 1998).

Systemic thinking considers the inquiry process as systemic, rather than the actual situation (Bawden, 1990; Checkland, 2000). The inquiry process uses systems models to structure complex situations, in order to: 1) orchestrate a debate with people about their current situation; 2) stimulate ideas for improvement, and; 3) explore the desirability and feasibility of these in relation to the boundaries of the system (Wilson & Morren, 1990, Checkland, 2000). The intention then, is not so much to enter a situation to solve a problem, but rather, to stimulate the involved people to continuously revise their situation, learn form it, and act to improve it (Checkland, 2000). Such participatory approaches are considered necessary for several reasons: 1) participation is considered a right for the stakeholders; 2) participation increases the responsibility of the improvement by answering to the desires of the stakeholders; 3) the resilience of the system is believed to improve due to increased learning competences among the stakeholders (Checkland, 2000; Leeuwis, 2004; Packham & Sriskandarajah, 2005).

Action Research

Like systemic thinking, Action Research (AR) is a participatory research paradigm that engages relevant stakeholders as co-researchers in the process of improving their situation, and seeks to stimulate learning through change, and use this learning to guide further change (Zuber-Skerritt, 2001). In figure 1 this iterative cyclic process of AR is illustrated. The action researcher has two main roles in this process: 1) to facilitate reflective action; and 2) to stimulate a learning process (Bawden & Macadam, 1991). In addition, the action researcher ought to critically reflect on the methodology applied, and its impact on the situation, and share this with the critical public and people in similar situations (Bawden, 1990; Checkland & Holwell, 1998).

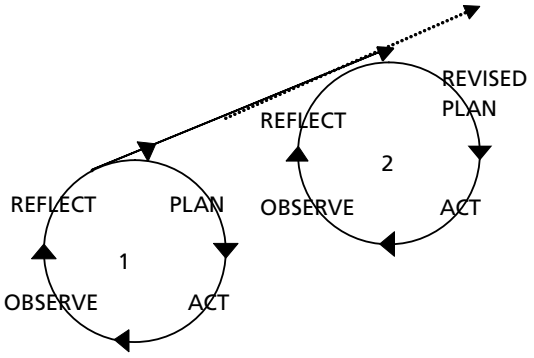

Figure 1: The cyclic iterative process of action research and learning. Adopted from Zuber-Skerritt, 2001

Thus, systemic thinking and action research share several research intentions. As Flood (2001) and Packham & Sriskandarajah (2005), however point out, systemic thinking is not just an inquiry approach in action research, rather it offers a foundation for action research. In Systemic Action Research it is thus, the systemic perspective that makes meaning of the complex entirety of the situation, helps to construct the inquiry process, and emphasizes the critical reflection on the affects of the change in relation to the boundaries of the situation. Such systemic perspectives are important when facilitating change in complex situations, as i.e. processes of agricultural innovation.

Innovation

What has been outlined above is in accordance with recent development in thinking about innovation processes. Previously innovation was regarded the invention of a technical solution, which was to be implemented in the targeted farming practice, through a linear top-down approach based on instrumental communication (Leeuwis, 2004). The under-standing of an innovation today is more differentiated. Innovation is seen as a process of change that involves numerous variables of social, technical, psychological, economical, cultural, and ecological concern (Röling & Jiggins, 1998, Leeuwis, 2004). To promote innovation is thus, a question of facilitating a process with the farming environment or rural community, which initiates debate about desired changes and cooperatively acts to achieve them. In this aspect, learning, just as in systemic action research, becomes a central feature in an innovation process, as it equips the stakeholders with improved abilities to take decisions and consider consequences (Röling & Jiggins, 1998, Röling & Wagemakers, 1998; Leeuwis, 2004, Packham & Sriskandarajah, 2005).

Learning

Systemic thinking and action research both regard learning as an essential process for innovation and improvement (Wilson & Morren, 1990; Bawden, 1990; Zuber-Skerritt, 2001; Checkland, 2000). Learning is a process of making sense of experience through recognition (Kolb, 1984), by reflecting on past experience (Senge & Scharmer, 2001). Learning is thus a unique and personal process influenced by our experiences, how we make sense of them, and how we act upon them. In this way, a learning process constitutes a system in

itself, as it embraces the learner and the area of interest, and their mutual influence (Bawden, 1990). As shown in figure 2, the learning-inquiry process typically moves through four essential phases:

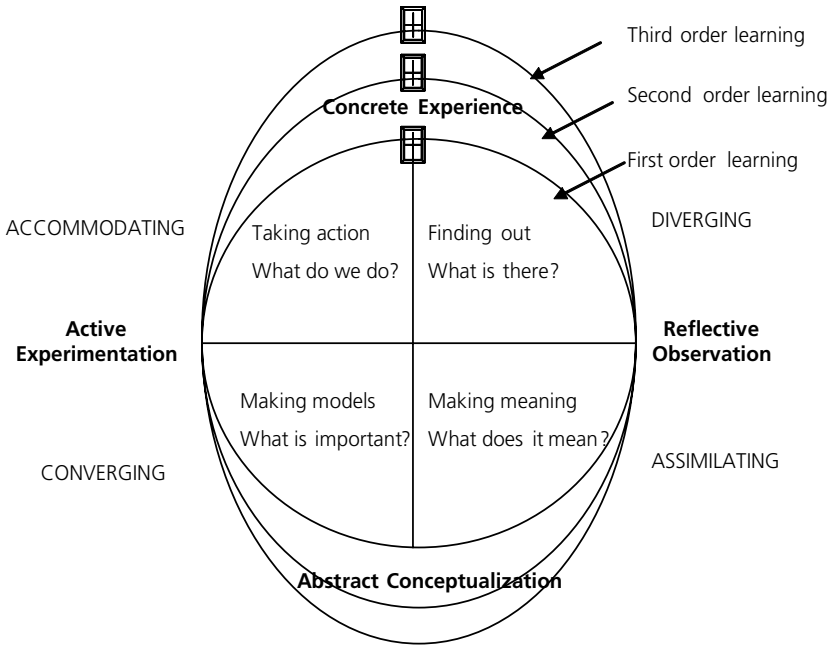

Figure 2: The experiential learning cycle. Adopted from Kolb (1984) and Bawden (1995).

In systemic action research improving a situation, while at the same time considering the learning process, means that the systemic action researcher seeks to apply methods and create activities that enhance the learning experience of each phase. Further, this "learning system" ought to consider different levels of learning, as they are described by Bateson (1972) and others (see figure 2). The first level learning is at a cognitive level and regards the learning about the issue of concern. The second level learning is concerned with meta-cognitive thinking; reflecting on how we learned about the issue of concern, and thus building competences to learn. The third level learning is questioning the assumptions behind selecting the methods in the first place and thus, relates critically to the influence of our worldview.

The building of learning competences of people involved, like a farm-family, make them capable of improving their situations, like a farm, continuously. In this way, they become capable of responding to changes in the external environment (Bawden, 1995; Leeuwis, 2004). This point is also central in the work of Packham & Sriskandarajah (2005): the farming system should cease to regard itself a victim of the external changes in the environment, and rather, see itself as resilient learning systems that can adapt and adjust to changing challenges.

Methodology

The foundation for the methodology applied to facilitate agricultural innovation and learning with a farm-family in Norway lies in the conceptual fram-

ework outlined above. The methodology was developed as a Systemic Action Research framework, and continuously developed during the innovation and learning process. In this way, the inquiry had a clear participatory action orientated approach and an equally clear systemic perspective, while maintaining flexibility regarding the methods applied. In this sense, the methodology was pluralistic – i.e. it applied concepts and methods of several methodo-logies (Midgley, 2000). The Hawkesbury inquiry spiral[31] (Bawden, 1990) was used to structure these methodologies in a systemic framework. The following figure illustrates how the methodology was performed in practice.

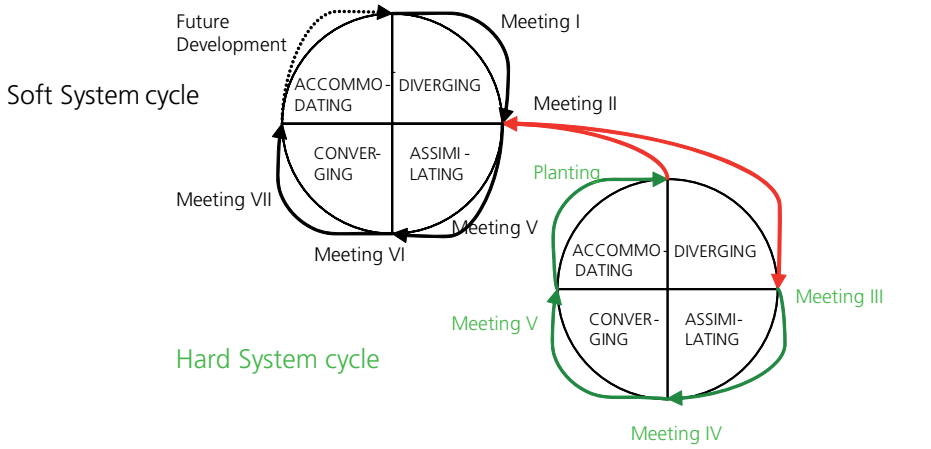

Figure 3: The methodological process - relating the meeting structure between the farm-family and the systemic action researcher to the experiential learning cycle

As seen from figure 3 the inquiry process can be divided into to two main learning cycles; a "soft" system cycle and a "hard" system cycle (Bawden, 1990). The distinction of soft and hard was mainly made to divide two kinds of innovation processes; the first being a systemic inquiry process, aimed at considering the whole situation from multi-perspectives, dream about the future, discuss possible innovation strategies, and create plans of action for the desired changes. The second "hard" cycle originated from the course of the first, and dealt with better defined challenges, regarding actual crop innovation strategies and the establishment of a blueberry production. Both learning cycles took an inter-active participatory approach (Pretty, 1995) with the farm-family involved as co-researchers. The two inquiry cycles, further, had two different approaches to learning. The first cycle intended to stimulate learning about the situation and increase the awareness of the farm-family about the limitations and possibilities facing the farm and farm community, and further, use this awareness in dreaming of the future. At the same time, this cycle aimed at building competence to handle situations of change. Likewise, the second learning cycle, yet to a lesser extent, because the learning focus was on how to plan a crop-innovation and its related management and sales issues.

The two cycles were structured into four major phases of a learning cycle. The diverging phase, in this regard, concerned the collection of information (Wil-

[31] The Hawkesbury Inquiry Spiral structures five levels of methodological approaches to problem solving in a hierarchy of learning cycles moving from highly complex situations to well defined problems: 1) Critical systems thinking, 2) Soft systems thinking, 3) Hard systems thinking, 4) Applied Science, and 5) Basic Science.

son & Morren, 1990). The following phase assimilated this information into comprehendible "maps" (Bawden, 1990) - i.e. by structuring it into a rich picture (Checkland, 1981) or diagram. The converging phase aimed at structuring ideas for improvement into system models, where activities, actors and environment were linked. These models further functioned as the basis for debating the feasibility and desirability of the intended change. The soft system cycle ended with these discussions of future development, while the hard systems cycle proceeded to the accommodation phase of implementing the desired changes. The learning cycles were not used as "one-way-closed" processes. Rather, they were used to structure the inquiry, but allowing the process to flux between the different learning modes, dependent of the development of the situation (Bawden, 1990, Checkland, 2000).

Process and Findings

The process of this project aimed at creating a learning environment, where the stakeholders were stimulated to learn more about their current situation and future management practice (first level learning). Further, it tried to encourage the stakeholders to reflect on how they learned (second level learning). In this way, the farm-family was challenged to innovate their current farming practice, while at the same time improving their competency to learn. The role of the systemic action researcher was to establish a trusting relationship; to build a learning community; and to facilitate desired change. Yet, during the learning cycles the role of the systemic action researcher changed according to the specific activities (see table 1 & 2). The role of the facilitator further changed between the two inquiry cycles; where the role in the "soft" process was primarily as a process facilitator and co-researcher, the "hard" process also used the role of the scientific researcher that the farmers could trust regarding crop-management advice (Leeuwis, 2004).

The following tables shows the methods applied during the inquiry process and their placement within the experiential learning cycle of Kolb (1984). The table also describes the major activities involved, their purpose, and the changing role of the facilitator. Finally the table describes the outcome of each phase.

Figure 4 exemplifies how system models, in this case the CATWOE of Soft Systems Methodology (Checkland, 1981), were used to discuss the feasibility and desirability of ideas for improvement. By creating a root-definition of the system, grouping activities and actors involved, and mapping their relations, the model structured the idea of creating a berry-cooperative in Redal where the farm was situated. The model was used to create awareness and debate about how to go about such development and discuss the possible consequences.

Table 1: Methods used in the soft systems cycle and their outcome

Meeting & Date	Learning phase	Learning style	Method	Major activity	Purpose of Method	Facilitator Role	Outcome
I 27th of March	Concrete experience	Diverging	Informing about project.	Introducing ourselves Discussing project Agreeing on project proposal	Build relationship Establish project	Becoming a partner for reflective action	Project established. Agreement of time-frame and involvement
II 31st of March	Concrete experience - Abstract conceptual-lization	Diverging – Assimi-lating	Multi-perspective questions (1) Rich picture (Checkland, 1981)	Semi-structured interview to understand the farm from a multi-perspective view. Expressing worldview and values. Discussing current situation. Drawing a rich-picture of the current situation.	Find out about situation and worldview. Raising the consciousness of the farmers through discussing the rich picture.	Co-re-searcher-learner	Rich picture of situ-ation. Learning about the situation and its relations and depend-encies.
II 31st of March (entering "hard" systems cycle)	Reflective observation Abstract conceptual-lization	Assimilat-ing	SWOT (2)	Discussing SWOT of the farm and its environment, and possible strategies to work with them. Identifica-tion of the first key issue which lead to the hard system approach.	Identify areas of concern and perceived oppor-tunities.	Critical reflective partner	SWOT of farm situ-ation Key-issue of nar-row crop range with sub-issues of soil-extortion, pest and disease, and declin-ing prices of current crops. (initiation of "hard" systems cycle)
V 5th of Septem-ber	Abstract conceptual-lization	Assimilat-ing - Con-verging	The Hawkesbury Model (Bawden & Packham, 1998)	Discussion of current situa-tion and the impact on and affect of the near and far environment	Raise conscious-ness about current situation and their relation to the wider environment	Critical reflective partner	New key-issues re-vealed
V 5th of Septem-ber	Abstract conceptual-lization	Assimilat-ing - Con-verging	Visionary think-ing (Frantz, 1998)	Guided imagery and dream-ing of what could be	Allow inner-values and ideas of the farmers, guide improvement	Encourag-ing, sup-portive and positive partner	Shared dreams: Blue-berry cooperative; web-site, additional berry fields
VI 18th of Septem-ber	Abstract conceptual-lization	Converg-ing	Structuring and Evaluating Dreams (3)	Discussing, prioritising and structuring the outspoken dreams. Evaluating the visioning session	Discuss desirability and feasibility of each dream	Critical reflective partner	Learning to structure ideas and reveal rela-tions and dependen-cies between these.
VII 25th of October	Abstract conceptual-lization	Converg-ing	Model of the structured dreams (3)	Comparing model with present situation and dis-cussing desirability and feasibility of dreams	Make dreams concrete working goals	Critical reflective partner	A "map" of ideas (goals) related to a time line
VII 25th of October	Abstract conceptual-lization	Converg-ing - Ac-commo-dating	CATWOE (Check-land, 1981) Force Field Analy-sis (4)	Compare the model of a blueberry cooperative with present situation and discuss the first steps of implemen-tation	Discuss desirabil-ity, feasibility and effects of a berry-cooperative. Raise consciousness of first step of action	Critical reflective partner Empowering	Model of future situation with related activities, and their relations with and effects on environ-ment (see figure 4). Learning to structure and critically reflect on innovation.
VIII 30th of Novem-ber	Reflective Observa-tion	As-similating project	Evaluation	Question their perception of overall method and each method/activity, and their learning experience	Evaluating the process and meth-ods, and the find-ings and learning	Reflective partner Learner	Farmers learning ex-perience and compe-tence development. Process and method-ology evaluation

[1] The multi-perspective questions treated six main areas: the historical, the production, the productivity, the human activity/social situation, the natural resources, and the perceived external forces (Lieblein et al., 2004).

[2] The SWOT questioned the farmers' perception of the situation as regards the perceived Strengths, Weaknesses, Opportunities and Threats of their farm, the community, and the region.

[3] Ideas and dreams of the previous session were written on separate cards, which were randomly laid on the table. The farmers were asked to take a card at a time and explain the dream/idea. Hereafter, they were asked to divide the dreams/ideas into related groups and structure these according to a perceived possible timeline. The outcome of this session was structured into a model by the facilitator and discussed at the following meeting.

[4] The Force Field Analysis was used to question the farmers perceived hindering and supportive forces for a further development of a blueberry cooperative. The supportive forces were used to discuss how the first step of action could be initiated.

Table 2: Methods used in the "hard" systems cycle and their outcome

[5] The "year" model pictured a circle of the 12 months of the year, listing the current management practices and income/expenses in each month. An outer circle representing the blueberry management practice and income/expenses was overlaid to illustrate possible conflicts in the management or economic system.

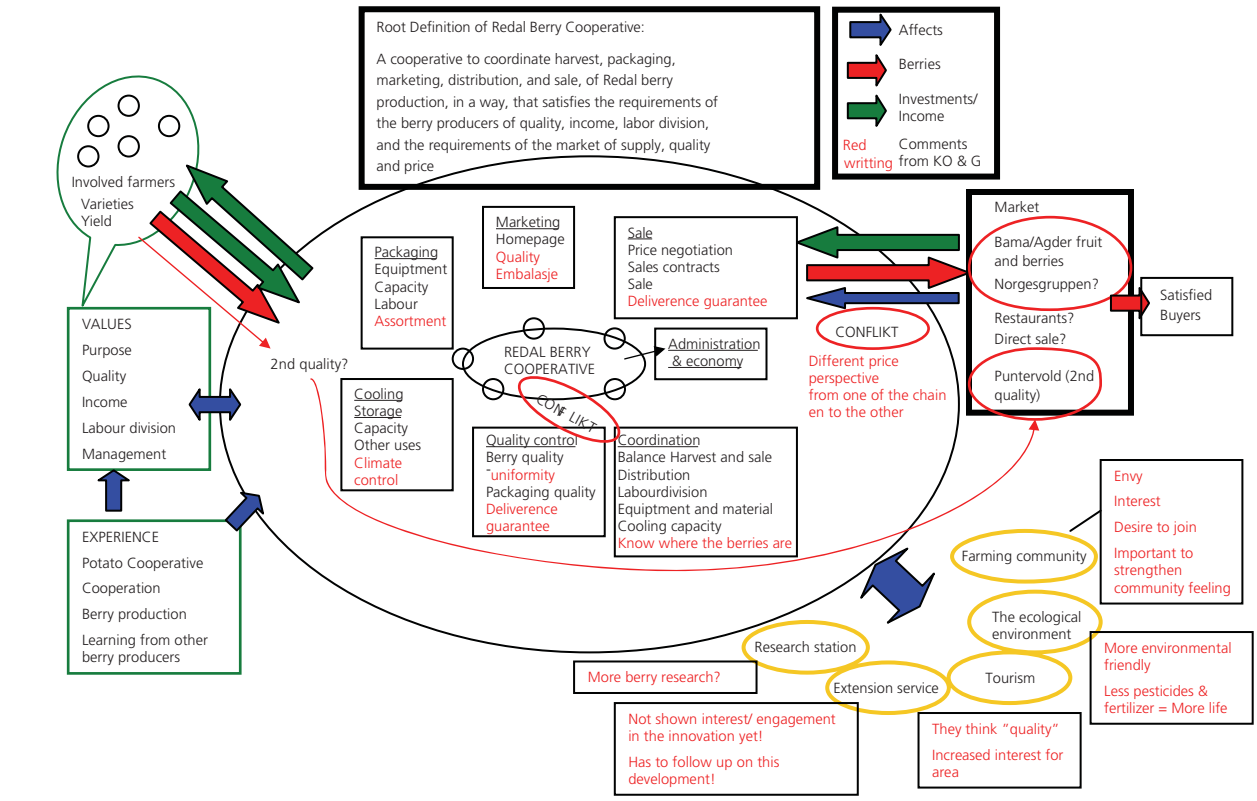

Figure 4: Edited version of the CATWOE of a blueberry cooperative as presented and discussed with the farmers

Tables 1 & 2 illustrate the innovation and learning path of the process. The overall outcomes of the soft learning cycle were: 1) an increased awareness of the possibilities and limitations of the farm situation and; 2) improved learning competence to initiate innovation and to reflect on the relations and consequences involved with innovation. The outcomes of the hard learning cycle were: 1) the establishment of a high-bush blueberry production and its related activities, i.e. post-harvest, market agreements, etc. and; 2) learning about the management and market conditions of blueberries. This learning and innova-

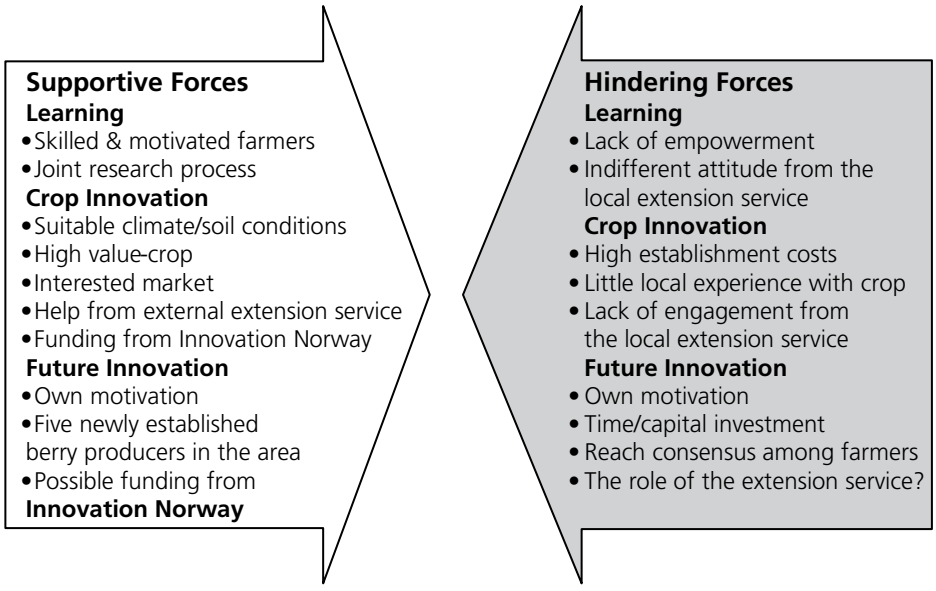

Figure 5: Supportive and Hindering forces for Learning and Innovation, as perceived by the facilitator from observation and discussion with farmers

Table 3: Evaluation of activities

The Soft System Activities		
Meeting	Activity & Method	Farmer Evaluation
I	a) Informing about the project b) Multiperspective questions	a) The project seemed relevant in our situation b) Useful to get the questions beforehand to prepare for the next meeting
II	a) Semi-structured interview b) Rich Picturing c) SWOT d) Selecting blueberries	a) Increased our awareness of the situation – and that we are responsible for making the best of it. b) Helped to see possibilities in our current situation; what to change to improve our farm foundation. Our relation to the community and the mutual influence. c) Increased our awareness of the SWOT of our situation and how we can use the S&O to improve our farm practice. d) Had considered blueberries earlier. Seized the opportunity to work with you.
V	Hawkesbury Model	An update. Surprising to find that we had worked with all that.
V	Visioning	It would perhaps work better for others. It was a new and different experience, but it felt useful to share our dreams and ideas and write them down. We learned that it is important to discuss our ideas and relate them to the history of our situation.
VI	Structuring Dreams	Important to structure ideas by discussing them. It made the dreams more concrete. Made us able to recognize our possibilities.
VII	Model of structured dreams	Helped to overview dreams as concrete working goals
VII	Model of a "Blueberry cooperative"	It was a dream that was made concrete. The dream is complex and new and implies time for thinking. Now we have an idea and a working paper that can help future development.

The Hard System Activities		
Meeting	Activity & Method	Farmer Evaluation
II	Joint Blueberry research	It was useful to have specific working tasks. The thought of creating something new was the driving force.
III	Sharing information and relating to current situation	We had a good working atmosphere and cooperation. We had a lot to learn about blueberries.
III	Application for funds	We made a good application. We realized that it pays of to spend time in the "office" to investigate what and how a blueberry production implies.
IV	The "year" model	Useful to get an overview. Can be consulted as a "picture" of our time management, especially related to the new crop.
IV & V	Workplan	Worked to question what and how we had to do.
V & VI	Production guide	Better control of the management system. We feel more secure with the development of the project.

tion process was faced with different types of barriers and supports during the project development. The following figure lists these in relation to the learning development, the crop innovation, and the future innovation, as perceived by the facilitator from observations and discussions with the farmers.

Evidence of claimed hard cycle findings are found in the concrete change of crop on the fields and the farmers' increased knowledge about the crop production. Evidence of claimed soft learning cycle findings were found in an evaluation session made with the farming family. In this session, the farm-family answered questions about the process, the activities, and their learning experiences (see table 3 & 4).

The evaluation tables indicate that the farmers have increased their learning about their situation and its limitations/possibilities (1st level learning), and further changed their perception of how to initiate an innovation process, i.e. they recognized the advantages of planning and structuring before implementing, and the relevance (and possibility) of consulting different resource persons (2nd level learning). In addition, they had achieved a feeling of empowerment as regards the further development of their farm and farm community, i.e. of being able to succeed with their dreams. In this way, it could be argued that 3rd level learning was initiated, i.e. their change of assumptions regarding innova-

Table 4: Evaluation of the process

Question	Farmer	Farmer's wife
What has been the best experience in the process?	We have established a blueberry production and we feel comfortable of how to proceed. We are more conscious of the time we spend and the possible conflicts in our management practice. You have been valuable as a consultant and ensuring that it can bear economically.	We have a new production – we have made it real – and we have done it properly! We have become conscious of our opportunities and limitations – and how we can use them.
What could be done better/ different?	I could perhaps have done better? Maybe we did it too fast? But we learned in the process – and now I am glad we did it.	Perhaps we should have chosen other varieties? But otherwise I don't know.
What did you learn from the process?	It pays of to work hard for an idea. Now I would have chosen other varieties and planned a tunnel from the beginning.	To use time on applications. That it is worthwhile to search for information and consider it before starting a project. That we should not be embarrassed to ask for help.
What would you like to learn after this process?	I would like to learn more about blueberry production. I am planning a study trip to Germany – where they are really skilled. It is a whole new world.	I am curious about everything. More computer based work. Perhaps learn to make a webpage for the farm/blueberry cooperative.
How was this process different from the one you get from the extension service?	Very different. They are good to find out what we ask, but it has never come close to this kind of process. This has been a totsally different process, where every discussion has been followed by development.	I agree. It has been a good process – but also more time consuming. It is a new way of thinking and of working together. It seems like a good investment to spend more time on a project. The problem is that you often don't know where to start – how to get I down on paper and don't have the resources or time to do it. It is difficult to have an idea which is just criticized when you share it.
How did you perceive me as a facilitator?	You have been easy to work with. I do not regret that I said yes to meet with you – although I was sceptical at first.	It has been interesting to work with you.
What could I do better?	I don't know.	You could have come a few years ago!

tion processes. The fieldwork of this research project, however, did not explicitly focus on "mapping" their previous assumptions and it was therefore difficult to qualify what assumptions were actually changed during the process.

Discussion

The process and findings from the case study presented illustrate that participatory methodologies, such as SAR, are promising when desired outcomes are innovation and increased learning competences in rural situations. This point is supported by several others (i.e. Pretty, 1995; Röling & Wagemakers, 1998; Leeuwis, 2004, Packham & Sriskandarajah, 2005), who have all worked with agricultural and rural development in different settings. In the present case, a similar agricultural innovation might have occurred without the interaction of the systemic action researcher described. Yet, it is relevant to ask if the learning competences developed would have been so significant. The systemic action researcher catalysed the innovation by offering facilitation of the process, and by supporting with relevant knowledge, through the application of relevant systems models. In addition, through involving people as co-researchers, where they were equally responsible for learning and sharing during the entire process, the systemic action researcher created a budding learning system.

The outcome and evaluation of this project thus emphasizes the challenges facing the advisory practice of the extension service in Norway. Currently, this mainly deals with well-defined problems of established crops, and does not

consider innovation initiatives in relation to the wider aspects of the situation; i.e. market changes, policy changes, or social changes. In this way, the extension service mostly aims at extending knowledge from the research sphere and facilitating its applicability in practice. This project reveals that farmers are also in need of process facilitation that can relate critically to their desires, and debate the consequences with regard to the "whole" of the situation. Moreover, process facilitation involves the farmers in the actual research-innovation process, and thus, stimulates their learning and their ability to improve their situation continuously.

When this is said an done, it is also true that a longer term and more extensive project would be appropriate, before drawing conclusions about the long term suitability and efficiency of systemic action research for creating learning systems beyond the budding stage. However, from the case study presented and from the long line of similar projects (e.g. Bawden et al., 2000; Packham & Sriskandarajah, 2005), we find reason to believe that similar approaches could be useful, when the aim is to generate innovation and stimulate learning with stakeholders in rural contexts. In this regard, a future perspective could be to involve larger stakeholder/citizen groups in an innovation process to stimulate a social learning process. Social learning is a collective learning process (Leeuwis, 2004), aimed at involving relevant groups, in the process of learning how to innovate situations, as a response to changing social and environmental conditions. Such processes can, in contrast to individual learning, widen and differentiate the perspective of a situation even further, and create synergy in the creative process (Woodhill, 2004). Such social learning could be initiated and stimulated by a facilitator, an action researcher, or an extension worker. In the perspective of today's agenda of rural and agricultural areas, it seems reasonable to consider that development of these should involve the people living and working here. Agricultural and rural innovation ought to be based on local participation, and the stimulation of social learning in the innovation process ought to be an in-built feature of methodological design.

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Living dialogue of education and rural development – a boost for competence in rural areas

Examples of education as a tool of effective rural development from Finland

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Abstract

A substantial amount of financial resources have been invested in rural development during the past programming periods of the European Union. As valuable as the abundant funding, advisory and consultation as well as numerous projects are, they cannot, however, automatically guarantee the sustainability of results of development actions.

Thus, in the evaluation of rural development activity there should be focused not only on the immediate outputs and outcomes but rather the longer-term impacts and effects. Those can be achieved through learning processes integrated in development actions. This presupposes a dialogue of rural development and educational policies and actors, bringing the educational institutions and educators into the core of networks and arenas of rural development together with development agencies, local action groups, authorities and other more traditional and legitimate actors.

In order to identify the critical elements of the dialogue of education and rural development and generate forums for learning in rural areas in practice, there are three questions which need to be focussed on: beneficiaries (learners), contents (focus) of learning and the system (network of collaboration).

Apart from individuals (farmers, entrepreneurs, citizens), it is also essential to address communities (e.g. villages) and networks (e.g. of entrepreneurs) where the power and positive prospects of rural development reside.

In addition to knowledge and skills related to entrepreneurship and vocational qualifications, the conventional concern of development policy, the capacities

of active citizenship and trustful, inter-personal co-operation shall be on the educational agenda.

The support for life-long and life-wide learning both in individual and collective contexts outlined above necessitates goal-oriented collaboration in at least two directions: firstly between the sectors of formal, informal and non-formal education and secondly between the educational institutions and the rural development agents. At its best there are conscious and supported learning processes, both individual and collective, inherent in every project or any development initiative of rural development.

In our paper we will present and discuss practical examples and models for the promotion of the dialogue between education (particularly adult education) and rural development developed in European projects (e.g. Socrates/ Grundtvig).

Key words: Rural development policy, educational policy, lifelong learning, lifewide learning, community education, active citizenship, regional partnership.

Introduction

The fact that rural areas are continuously undergoing dramatic and irreversible transformations in the contemporary Europe is self-evident. The changes taking place in every sector of the society have an apparent and indisputable impact not only on the economy and supply of services in rural areas but also social structures as well as residential and spatial patterns.

There is, however, significantly more hesitation and confusion about the challenges and needs of rural areas and people living in rural areas these transformations enforce. The tools and instruments which should be applied in order to tackle the problems and challenges are not equally evident and clear. Rural (development) policy implemented in Europe incorporates a number of means and methods for rural development. A substantial amount of financial resources has been invested in rural development during the past programming periods of the European Union. As valuable as the abundant funding, advisory and consultation as well as numerous projects are, they cannot, however, automatically guarantee the sustainability of results of development actions.

Thus, in the evaluation of rural development activity not only the immediate outputs and outcomes but rather the longer-term impacts and effects should be focused on. Those can be achieved through learning processes integrated in development actions and the long-term accumulation of know-how and competences of various types.

In this paper we will discuss the role and meaning of education and training as tools and instruments of development of rural areas and, thus, make an effort to identify the interface and overlapping fields of interest of rural and educational policies, particularly at the local and regional level, an imperative for

effective and efficient rural development. The emphasis is on adult education and especially education and training in collective contexts, i.e. in communities and networks, and the context discussed is that of Finland.
Firstly, we will make an attempt to clarify the competences the development of rural areas prescribes through the analysis of the framework and dimensions of contemporary rural (development) policy in Europe. The discussion will result in the identification of the contents and focus of learning, essential for rural development.

Secondly, the critical question of beneficiaries of rural development will be addressed. With the fundamental assumption about the interdependence of learning and sustainability of results of rural development considered, it becomes evident that beneficiaries are not only passive observers of development actions or target groups of education but active agents and learners in the development processes. The focus is primarily on adults and communities as contexts of collective learning.

Finally, a more pragmatic approach will be adopted, in order to draw attention to the challenges on the system with the capacity of promoting (or hindering) the accumulation of appropriate know-how and competences. The prospects of structures of collaboration and the potential for forums for a dialogue between the agents of rural development and the educational sector will be assessed.

In each section of the paper practical examples and models for the promotion of the dialogue between education (particularly adult education) and rural development developed in European projects (e.g. Socrates/Grundtvig and Interreg IIIC) coordinated by North Karelia University of Applied Sciences, Finland, will be illuminated.

Challenges for contents and focus for learning

Malinen (2000) has made an attempt to capture the framework of the challenges of rural areas and sustainable rural development today and, thus, the field and focus of modern rural policy (see Chart 1 below). The key feature is "integration" which manifests itself in, firstly, a holistic (not sector) approach to development practices, secondly a community approach, and thirdly an approach focused on regions.

The principle of horizontal policy implies intensive dialogue and a partnership based on equity between the three sectors of the society, i.e. the public (authorities), private (companies and citizens) and voluntary sector (NGOs). A joint process of strategic planning and coordination of complementary development actions guarantee the balanced development perceived as meaningful by all the parties.

The Community approach is based on the idea of bottom-up action and, as such, presupposes mobilisation and empowerment of the beneficiaries and all the stakeholders. It also necessitates the guarantee of possibilities of participatory planning and development.

The focus on regions highlights the significance of local development based on the indigenous factors (strengths and possibilities of and in the region). The initiative for the development of the regions should reside in the hands of the local people and the development strategies and policies should be tailored in accordance with the regional reality and will of local people.

Pressures	+	Shared vision	+	Capacity/ resources	+	Realistic projects	=	SUCCESSFUL CHANGE
	+	Shared vision	+	Capacity/ resources	+	Realistic projects	=	MEANINGLESS ATTEMPT
Pressures	+			Capacity/ resources	+	Realistic projects	=	AIMLESS/ DISPERSED ATTEMPT
Pressures	+	Shared vision	+		+	Realistic projects	=	FRUSTRATION/ UNEASINESS
Pressures	+	Shared vision	+	Capacity/ resources	+		=	RANDOM ATTEMPTS

Chart 1: Framework of integrated rural policy. (Malinen 2000)

The imperative of learning and education in its multiple forms is inherent in the framework of "integrated rural development", at all levels and sectors: Attendance in "participatory development" or "participatory planning" is not possible should an individual (a rural citizen, entrepreneur etc.) not be aware of his/her possibilities and appropriate channels and forums in the first place. "Partnerships" between individuals or communities cannot be built without communication and interpersonal skills.

Development built on "indigenous factors" or "regional approach" implies awareness on the strengths and weaknesses of the region and the understanding of the dynamics of the "interplay" between the sectors, actors and fields of economy in the region. "Strategic planning" is an advanced skill which can only develop in a long-term individual and collective learning process. (Asikainen & Holopainen 2003)

Moreover, a "development process", the core element of implementation of rural policy, cannot be managed without knowledge of its dynamics. The development process is always about "making change". According to de Woot (1996) there are a number of elements which shall be present in a process leading to a successful change (Chart 2).

The model by de Woot repeats and confirms the ideas presented above. In order to identify the internal or external "pressures" prevailing in the region and necessitating changes, the individual/region should be able to interpret the transformations taking place in the society and impacting the region. Building and agreement on a vision requires a long-term collective learning process: skills to interpret the changes taking place inside and outside the region, negotiation, conflict/problem solving and decision-making skills etc.

Pressures	+	Shared vision	+	Capacity/ resources	+	Realistic projects	=	SUCCESSFUL CHANGE
	+	Shared vision	+	Capacity/ resources	+	Realistic projects	=	MEANINGLESS ATTEMPT
Pressures	+			Capacity/ resources	+	Realistic projects	=	AIMLESS/ DISPERSED ATTEMPT
Pressures	+	Shared vision	+		+	Realistic projects	=	FRUSTRATION/ UNEASINESS
Pressures	+	Shared vision	+	Capacity/ resources	+		=	RANDOM ATTEMPTS

Chart 2: Elements of a successful process of change. (de Woot 1996)

A process of change in any region or community (single enterprise, network of enterprises, village or other residential area etc.) is successful only to the extent it is perceived as meaningful by individuals working or living in it. The success is dependent on the degree of "social capital", the prerequisite of success of societies, economies and communities and a concept developed by the two major sociologists, Pierre Bourdieu and Robert Putnam.

According to Hyyryläinen & Rannikko (2002) social capital is a collective qualification, a capacity of working towards common goals and objectives. Building up, maintenance and exploitation of social capital, i.e. co-operation and interaction as well as acting upon formal and informal norms, trust and reciprocity regulating those, presuppose appropriate methods and means (Hyyryläinen & Rannikko 2002). This is where the challenge of education, especially adult education, lies in rural areas of today.

As a conclusion, in order to meet the criteria of "sustainable rural development" outlined by Malinen (2000) above, complex processes of mobilisation, empowerment as well as capacity- and awareness-building need to be launched and managed in regions. They are, above all, long-term and delicate learning processes with, however, a great potential of genuine innovations and raise of quality of life in rural areas. In addition to (individual) knowledge and skills related to entrepreneurship and vocational qualifications, the conventional concern of rural development policy, the capacities of active citizenship (including sense of responsibility and ability of decision-making; Oels 2003) and trustful, inter-personal communication resulting in "social capital" shall be on the "educational agenda" in rural areas.

It should additionally be emphasised that the implementation of integrated rural policy manifesting itself in a number of parallel development processes without continuous evaluation and self-evaluation is hardly effective and efficient and, thus, the capacity of analytical and critical reflection, the meta-cognitive skills of "learning to learn", is another central item on the "educational agenda" of rural areas. (Asikainen & Holopainen 2003)

Case 1: RURALpro project (Socrates/Grundtvig 2004-2006)

The concrete outcome of RURALpro project was an international in-service training course (6 days) for teacher and trainers. The goal was to "broaden the horizons" of teachers and educators themselves: colleagues from fields with an interest in rural areas (agriculture, forestry, business, tourism, social studies etc.) were invited to enter a multidisciplinary dialogue to examine the dynamics of the interplay of the different sectors and actors of the society and fields of economy in rural areas.

In other words, a holistic and horizontal view on sustainable rural development and quality of life in rural areas was supported. The awareness of business, cultural and social issues as well as environment as the elements of sustainable rural development and quality of life in rural areas and their interrelatedness was raised and expanded. The awareness of the participants on the processes approach embedded in rural development was raised.

So far three Courses have been organised and Courses 4 and 5 will take place in May 2007 in Kitee, Finland, and in June 2007 in Mosonmagyaróvár, Hungary.

Please find more information on the Courses and the project at: www.ruralpro.net

Beneficiaries of rural development – active learners in rural development

Reflecting on the aforementioned conclusions drawn on the contents and focus of education and learning processes in rural areas, it becomes evident that apart from individuals (farmers, entrepreneurs, citizens), in rural education it is also essential to address communities (e.g. villages and other residential units), networks (e.g. of entrepreneurs) and partnerships (networks between the actors and communities of the three sectors of the society) where the power and positive prospects of sustainable rural development reside.

The formal educational system alone is, hence, not adequate to cover and react on the new learning needs dictated by the challenges of contemporary rural policy. Moreover, it is evident that in respect with effective rural development, it is adult education which deserves more and more attention and the emphasis of development of adult education as a tool of development of rural areas should be shifted more to informal and non-formal adult education. This implies, however, not the neglect of individual formal and vocational education. On the contrary, in many cases it is exactly the flexible combination and "fusion" of the approaches of formal, non-formal and informal education which ensure the best possible results and meaningful learning processes.

Collective learning processes taking place in communities, networks or partnerships can become genuine "fuel" and a boost for rural development only if they are carefully managed and supported. A promising arena for the co-operation of rural development and adult education is "community education",

with "empowerment" as its core concept. "Empowerment" implies the awareness of an active subject "I" (individual) or "we" (community) as well as active participation in action with the objective of transforming the community and/or its relationship to other communities or society. As a philosophy of development it is strongly interconnected with participatory approach. (Antikainen 1998, Salo 2002).

The variety of means and methods of "community development" is, however, considerable. "Adult education of the community" is the most conventional approach and represents only an extension to the traditional forms of adult education. The objectives of the education, which focus mostly on the improvement of the capacities of the individuals (not the community), are defined outside the community, e.g. by the suppliers of the education, and declared on the official curriculum (Salo 2002). The special needs and requirements of the communities are taken into consideration with the practical arrangements (timing, venue etc.) of the education. A typical case of "adult education of the community" is a tailored training programme for a group of entrepreneurs representing the same field of business.

Another approach is "adult education for the community" which is based on a coherent analysis of development needs in the community. The goal is to support the collective learning as well as strengthen internal communication and problem solving capacities in and of the community. (Salo 2002) An example of "adult education for the community" is a development programme conducted in a working community with elements of training and consultancy.

The third approach, "adult education in the community" is the most radical and demanding alternative. The process starts with the fundamental stage of raising awareness of the members of the community of the societal and economic factors, conditions and structures which impact their lives. The awareness-raising process is followed by action which aims at transforming the circumstances prevailing in the community and/or in its surroundings and its relationships vis-à-vis the society and other communities. The role of the "educator" is to facilitate and support the spontaneous learning experiences in the community which provides a learning environment in itself. (Salo 2002) "Adult education in the community" has inspired e.g. projects dealing with unemployed or excluded people.

The applicable and appropriate practices of community education in the countless cases of rural development initiatives vary. The need for an investment in the education of/for/in communities and networks is, however, essential because due to the lack of "critical masses" (people and financial resources) in rural areas, the success and well-being of rural development is significantly dependent on the capacity of communities and networks.

Case 2: ADORE project (Socrates/Grundtvig 2000-2003)

ADORE (Adult Education as a Tool of Rural Development) project was a quest for innovative models for adult education in rural areas, with the focus on collective learning in communities, networks and partnerships of private, voluntary and public sector. Moreover, the changing role of educational

institutions as well as individual teachers and trainers as active agents of rural development was highlighted.
In Finland the ideas of community and network education were tested and elaborated with two cases: in a local project with a network of rural entrepreneurs specialising in cultivation of shiitake mushrooms and with a residential community "Rantala" with various social problems.

The approach applied with the entrepreneurs was equivalent to "adult education for the community", i.e. an analysis of the learning needs prevailing in the network was conducted through a process of building "Personal Learning Plans" for the members of the network. The training programme which followed the analysis was, however, not only a synthesis of the wishes and hopes expressed by the entrepreneurs (often dealing with professional and entrepreneurial aspects only) but as a "hidden learning agenda" the training programme was designed to improve the communication and trust inside the network and, thus, strengthen the social capital, a valuable asset for micro enterprises operating in a field sensitive to changes taking place in the global market.

In Rantala residential community the approach was similar to that of "adult education in community". The process started with mobilisation and activation of residents "out of their homes" by the introduction of interesting and inspiring themes (e.g. recycling, bird watching) in informal "study circles". The framework of the process was flexible, even open, and it was redirected whenever there was a need, based on the feedback by Rantala residents. During the process the activity of participation of the residents and the interest of the inhabitants in the development of their living environment and personal development clearly grew.

Please find more information at: http://kiteeok.pkky.fi/adore

Case 3: Operation DEBATE (Interreg IIIC 2005-2007)

DEBATE (Development of the European Business Adviser and Training and Exchange) is a project with the objective of raising the level and quality of business advisory as an instrument of regional development in Europe. Almost all the regions participating are essentially rural.

Among various other objectives, the DEBATE partners, i.e. public or public-equivalent business advisory organizations, higher-level educational institutions (universities and polytechnics) and research institutions all over Europe, are elaborating an educational structure for business advisory in Europe. In practical terms this means development of (in-service) training programmes for Business Advisers, including an international exchange programme.

In Finland the target group of the education, i.e. the regional network of Business Advisers, has been involved in the curriculum process from the very beginning. A working group with representatives from education and business advisory was established and the "voice" of the final beneficiaries of

the education was guaranteed. With the multifaceted other objectives and fields of operation of the complex project the curriculum development process does, however, not only contribute to the quality of training but clarifies the professional identity and supports formation of professional network of colleagues based on "Professional Profile" of the European Business Adviser, another main outcome of the project.

Please read more at: www.debatenet.info

System and structures – favouring or impeding learning in contexts of rural development

The support for life-long and life-wide learning both in individual and collective contexts as well as harnessing the education and training as instruments of development in a given rural area necessitate goal-oriented and, to high extent, unselfish collaboration in at least two directions: firstly between the sectors of formal, informal and non-formal education and secondly between the educational institutions and the rural development agents.

The ideals of "life-long" and "life-wide" learning are key aspects of contemporary educational policy in Europe, with the former referring to educational interventions over the person's life cycle and the latter to participation in education not only in the formal but also non- and informal sectors of education. Yet, the practical implications and challenges of promotion life-long and life-wide learning in rural contexts with more demanding circumstances (less financial resources, fewer people, longer distances etc.) have not been addressed and investigated sufficiently.

From the point of view of the "customers" of adult education, the facilitation of access to services is essential to i.e. the individual learners (citizens, entrepreneurs, farmers) and communities/networks,
For a "layman", i.e. a citizen or entrepreneur or a representative or "spokesman" of a community/network without vast or recent experience in education the identification of differences in educational levels or sectors, not to speak of individual educational institutions, is practically impossible and cannot even be expected. In the midst of complex names of educational institutions and a long list of contact points the maintenance of motivation for education and learning is jeopardised.

The goal-oriented co-operation of educational institutions operating in all the sectors of education driven by the customers' genuine needs should be built into an attractive and transparent system and concepts of shared services in the fields of marketing, recruiting, communication, curriculum development and support/tutoring should be developed.

The success of development in a given rural area is dependent on the success of numerous development processes taking place in the region, in its communities and networks. Thanks to the various programmes co-financed by the European Union and national authorities these development processes often manifest themselves in projects. Ideally, in order to guarantee the sustainability

of the results and continuation of the development process and commitment by the beneficiaries and stakeholders beyond the relatively short-term projects, there should be conscious and supported learning processes, both individual and collective, inherent and embedded in every project or any development initiative of rural development.

The integration of development projects and learning processes is, however, not possible without a living and reciprocal dialogue between the educational institutions (operating not only in the formal sector of education but also in informal and non-formal sectors) and the mutual recognition of their roles and qualifications in the field of rural development. Developing and tailoring the (adult) education in its multiple forms for the benefit of a given rural area implies frequent communication about the prevailing circumstances and the needs of the communities and networks.

Opposite to what is often the unfortunate case, the educational institutions, equipped with expertise on "learning" itself and capacities of guidance and facilitation of learning, should become active and recognised agents of rural development, with a direct contact to the local communities and networks via the "transmitting organisations" (e.g. Local Action Groups, public and private development agencies, NGOs etc.), the traditionally more "legitimate" actors in the field of rural development (Asikainen & Holopainen 2001; see Figure 1).

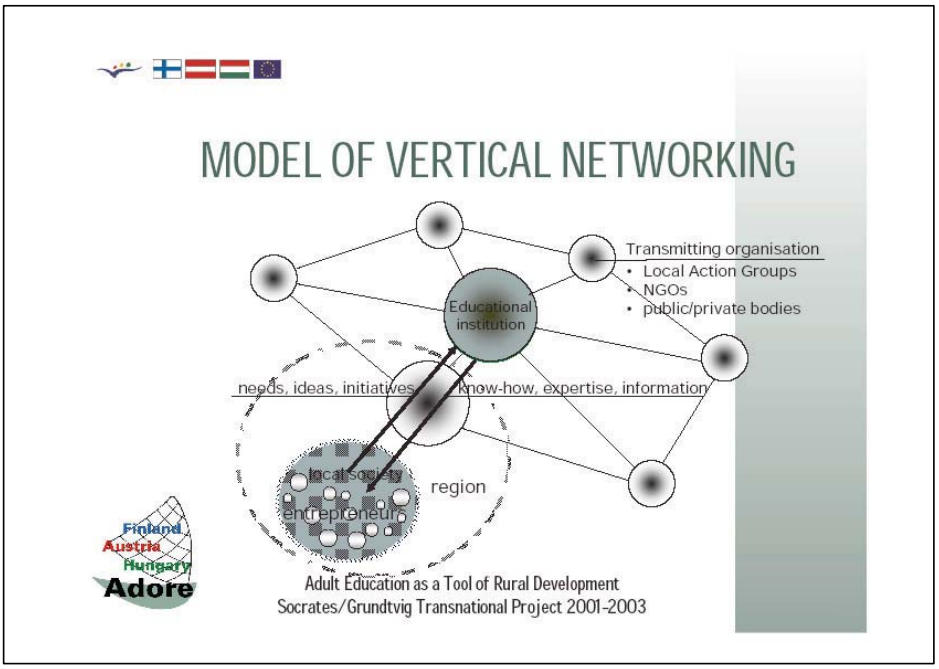

Figure 1: Mode of vertical networking. (Asikainen & Holopainen 2001)

Eventually, the intensive and goal-oriented co-operation between the educational institutions representing all sectors of adult education and agents of rural development, can give an impetus to the birth of a "learning region". According to Lyytinen (2000) a learning region is characterised by "an identity and recognition of indigenous potential for development of its competitiveness by investing in the capacity (intellectual and social capital) of its residents; shared vision and the strategies derived from the vision (operational model); active actors with memberships in local, regional, national and global

networks; well-developed structures of information and (self-)evaluation; and existence of development strategies with a proactive approach".

The "proactive" development emphasises an active approach, with the intention of not only reacting to what is already there but influencing the future, following the strategy and objectives mutually agreed on in the region. It is, thus, an integral element or philosophy of integrated rural development and brings us back to the fundamental question of the complex needs for (collective) learning in rural development process.

Case 4: KAIKU (ECHO) network – the network and strategy of adult education in the sub-region of Central Karelia, Finland

KAIKU – ECHO was a joint initiative of the sub-region of Central Karelia with the ambitious objective of a sub-regional adult education strategy supporting the development of the region, division of tasks and centralised "front office services" for clients (individuals, enterprises, networks, communities etc.).

KAIKU was a lively forum for co-operation of all the adult educational institutions operating in the sub-region of Central Karelia, covering all the levels (from secondary to higher education) and sectors (formal, non-formal/liberal and in-formal) of education. The network was supported by the regional development and advisory agencies, Local Action Group and authorities.

KAIKU network and strategy aimed at 1) supply of effective adult education supporting the development prospects of the sub-region (proactive approach), 2) joint unit and processes of design and implementation of adult education and training, 3) facilitation of the access to adult education (shared marketing, information and recruiting services and 4) promotion of life-long learning in the sub-region (shared student support and guidance system).

KAIKU was a spin-off initiative of ADORE project. Despite the enthusiasm among the contributors of KAIKU and the devoted inputs during the development process, the network ceased to exist as no funding was available after ADORE. The reason for the rejection of the KAIKU project proposal was the "lack of innovation". Strangely enough, an identical (or similar(?)) project was financed a couple of years later in an urban context.

Conclusions

The experience made in our region, North Karelia in eastern Finland, shows that the domains of educational policy and rural development policy are, in spite of their obvious common interests and overlapping fields of action demonstrated above, still operating separately and without a living dialogue to a high extent. At the level of policy-making the non-existent communication is reflected in educational policies "neutral to rural areas", i.e. insensitive to the special needs prevailing there, and in rural development policies without serious contributions from educational institutions (apart perhaps from universities) and educators.

At the operational and regional level the separation manifests itself as a lack of regular and goal-oriented communication between the educational institutions and agents and organisations of rural development and exclusion of teachers and educators from the dialogue about the development of a given rural area. The co-operation is reduced to ad hoc projects where an educational part with shallow objectives predetermined by the initiators of the project is subcontracted to local educational institutions without a genuine dialogue with the target group, community or network.

Yet, the more profound analysis of the field of "integrated rural development" and learning needs it generates confirms that considering its multiple approaches and comprehensive objectives the role of (adult) education should also be much more "sophisticated" and intensive and the input of actors of adult education also beyond the formal and vocational education, for example in community education, can bring significant value-added education (or understanding)) to the development of rural areas.

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Distance learning as a source of upgrading in rural areas: The case of the University of Akureyri

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Abstract

The University of Akureyri is a small university in the Northern part of Iceland. The university has had a leading role in developing distance education at university level in Iceland. The student number has grown rapidly, not least in distance learning. At present, more than third of the total number of students are in distance learning. The distance education program has given people in rural areas, particularly married women, the opportunity to attend university education without moving from the rural community. For the firms, municipalities and governmental institutions (schools, hospitals, etc), the distance education program has considerably improved the possibility of hiring university educated personnel. The aim of the paper is to analyse the development of the distance education program in UNAK. The main conclusions are that there have been various socio-economic impacts of the distance education program (more qualified workforce, better services in the local community etc.), and that the educational achievements of distance learning students are similar to the campus students.

Key words: Distance learning; rural areas; university location; qualified workforce.

(Generally, I would prefer to read about 'distance learning' og only use 'education' when referring directly to an education programme, but it is up to you to choose.)

Introduction

Distance learning, or e-learning, has greatly increased in recent years. The main reason is a new technology that enables the transfer and transmission of text, pictures, and movies independent of time and space. This has granted various

groups of individuals, such as married women in rural communities and middle-aged people, access to educational institutions at university level. As a result, an ever-growing number of individuals are obtaining a university education in Iceland, as well as in other countries.

The aim of this paper is to analyse the development of the distance education program in Iceland, and at the University of Akureyri (UNAK) in particular. In order to address the research aims, the following questions are raised:

- What is the socio-economic impact of the distance education program for rural areas in Iceland?
- Are the student achievements and results similar among distance learning students and campus students at UNAK?

This paper is based on data from official statistics and data from the information system of UNAK.

The next section of the paper deals with theories on distance learning. The third section analyses distance learning in Iceland, while the fourth deals with the distance education program at UNAK. The paper ends with conclusions.

Theoretical considerations

There are many different definitions of distance learning; one of them is from the Instructional Technology Council's USA (2007) that defines distance learning as:

> *the process of extending learning, or delivering instructional resource-sharing opportunities, to locations in another classroom, building or site by using video, audio, computer, multimedia communications, or some combination of these with other traditional delivery methods.*

Distance learning carries various advantages which benefit a large number of students. The study can be highly flexible with regard to timing and progress. The most important benefit, however, is probably the fact that students do not have to move away from their home district to obtain an education. In addition this form of education enables those people to remain in employment in their home district while studying. Thus distance study raises the level of education in provincial areas and strengthens industry on the students' home ground.

The impact of distance learning on rural areas is probably similar to the effect of regional universities. Research into the role and impact of regional universities stresses general knowledge enhancement in the area under investigation: People are increasingly drawn towards a university education. The proportion of university students increases locally. Universities add to the human capital of their respective areas by a process of education and training. Universities tend to re-

duce the outward flow of young people who would otherwise leave their home district to study at a university elsewhere. Universities tend to strengthen the infrastructure of neighbouring districts by ensuring good communications by road and air, sophisticated computer and information systems, equipment for conducting teleconferences is increasingly used in teaching and development work etc. (Edvardsson, 2001; Nord and Weller, 2002; Nilsson, 2006).

Most research which has compared the study outcomes of distance and local students indicates that there is no statistically significant difference between the two groups (Meyer, 2002, 2004). Comparing distance and local learning, however, is not an easy task and several factors may distort the comparison, leading to unreliable results that are only of very limited use (Meyer, 2004). One of the most significant factors that may reduce the value of the comparison, or even render it useless is the fact that distance students and local students are different types of groups. Do these groups for example share similar age compositions, gender proportions and preparation? The risk here is that the comparison is of no value, because two different things are being compared, like for example apples and oranges (Howell et al., 2004).

Distance learning in Iceland

The supply of distance learning at Icelandic universities has grown rapidly and new courses are added every year. Seven out of eight universities offer distance learning of one type or another. Those are: The University of Iceland, the University of Akureyri, the University of Reykjavík, Bifröst University, Iceland University of Education, Hólar University College and Hvanneyri Agricultural University. Distance learning is not on offer at Iceland Academy of the Arts.

In 2006, 16.853 students were registered at those universities, of which 2.439 were in distancelearning, as may be gathered from Figure 1 (Statistics Iceland 2007b).

The distance studies are carried out in different ways, either by means of teleconferencing equipment or via the Internet. Each university has its own variation of course organisation and the implementation of the distance programme.

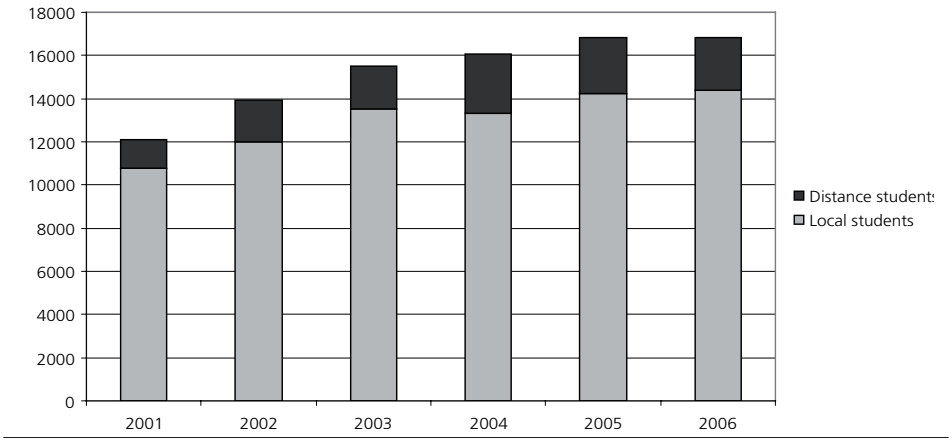


Figure 1: The total number of students attending university education in Iceland 2001-2006.
Source: Statistics Iceland, 2007.

Distance learning at UNAK

The University of Akureyri is located in the largest town in Iceland outside the capital area. The town, which also is a regional centre, is located in the North-Eastern part of the country and has about 17.000 inhabitants. UNAK was the third university to be founded in Iceland. At that time the other two were in Reykjavik, the centre of higher education in Iceland. Before UNAK was founded in 1987, every student from rural areas had to move to Reykjavik in order to receive higher education. Still today, Reykjavik has a dominating place within the university system, since about 76.7% to 85.3% of students live and study in the capital area (Statistics Iceland, 2007a) while 63% of the nation live in the larger Reykjavík area. From the beginning the university has been of great importance to Akureyri and the scattered provincial settlements of Iceland (Statistics Iceland, 2007b). Currently, the university has four faculties, Faculty of Law and Social Sciences, Faculty of Health Sciences, Faculty of Education and Faculty of Business and Science.

The majority of students at the university are relatively mature. In 2006 the average age was 31.8 years. Also, women are 76.5% of the total number of students, which can be explained by the fact that the largest faculties of UNAK are those of health sciences and education, i.e. providing education for traditional women's jobs (nursing and teaching).

Table 1. Number of students at the University of Akureyri 1998-2006.

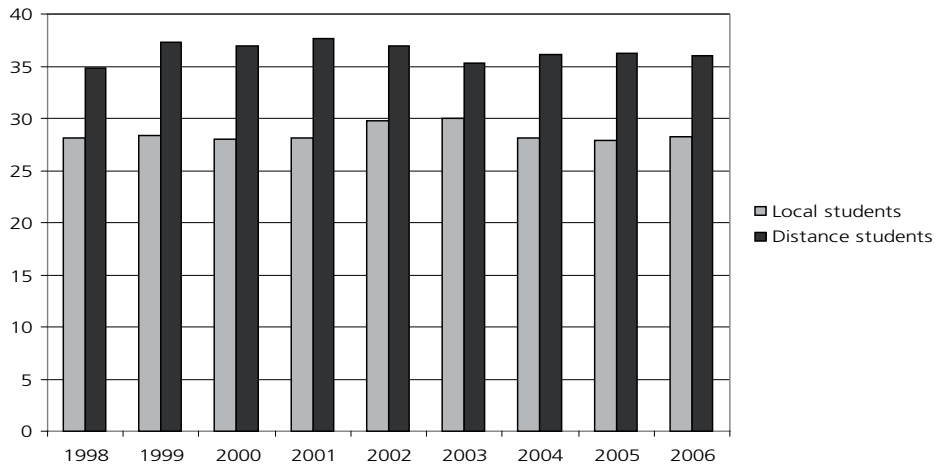
		1998	1999	2000	2001	2002	2003	2004	2005	2006
Local students										
	male	104	106	126	146	182	229	225	213	217
	female	335	358	366	405	452	603	547	567	546
		439	464	492	551	634	832	772	780	763
Distance students										
	Male	12	21	27	98	97	120	138	131	121
	Female	31	73	158	274	337	478	606	610	554
		43	94	185	372	434	598	744	741	675
All										
	Male	116	127	153	244	279	349	363	344	338
	Male	366	431	524	679	789	1081	1153	1177	1100
		482	558	677	923	1068	1430	1516	1521	1438

Source: Stefanía UNAK's information system

When distance and local students are compared, it is found that distance students tend to be a little older than local students. This in itself is not a surprise since it may be expected that younger people can more easily move to another location for the purpose of education, whereas those who are older are less mobile because of their family situation etc.

In the autumn semester of 1998, the University of Akureyri initiated a four year distance education programme in the West Fiords at Ísafjördur leading to the degree of Bachelor of Science in Nursing, and offered a distance education programme in management in the East of Iceland (Egilsstadir and Neskaupstadur) for those who had completed a two-year diploma in Industrial Man-

agement. Now every educational programme at UNAK, except information technology and social sciences and law, is on offerred on line.



Source: Stefanía UNAK's information system.

Figure 2: The average age of students at UNAK 1998-2006.

The number of distance students, teaching programmes and places has grown rapidly since 1998. This development has placed UNAK in the forefront of distance learning at university level in Iceland. In autumn 2006, distance students were 675 (46.9%) out of 1438 students, and UNAK provided distance learning to about 20 towns and cities throughout Iceland. This has transformed UNAK from a provincial to a national university. Also, the distance programme is influencing traditional teaching at UNAK. The aspects involved include an on-line syllabus, reference to relevant web-pages, quizzes, e-mail communication between students and teachers and so on. This encourages more disciplined methods by teachers and students, provides more variety in learning resources and introduces new methods in evaluation, (interactive examinations). As the distance programmes at UNAK are in most cases highly flexible and many of the distance students can work alongside their study, it generally takes them longer to complete their studies. It is common for distance students to graduate one or two years later than the local students.

Today three of four faculties at the University of Akureyri offer distance education programmes, i.e. the Faculty of Health Sciences, Faculty of Education and Faculty of Business and Science.

The Faculty of Health Sciences offered distance learning first of all faculties at the university in autumn 1998. In the Faculty of Health Sciences, the courses for each year are taught to one distance location at a time, with the local lecture/seminar sessions being broadcast directly via teleconferencing equipment. Furthermore, the students make use of email, WebCT and teachers' home pages for further communication. In addition the distance students visit Akureyri for a local study period once every semester.

The Faculty of Education began offering distance learning for the playschool programme and the primary school programme in 1999. In the Faculty of Education courses relating to the playschool and primary programmes are on offer concurrently in various parts of the country. The students of the prima-

ry school programme attend distance education centres twice a week during normal working hours to listen to their teachers' lectures via teleconferencing equipment, whereas the playschool students only attend one such session per week. The students also make use of email, WebCT and teachers' home pages for further communication. Furthermore, the distance students attend a local phase in Akureyri once per semester. In addition to the above arrangements, students in the playschool programme attend sessions in Akureyri during the summer semester.

The Faculty of Business and Science first offered distance studies in 2000. The faculty offers courses concurrently to several locations in Iceland in subjects relating to business studies and natural resource science. Computer science, however, is not offered in distance mode. Lectures/seminars in the faculty are transmitted via telecommunications equipment to distance locations after normal working hours during weekdays and on Saturdays. The students also use recorded lectures, email, WebCT and teachers' home pages for further communication. In addition, the distance students visit Akureyri for a local study period once every semester.

Comparing results

To answer the question whether the results of distance and local students were comparable, information relating to grades, courses, students' gender and age was retrieved, extending over the years 2001-2005, from the Stefanía database, which serves as the university's information system. Information was obtained with regard to a total of 377 courses taught during this period. To restrict the size of the sample, only those courses were selected which had been taught locally and by distance at the same time, twice or more often. On each occasion the course was taught, the total number of final course grades for local and distance teaching was not below 20 and that in this figure the total number of grades of distance students (or local students) was not less than 7. A total of 90 different courses fulfilled those requirements: 35 courses in the Faculty of Health Sciences, 25 courses in the Faculty of Education and 30 courses in the Faculty of Business and Science. Those courses had been taught in all 296 times, or 123 times in the Faculty of Health Sciences, 79 times in the Faculty of Education and 94 times in the Faculty of Business and Science.

In order to improve the reliability of the survey, each taught course was examined individually. There is generally a larger number of registered students in each course than those who obtain a final grade which should really be taken into consideration when different groups of students are compared. There are many different reasons, however for students failing to complete courses and if this is not taken into account it may well distort the comparison (Howell et al., 2004). Should one, for example include those who were registered for the course, but did not in any way participate in the teaching? The authors of the article have, therefore decided to limit the sample in each course to students who obtained a final grade. A t-test (Sanders and Smidt, 2000) was applied to check the potential difference between the following factors: the grades of distance and local students, the grades of men and women, the age of distance and local students in each course and the age of men and women in each

course. A Ki-square test was applied to check whether the gender distribution of local and distance students was identical.

Because the composition of students and implementation of the distance learning varies according to faculty, the distance learning is compared in each faculty per se.

To compare results in the Faculty of Health Sciences, 123 taught courses were examined. The number of students in each course ranged from 20 to 121 with an average of 40.4 students in each course. Thereof 28 local students and 12.4 distance students. Upon examination of the grades, it was found that in 88 courses local students had a higher grade, compared to 35 courses where the distance students had obtained a higher average. If the significance limit is set at 5%, only 8 courses showed a significant difference in the grades of distance versus local students. Of this number, only one course differed to the benefit of the distance students. If the limit of significance is set at 1%, only one case of a significant difference occurs.

It is hard to tell whether this difference works against the distance students because they are studying at a distance, or whether other factors may be at work here. By examining, however, whether distance and local students in the Faculty of Health Science are comparable groups some indications may conceivably be obtained which help to explain the difference. Most of the students in the Faculty of Health Science are female. Out of the 123 courses examined, 60 had an all female membership, 42 courses had one male student, 2 males in 20 courses and 3 males in one course. Looking at gender distinctions in the Faculty of Health Sciences would, therefore, not constitute a meaningful undertaking.

When the students' age composition is examined, the average age of the distance students is in all 123 courses higher than that of the local students; the difference is significant in 87 instances, based on a 5% significance limit. Where the difference was significant, the distance students were on average 8.7 years older than the local students. On the whole the average age of the local students was 27.6 years whereas the average age of the distance students was 34.6 years.

For comparison of results in the Faculty of Education, 79 (taught)actual courses were examined, with student numbers ranging from 22 to 143, with an average of 71.5 students in each course. Of this number, 36.4 were local students and 35.1 distance students. When looking at the grades, it was found that local students had a higher average in 62 courses, compared to 17 courses where the distance students had a higher average grade.

Using a 5% significance limit, 27 courses indicated a significant difference between the grades of distance and local students – in 5 of these the difference was in favour of the distance students. On the basis of a 1% significance limit, 14 courses show a significant difference, 3 of these favouring the distance students.

Whether this difference in the disfavour of the distance students relates to the fact that they are studying by distance or whether other factors may influence

the situation is hard to tell. By examining, however, whether the distance and local students in the Faulty of Education are comparable groups, some indications might be obtained that could explain the difference.

The majority of the students in the Faculty of Teacher Education are women. In the courses studied the proportion of women was 79.3% to 100%, the average proportion of women being 93.6%. Generally the proportion of women is higher among distance students than local students.

In 66 courses the proportion of women among distance students is higher and in 11 of those the difference is significant, based on a 5% significance limit.

Because of the large majority of women in the faculty, a gender-based grade comparison is somewhat unreliable. In 39 courses the comparison could not be carried out. In 40 courses a gender-based comparison was possible, however, and in only one of those courses a significant difference between the genders appeared, based on a 5% significance limit. In this course the women's average grade was higher. Generally, however, the occurrence of higher average grade for men and women was more or less evenly distributed.

When looking at the age composition of the students, the average age of local students is 29.9 years, compared to 35 years in the case of distance students. In all 79 courses, the average age of distance students was higher than that of local students; in 58 cases the difference was significant, based on a 5% significance limit. Where the difference was significant, the distance students were on average 5.8 years older than the local students. The women's average age was 32.5 years, compared to 30.5 years for men. The difference was significant in 7 cases, based on a 5% significance limit. In 6 out of 7 cases the women were olderthan the men.

For comparison of results in the Faculty of Business and Science, 94 taught courses were examined, with student numbers ranging from 21 to 192, with an average of 71.2 students in each course. Of this number, 31.5 were local students and 39.7 distance students. When looking at the grades, it was found that local students had a higher average in 61 courses, compared to 33 courses where the distance students had a higher average grade. Using a 5% significance limit, 17 courses indicated a significant difference between the grades of distance and local students – in 3 of these the difference was in favour of the distance students. On the basis of a 1% significance limit, 8 courses show a significant difference, always favouring the local students.

Whether this difference in the disfavour of the distance students relates to the fact that they are studying by distance or whether other factors may influence the situation is hard to tell as already indicated. This is a factor that needs further analysis. As in the other faculties, the majority of the students in the faculty are women, although men put in a somewhat stronger representation here than in the other faculties. In the courses that were investigated, the proportion of women ranged from 40% to 76.6%, with an average of 58,3. Generally the proportion of women was higher among distance students than local students. In 76 courses the proportion of women among distance students was higher and in 14 of those courses the difference was significant based on a

5% significance limit. The Faculty of Business and Science is the only faculty where it is possible to make an annual gender comparison. Women had a higher average grade in 56 courses with a significant difference in 8 of those based on a 5% significance limit. The men, on the other hand had a higher average grade in 38 courses, although the difference was only significant in 3 courses, based on a significance limit of 5%.

When looking at the age composition of the students, the average age of local students is 27.4 years, compared to 36.4 years in the case of distance students. In all 94 courses, the average age of distance students was higher than that of local students; in 89 cases the difference was significant, based on a 5% significance limit. Where the difference was significant, the distance students were on average 9.2 years older than the local students. The women's average age was 32.5 years, compared to 31.5 years for men. The difference was significant 11 times, based on a 5% significance limit. The women were older than the men in 10 out of 11 cases.

When looking at distance and local students, the trend is for the distance students to be less successful than the local students. Table 2 shows the proportion of courses where there is a significant difference between local students and distance students.

Table 2: Proportion of courses where there is a significant difference between local students and distance students in each faculty (5% significance limit). All students

	In favour of local students	In favour of distance students
Faculty of Health Sciences	6%	1%
Faculty of Education	28%	6%
Faculty of Business	15%	3%

The table shows that the difference between local and distance students is smallest in the Faculty of Health Sciences, but by far the largest in the Faculty of Education.

The impact of distance learning in Iceland

Distance learning has been on offer at the University of Akureyri for a fairly short period. Its impact on provincial districts in various parts of Iceland has probably not been shown to the full, although it can be said with certainty that it has improved the level of education in areas outside the capital. Figure 3 shows the residence of distance students at the University of Akureyri in autumn 2006. As shown in the graph the largest part of the students reside in Reykjavik and the surrounding area. However, 66.5% live outside the capital area. Figure 4 shows that a total of 306 distance students have graduated from the University of Akureyri. Those figures indicate that the impact of distance learning is very high, especially outside the capital area were distance students are a valuable section of the labour force in companies and institutions. In many rural areas there has been a shortage of university educated personnel. This also reduces the migration of people from rural communities.

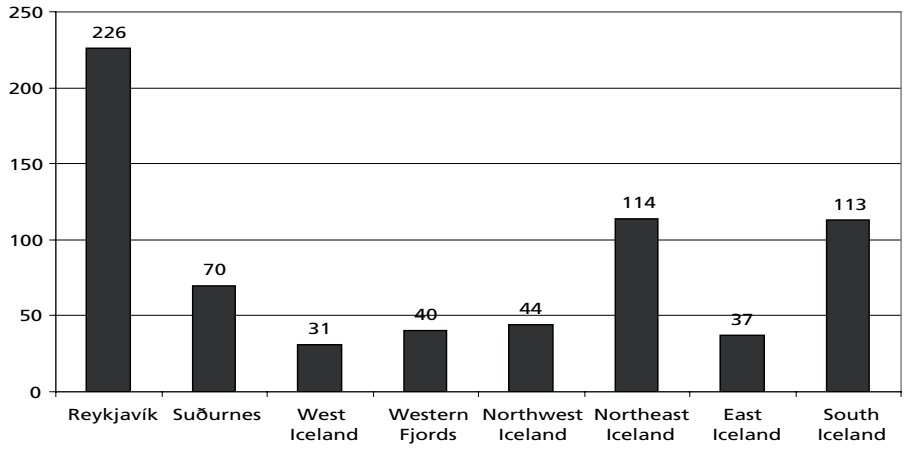


Figure 3: The residence of distance learning students at UNAK autumn 2006

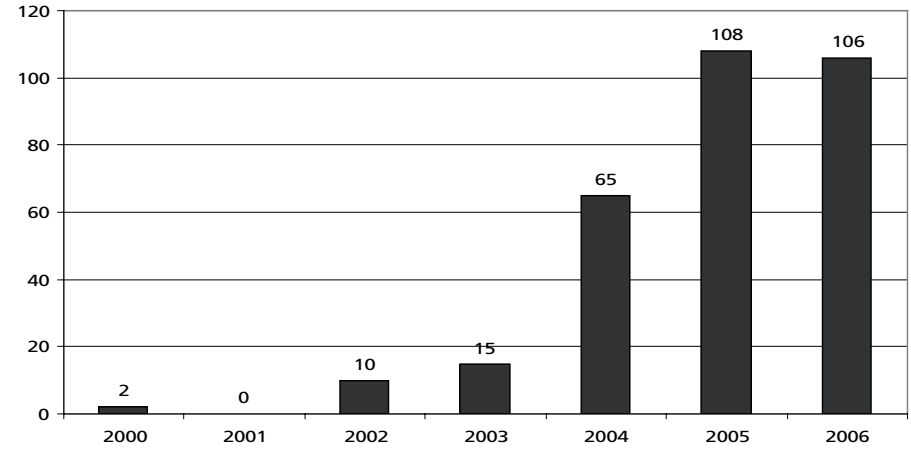


Figure 4: The number of graduates in distance learning from UNAK 2000-2006

Conclusions

The aim of this paper is to analyse the development of the distance education programme in Iceland, and at the University of Akureyri (UNAK) in particular. In the paper we have shown that distance learning has increased significantly in Iceland in recent years. UNAK has had a leading role in the development of distance learning at university level in Iceland. Nearly half of the number of students at UNAK are enrolled in distance learning. The distance learning student and the campus students do show similar results in exams.

The distance education program has given older students, primarily women, the opportunity to obtain a university education. This development is very important for rural communities, as it reduces the migration of people, as well as upgrading the local economy where university educated staff are available.

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Education and innovativeness as factors increasing investment possibilities and creating grounds for clusters emerging in rural areas

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Abstract

This paper is an attempt to assess the rural communities of the Opole Regionin education and innovativeness as a main factor needed to shaping cluster structures on a local scale. Knowledge accessibility and education level of human resources in rural areas were examined using taxonomy analysis. It is widely known that in rural areas knowledge accessibility and education levels are generally lower than in urban communities. Rural areas living conditions and lifestyle are influenced and every possibility of their improvement becomes important. Using experiences of other, mainly foreign regions, the hypothesis that creation of favourable structures to encourage creation of cluster structures is conducive to attract investment.

Short analysis of development of cluster structures in Polish regions with special attention to rural areas shows basic factors which have to be met to develop cluster structures with special attention to education and innovativeness. Relationship between education and innovativeness dynamics and investment attractiveness increase in rural areas of Opole Region are examined.

To summarise, some conclusions devoted to connections between education and innovativeness in rural areas and creation of conditions to cluster initiatives and development will be drawn.

Key words: rural areas, cluster, Opole Voivodship, education, innovativeness.

Introduction

Rural areas are characterized by a generally low innovative potential. It is well known that the level of education of human resources and the access to knowledge, as well as a possibility to improve the education level are much lower in rural areas than in other regions. For rural areas devoid of many competitive advantages any possibility to improve their attractiveness for an investor is extremely important. Observing experiences of other regions, mainly abroad, we may substantiate the thesis that the creation of condition for cluster structures to emerge at the local or regional level may favour an increase of investment attractiveness.

An economy based on cluster structures is becoming a meaningful development trend. This is confirmed by phenomena taking place in the European Union countries[32]. In Poland, the problem of clusters has only been discussed over recent years. In spite of that, there appear cluster initiatives and clusters (Fig. 1) also in rural areas. However, these structures are only in their initial stage of development[33] and it is difficult to draw any conclusion as to their economic effectiveness.

Figure 1: Cluster initiatives and economic clusters in Poland (May 2006). Source: Own research based on conference material, Ewy Bojar & Jakuba Bisa (May 2006)

[32] E.g. Telecom City in Sweden or Plastic Valley in France, Cf. Klastry. Innowacyjne wyzwanie dla Polski (Clusters. Innovative challange to Poland), S. Szultka (Ed.), Instytut Badań nad Gospodarką Rynkową, Gdańsk, February 2004.

[33] www.klastry-efs.pl

Basic information on clusters in Poland

The Polish literature uses various terms for the English word "cluster" (Olejniczak, 2003), klaster (Brodzicki, Szultka, 2002), conglomeration (Markowski, 1999) or local production system (Jewtuchowicz, 1997).

There is no single definition of this term. It results probably from the character of the phenomenon itself as individual cluster structures emerge within the framework of a concrete location characterised by its own specific preconditions such as the historical background, traditional forms of activity in the territory, access to specific natural resources, qualifications of personnel, R&D support, etc.[34].

The evolution of the notion of cluster consisted in strengthening of pressure towards a joint establishment in a relatively restricted area, towards an innovative character of activity, a diversification of institutions and competition and co-operation. It is also important to demonstrate advantages for firms active in spatial networks.

Many researchers concerned with clustering problems create their own definitions of the phenomenon[35]. From the point of view of regional policy, a cluster is a territorial agglomeration of production, catering and service firms engaged in manufacturing certain definite products, often competing with each other but with important mutual interconnections and co-operating with scientific organisations and the business environment.

Using this definition and characteristics of similar concepts, we may determine main characteristic features of a cluster:

- spatial concentration, i.e. an agglomeration of firms in one territory; this may appear in one or several regions[36];
- respective social capital in the form of qualified and mobile personnel[37], as well as local development leaders and cluster animators;
- relations between firms mainly of an informal character;
- common development direction - firms active in the cluster are active in the same industrial branch (e.g. firms active in the Telecom City cluster are concerned with data processing and communication technologies);
- competition and co-operation – cluster members compete with each other, but they co-operate at the same time which leads to innovations, finding new ways of problem solving, establishing themselves on new markets and in new industrial branches;

[34] Cf.: Klastry. Innowacyjne wyzwanie dla Polski (Clusters. Innovative challange to Poland), ... op. cit., p. 10, 11, 13.

[35] Cf.: P. Cooke, Clusters as Key Determinants of Economic Growth: The Example of Biotechnology, in: Cluster Policies – Cluster Development?, A. Mariussen (Ed.), Nordregio Report, Stockholm 2001, p. 24; T. Brodzicki, S. Szultka, Koncepcja klastrów a konkurencyjność przedsiębiorstw (Clusters concept and firms competitiveness), „Organizacja i Kierowanie" nr 4(110), Warszawa 2002.

[36] E.g. Klaster Bryczki z Biskupizny in Wielkopolska Voivodeship or Grupa Bursztynowa cluster in Western Pomerania and Pomerania Voivodeships, see: www.klastry-efs.pl

[37] M. Grywalska, Shannon – irlandzka Dolina Krzemowa (Shannon – Irish Silicon Valley), „Wspólnoty Europejskie" nr 5 (128), May 2002.

- co-operation to R&D sector[38];
- co-operation to public administration, the main task of which should be to identify branches where cluster can be established and supported[39].

It should be stressed that relations between individual cluster members often assume an informal character.

It seems that advantages for firms functioning in a cluster are quite numerous. An effectively functioning cluster leads to an increase of efficiency of local enterprises and, thanks to the spatial closeness of firms, stimulates and supports their innovativeness[40].

Advantages in the sphere of innovations and innovativeness resulting from functioning in a cluster are stimulation of innovation infrastructure, creation of a regional innovation system, promotion of the idea of information society

or development of an innovation policy based on various sectors of economic activity[41].

During the first decade of the 21st century, each regional society interested in development (or achievement) of competitive advantage, should create conditions for development of enterprising, creative and well qualified human resources through offering chances for permanent education and access to results of external research and existing know-how. Creation of networks of enterprises and later local or regional cluster structures becomes a basic development indicator.

Clusters in rural areas

Throughout the world, the greatest number of clusters emerge in high technology branches where knowledge and money are well known factors. However, clusters may be created in any branch of the economy, even a traditional one, like for example the Polish agriculture may be considered, provided there are respective assistance and promotion is readily available.

We can distinguish many types of clusters depending on the assumed division criterion. We shall concentrate, for the purpose of the present article, on the following criteria: the development stage, the territorial scope, the method of innovative processes shaping inside clusters and the measure of technological progress achieved.

[38] E.g. Telecom City Cluster co-operate with University Blekinge, see: Klastry – innowacyjne wyzwanie dla Polski (Clusters. Innovative challange to Poland), op. cit., p. 30.

[39] K. Olejniczak, Apetyt na grona? Koncepcja gron oraz koncepcje bliskoznaczne w teorii i praktyce rozwoju regionalnego (Appetite for Clusters? Clusters concept and close related concepts in the theory and practise of regional developmnet), Studia Regionalne i Lokalne Nr 2 (12), 2003, p. 73 and W. Kępka, Klastry – recepta na sukces gospodarczy (Clusters – receipt for economic success), "Gazeta Prawna" from 2005-07-20, nr 140 (1505).

[40] Raport o stanie sektora małych i średnich przedsiębiorstw w Polsce w latach 2001-2002 (Report on the SMEs Sector in Poland Report in the period 2001-2002), A. Rybińska, A. Tokaj-Krzewska (Eds), Polska Agencja Rozwoju Przedsiębiorczości, Warszawa 2003, p. 219-220.

[41] M. Grywalska, Shannon (Shannon ...), op. cit., p. 32.

Table 1: Typology of clusters in rural areas in Poland

Criterion of division	Types of clusters	Clusters in rural areas
Stage of development	initial stage, growth stage, ripe stage and decadent stage	Clusters in their initial stage
Territorial scope of cluster	local, regional, national or supranational clusters	Local or regional clusters
Manner of for-ming innovating processes inside clusters	Clusters based on knowledge, clusters based on benefits of scales, clusters of specialized suppliers, clusters dependent mainly on their suppliers	Clusters depend mainly of their suppliers
Measurement of technological advancing	High technology clusters, medium technology clusters, low technology clusters	Low technology clusters rarely medium technology clusters

Source: Own research based on: Klastry. Innowacyjne wyzwanie dla Polski (Clusters. Innovative challange to Poland), S. Szultka (Ed.), Instytut Badań nad Gospodarką Rynkową, Gdańsk, February 2004, p. 14.

Clusters forming in Poland in rural areas are mainly in their initial stage and they often lack the necessary critical mass to achieve advantages for functioning in this type of structure[42]. Usually, their territorial scope covers one or several voivodships (administrative units). Cluster structures in rural areas depend mainly on their suppliers (agriculture, forestry, furniture industry, services). They are low technology clusters.

Clusters involved mainly in agriculture emerge in rural areas. They are producer groups, agro-tourist associations and informal entrepreneurships[43]. However, this is not a rule. The research conducted in the mountain region revealed that there may appear industrial entrepreneurial clusters in high and medium grade technologies, like the "cluster of aviation and industrial automation", as well as clusters in machine, automobile and rolling stock industries[44].

The draft law on family enterprise groups[45] is aimed at supporting rural areas mainly in the typical sphere of agricultural or related activities. A number of facilitations are proposed in forming such groups mainly by means of conducting the activity as a venture and in a simplified form of their establishment. It is envisaged that clusters could be establish at the moment of signing an agreement by all units concerned and confirmed by notarius publicus.

Barriers to forming clusters in rural areas result mainly from the state of transportation and data processing infrastructure, lack of capital, a weak innovative environment and first of all the lack of R&D organisations and training institutions, a lack of an effective system for importing knowledge from outside the region and a lack of qualified human resources[46]. Other barriers may result from a lack of readiness to co-operate and of entrepreneurial spirit in the

[42] www.klastry-efs.pl

[43] B. Szymoniuk, Klastry wiejskie na Lubelszczyźnie – praktyka grupowej przedsiębiorczości (Rural clusters in Lublin Region – the good practise of group entrepreneurship), „Organizacja i Kierowanie", nr 2 (112), Warszawa 2003.

[44] E. Wojnicka, Potencjalne grona na Podkarpaciu i formy wspólnych działań, (in:) Analizy – wspieranie gron przedsiębiorczości na Podkarpaciu (Analysis – Support of entrepreneurship clusters in Podkarpacie Region), E. Wojnicka (Ed.), Warszawa-Rzeszów, January 2006, p. 50-51.

[45] www.sejm.gov.pl

[46] S.A. Rosenfeld, Creating Smart Systems. A Guide to Cluster Strategies in Less Favoured Regions, Regional Technology Strategies Carrboro, North Carolina, USA, April 2002.

region, inconsistent and unfavourable legal solutions and of assistance programmes[47].

We should be aware while creating and developing cluster structures in rural areas that without assistance of authorities, universities and business organisations, there are practically slight chances of cluster viability. Most definitions stress the role of co-operation of all cluster members. Also, examples collected all over the world indicate that clusters regularly co-operating regularly with authorities and the R&D sector are functioning and developing[48].

In the Opole Voivodship, there are very few cluster initiatives. Sources of such a situation can be seen in the fact that it is a migration region[49]. A considerable number of young people, in rural areas in particular, leave the area after graduation looking for work mainly abroad. They inherited this model of behaviour from their parents who also migrated en masse for economic reasons. Those parts of the region that inhabitants are not interested in investing in as they designate their earnings for investments in housing (farm) and family (school, training of children)[50]. At present, there are initiatives aimed at creating two clusters – one in wood processing and another in general handicraft. In the conditions prevailing in the Opole Voivodship the fact of such an initiative itself is innovative as such structures have not functioned here till now.

The first initiative concerning woodworking cluster came from craftsmen themselves. They are members of the "Carpenters Club" starting from the year 2000 and co-operate informally. In 2004, they made the decision to formalise their activity. They are assisted by the "Śląsk" [Silesia] Chamber of Commerce in Opole. Members of the "Carpenters Club" meet mainly to exchange their experiences, learning from each other, undertaking common ventures and their co-operation is becoming more intensive. This is confirmed by agreeing on a common trademark for the carpenters cluster. They also designed a uniform for themselves to distinguished them as members of the same group at fairs and exhibitions at home and abroad.

It is intended that the carpenters' clusters should cover the whole Silesia and initially the Opole Voivodship and neighbouring districts of Silesian and Lower Silesian Voivodships. At present, the readiness to participate in this initiative has been declared by fifty units and the interest in participation in preparations is still considerable.
Why the carpenters cluster? The Opole region is characterised by a high degree of economic utilisation of forests. Forested areas in the central part of the region cover more than fifty per cent of the area. There are more than 700 en-

[47] B. Szymoniuk, Klastry wiejskie na Lubelszczyźnie (Rural clusters in Lublin Region), conference presentation showed on: www.klastry.pl

[48] More: Klastry – innowacyjne... (Clusters. Innovative ...), op. cit.

[49] More: K. Heffner, R. Rauziński, Region migracyjny (wybrane aspekty demograficzne, społeczne i gospodarcze na przykładzie Śląska Opolskiego (Migration Region. Chosen demographic, social and economic aspects on the Case of Opole Silesia), Studia i Monografie, z. 152, Oficyna Wydawnicza, Opole 2003.

[50] K. Heffner, Ocena warunków inwestowania w województwie opolskim. Określenie czynników sprzyjających inwestowaniu i utrudniających je (Assessment of investing condition in Opole Region. Definition of Factors condictive to investment and make it difficult), (in:): Kapitał zagraniczny w województwie opolskim, Urząd Marszałkowski Woj. Opolskiego, Opole 2005, p. 94.

terprises active in the forestry sector and more than 1,100 enterprises in woodworking industry out of which a high percentage is engaged in carpentry. Most of them are active in rural areas. A family carpentry enterprise is a traditional form of activity in the region. The oldest enterprises are run by the fourth generation of owners.

The aims of the authors of the cluster initiative is to achieve a form of co-existence of industry and natural environment at an equilibrium level: a creation of the image of the Opole region as a "carpentry basin". Moreover, the aim is to promote local brand names, to promote wood as an ecological raw material and to increase competitiveness of firms engaged in the cluster[51].

The second initiative is the "All Artisan Cluster" (Opolski E-Rzemieślnik). The innovativeness if this idea consists in the fact that all units joining the cluster are service providers.

There is a possibility, due to the specific character of the Opole region, to create a cluster in the energy sector. We have, on the one hand, a big power plant and a vast area of arable land that can be utilised for production of biomass which can be the starting point for the cluster initiative. The establishment of an energy cluster may increase the number of jobs, cause a growth in the number of small and medium sized enterprises, as well as increases the investment attractiveness of the region.

There are high technology clusters both in Silesian and in Lower Silesian Voivodships. However, the Opole Voivodship still remains the best region of potential possibilities. The rural areas of the region are particularly underrepresented in this respect.

The advantages resulting from clusters functioning in rural areas are the increase of the number of enterprises functioning in the area, slowing down migration to rich countries of the European Union, innovations and innovativeness, transfer of technology, attracting strategic partners to the region, which produces investment outlays, and an increase of educational awareness of the inhabitants of rural areas and public and private partnerships.

Education and innovativeness in creation of cluster structures in rural areas

The most important, resulting from the Lisbon Strategy target in Poland, is to create a competitive and dynamic economy based on knowledge and ability to achieve a sustained economic growth. At the same time assuring an increasing number of jobs under conditions of a greater social cohesion and respecting principles of balanced development[52].

Among the most important factors increasing innovativeness and rising the

[51] Information from "Śląsk" [Silesia] Chamber of Commerce in Opole.

[52] W.M. Gaczek, Potencjał naukowo-badawczy regionów ich innowacyjność w aspekcie realizowania celów Strategii Lizbońskiej (R&D Potential of Regions and their innovativeness as aspects of Lisabon Strategy goals realisation), evaluation for MGPiPS, Poznań, November 2004, p. 3.

level of education in rural areas is the improvement of education system and access to education, implementation of modern teaching methods, advisorship, permanent training, establishing colleges and R&D institutions in the region, an increase R&D outlay, access to research results and existing know-how, adjustment of education programmes to the needs of the local economy, deterring the flow of young people from the region and introduction of innovations.

Investments in human resources are necessary, especially as far as education is concerned (training courses, foreign languages, permanent training) and activities aimed at increasing innovativeness in rural areas. This is essential as the education level in rural areas is lower than in cities.

It is believed that one of the most important barriers for animators of rural areas development in Poland is the low level of agricultural and rural population education and a considerable difference in education level between rural and city population[53]. A chance to achieve a competitive advantage over other regions is seen as an improvement of the education level of the local community.

A considerable importance in development of entrepreneurship in rural areas is attached to advisorship and permanent training. The advisorship is understood here as twofold – addressed to employers and employees. It is very important, therefore, to create environment-favourable entrepreneurship. Advisory institutions supply, first of all, economic information useful in the particular activity and conduct training[54]. The readiness of entrepreneurs to gain or improve their knowledge is another problem. A diversity of training courses and postgraduate studies enables anyone who is interested to find information necessary for a proper functioning of his business.

We cannot expect a proper functioning and development of a cluster without co-operation of local enterprises with the R&D sector. The R&D sector units are able to conduct research and implement research results in firms. Unfortunately, enterprises active in rural areas do not normally co-operate with the R&D sector.

A majority of institutions supporting entrepreneurship in the Opole Voivodship are to be found in Opole, which undoubtedly does not favour development of small businesses in peripheral regions.

Presence of scientific and research organisations supporting innovative processes is considered one of the basic features determining competitiveness of a region[55], which is extremely important especially for rural areas. Only regions designating considerable funds for R&D are able to attract investors. We do not record any increase of numbers of R&D units in the Opole Voivodship

[53] M. Kłodziński, Aktywizacja gospodarcza obszarów wiejskich (Economic activation of rural areas), Instytut Rozwoju Wsi i Rolnictwa PAN, Centrum Naukowo-Wdrożeniowe SGGW, Warszawa 1999, p. 42.

[54] Wspieranie przedsiębiorczości przez samorząd terytorialny (Local government supporting of Entrepreneurship), W. Misiąg (Ed.), Polska Fundacja Promocji i Rozwoju Małych i Średnich Przedsiębiorstw, PAB-Font s.c., Warszawa 2000, p. 11.

[55] B. Winiarski, Czynniki konkurencyjności regionów (Competitiveness fFactors of regions), (in): Konkurencyjność regionów, M. Klamut, (Ed.) Akademia Ekonomiczna im. Oskara Langego we Wrocławiu, Wrocław 1999, p. 50-51.

(Table 2). The situation is bad especially in comparison to other neighbouring regions of Silesian and Lower Silesian Voivodships. It exerts a significant impact decreasing chances of securing new investors. For this reason it is necessary to promote activeness, readiness to accept new ideas, creativity and professional competence of human resources being the base for creating a network of enterprises.

Table 2: R&D activity in Silesia voivodships in 2000, 2003 and 2004

Voivodship (Regional Unit-NUTS 2)	Amount of R+D units			1000 inhabitants / amount of R+D units			1000 workers/ amounts of R+D units		
	2000	2003	2004	2000	2003	2004	2000	2003	2004
Lower Silesian	61	70	73	48,7	32,6	39,7	16,8	13,7	12,0
Opole	16	13	14	67,8	59,5	75,3	23,3	26,5	20,8
Silesian	108	112	109	44,9	33,9	43,2	16,2	14,6	13,7

Source: Own research based on Statistical Yearbook from 2001, 2004, 2005

However, in spite of the fact that the quantitative situation of R&D institution is relatively worse in Opole region in comparison to neighbouring regions, the intensity of their work does not lag behind.

Universities and Colleges play an extremely important role in the process of cluster structures formation. In a majority of quoted examples of well functioning clusters in the world it is stressed that they are important. Using the example of the Shannon Free Zone in Ireland, we can see that newly established firms base their activity to a considerable extent on utilisation of scientific research results and more than a half of the new ventures are employing highly qualified personnel – university graduates. Most of them graduated from Limerick University[56].

Higher educational institutions are seen as a source of basic knowledge. In spite of the fact that some of the research they conduct is of an abstract character, it does not mean that they cannot be utilised for practical purposes. Many scientists, those working in technical and technological institutions, concentrate their attention on preparing prototypes and research for industrial technology[57].

There are nine higher educational institutions in the Opole Voivodship. Five of them are state owned. They are Opole University, Opole Technical University, state Medical Professional High School in Opole, State High Professional School at Nysa and Wrocław Economic Academy, branch at Brzeg. There are also four private schools (Administration and Management College in Opole, Bogdan Jasiński College (branch), Humanistic and Economics College Łódź (branch) and Humanistic and Economics College at Brzeg.

A regular and permanent co-operation of science and industry exerts an impact on competitiveness and innovativeness of enterprises. Not only a change of approach of enterprises is required but also a better adjustment of R&D activities, as well as of directions and forms of education addressed to the needs of the economy. High schools in the Opole region opened postgraduate studies and vocational training thus adjusting themselves to the needs of local entrepreneurs. It is necessary to monitor development of the region and to ana-

[56] M. Grywalska, Shannon ... (Shannon ...), op. cit.

[57] E. Wojnicka, Współpraca w procesie innowacyjnym w Unii Europejskiej (Co-operation in Innovative process of EU), „Wspólnoty Europejskie" April 2003, nr 4 (139), p. 55.

lyse qualifications required by employers.

A majority of businesses active in rural areas are small and medium sized enterprises. In spite of the fact that they are flexible and rapidly adjust themselves to the needs of the market, economic effects became weak. However, not being able to innovate, they will lag behind. Only an access to research results and to existing know-how will permit them to face the competition of bigger businesses. Small enterprises, having restricted financial abilities and possibilities to conduct technological research, would not be able to implement technical market novelties on their own[58].

Another increasing danger to formation of cluster structures in rural areas is a considerable migration of young people mainly for economic reasons. This negative trend can only be stopped by activities opening for rural areas inhabitants' chances of finding a well-paid job without the need to emigrate. There are many indications in those regions that are not effectively creating conditions for development of rural entrepreneurship lose out in the competition of attracting new or strategic investors to their territory. As a result, the migration of more creative individuals seeking possibilities of joining f cluster structures functioning elsewhere is increasing.

Access to innovations is a development factor decisive for competitiveness of the economy[59]. The best way of functioning is implementation of innovations in a co-ordinated way by all local economy actors[60]. The ability to learn and to become more innovative than competition is the key to development of the region[61]. Support or creation of R&D institutions means also supporting innovativeness.
The essence of innovativeness is the introduction of numerous changes exerting a favourable impact on the enterprise and its image[62]. Regions increase their competitive advantage over other regions thanks to their ability to create innovations[63].
Summing up the review of literature on the subject, we may say that the extremely important determinants in the process of creating cluster structures in

[58] E. Stawasz, Źródła innowacji dla małych firm produkcyjnych w Polsce (w świetle badań empirycznych) (Sources of Innovation for small productive firms on Poland (an empirical research)), (in:) Środowisko przedsiębiorczości, innowacje a rozwój terytorialny, A. Jewtuchowicz (Ed.), Uniwersytet Łódzki, Łódź 1997, p. 46.

[59] K. Heffner, Regiony małe, peryferyjne, rolnicze i emigracyjne (Small, peripheral, agricultural and emigration regions), (in:) Rola małych regionów w rozwoju społeczno-gospodarczym kraju i integracji europejskiej, K. Heffner (Ed.), Polska Akademia Nauk, Warszawa 2004, p. 10.

[60] A. Jewtuchowicz, Innowacyjność środowisk przedsiębiorczości (Innovativeness of entrepreneurship environments), (in:) Konkurencyjność miast i regionów a przedsiębiorczość i przemiany strukturalne, A. Klasik (Ed.), Akademia Ekonomiczna im. Karola Adamieckiego w Katowicach, Katowice 2001, p.118.

[61] H. Dumała, Sieci europejskich regionów innowacyjnych (Networks of European Innovative Regions), (in:) Problemy rozwoju i zarządzania w gospodarce globalnej, M. Bałtowski, H. Ponikowski (Eds), Prace Naukowe Wyższej Szkoły Przedsiębiorczości i Administracji w Lublinie, Lublin 2005, p.21.

[62] B. Siemieniuk, Zarządzanie innowacjami w organizacji sieciowej (Innovation Management in the network organisation), (in): Problemy rozwoju i zarządzania w gospodarce globalnej, M. Bałtowski, H. Ponikowski (Eds), Prace Naukowe Wyższej Szkoły Przedsiębiorczości i Administracji w Lublinie, Lublin 2005, p. 287.

[63] K. Gawlikowska-Hueckel, Procesy rozwoju regionalnego w Unii Europejskiej. Konwergencja czy polaryzacja? (Regional development processes in EU. Convergention or Polarisation), Uniwersytet Gdański, Gdańsk 2003, p. 43.

rural areas seem to be transfer and sharing of knowledge and innovativeness. In order to conclude this process successfully, we need co-operation and trust, the source of which can be seen in the cultural and local context of the environment[64].

Socio-economic situation of the Opole Voivodship rural areas

A research into the situation in rural areas and its changes was conducted to show that the Opole Voivodship is diversified in the respect of possibilities and preconditions of rural areas development and also to conclude what is the importance of education and innovativeness for their development. Generally, the level of development of such factors as education, innovativeness and entrepreneurship is relatively low for various reasons. However, rural areas are strongly diversified in this respect.

The research of a taxonomic character[65] covering rural and urban/rural localities of the Opole Voivodship analysing 16 features in 6 groups of development problems (demography, material situation of the society, the state of social infrastructure, the state of the technical infrastructure, the financial situation of localities) in 2000 and 2005. Features selected were those related to the importance of education, innovativeness and quality of life. Their intensities in local units were evaluated.

An increasing difference between the shortest distance between the first and the last spatial group both in 2000 and in 2005 was observed during the analysed period. This may testify to increasing intraregional differences.

Both in 2000 and in 2005, there appeared 11 spatial groups with diversified intra group distances differing in the respect of contents and structures of liaisons during individual analysed years. These groups were subjected to an analysis, which permitted to reveal dominating features. Due to the clarity of obtained results, a further grouping of local units was possible. Three spatial groups were obtained.

Among features relating to education, innovativeness and entrepreneurship, an extremely important role in the process of locality group formation was played, both in 2000 and 2005, by such features as the number of councillors with higher education and their share in the total number of councillors, budgetary expenditures of localities for education in thousands of zlotys per inhabitant, the number of pupils in primary schools per the number of primary schools in localities and the number of private economic units per the total number of economic units in localities.

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[64] K. Olejniczak, Apetyt na grona? (Appetite for Clusters? ...), op. cit. p. 60.

[65] More: J. Runge, Wybrane zagadnienia analizy przestrzennej w badaniach geograficznych (Chosen problems of spatial analysis in geographical research), Uniwersytet Śląski, Katowice 1992 and P. Gibas, M. Lebek, Taksonomiczna konfiguracja małych województw. Aspekty edukacyjne (Taxonomic configuration of small regions. Educational aspects), (in:) Rola małych regionów w rozwoju społeczno-gospodarczym kraju i integracji europejskiej, K. Heffner (Ed.), Warszawa 2004.

Table 3: Essential features and their distribution in groups of localities in Opole Region (Voivodeship) (in 2000 and 2005)

Essential features connected to:	Groups of localities					
	First Group		Second Group		Third Group	
	2000	2005	2000	2005	2000	2005
education	+	_	+	+	++	+
innovativeness	_	_	_	+	+	+
entrepreneurship	_	+	+	+	+	_
Type of socioeco-nomic changes in the group of locali-ties	Educa-tion guided	Entrepre-neurs-hip guided	Education and Entrepre-neurs-hip guided	Less Education guided with Entrepre-neur and Innovative features	Education guided with Entrepre-neur and Innovative features	Education and Innovative-ness guided

Source: Own research

During the formation of the first group of localities with the smallest intra group differences, features relating to education played the essential role in 2000. In 2005, features relating to entrepreneurship influenced the formation of this group of localities. The formation of the last group of localities with the biggest intra group differences was influenced by features relating to education, innovativeness and entrepreneurship both in 2000 and 2005. In general, the relation of features relating to education, innovativeness and entrepreneurship and localities is weak which means that they are not important for questions being subjected to research (they play a more important role for the last group of localities that for the first).

First grade concentration. Spatial approach (2000 and 2005)

First group of local units (dark grey) – „weak", second group of local units (medium grey) – "good" and third group of local units (light grey) – „good but weaken"

The first group of localities referred to as „weak" contain local units that are the most similar features under research. Number of rural units belonging to this group in period 2000-2005 definitely decreased. Only one unit (Dąbrowa) was from the Opole agglomeration area, none represented rural units surrounding towns, and predominantly represented were peripheral localities on a regional scale. The most important features created by this group were connected to education (2000) rather than (2005) to entrepreneurship. It is a significant shift in rural development.

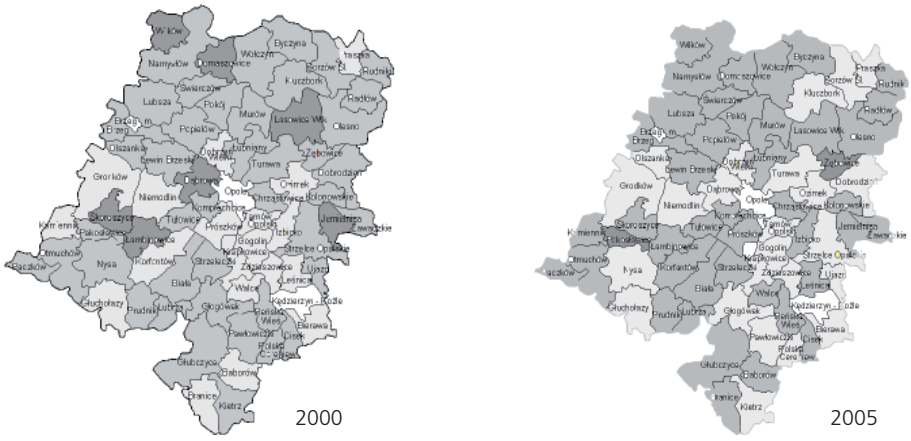

Figure 2: Socio-economic situation of the Opole Voivodship rural areas

The second group referred to as "good" analyses social and economic characteristics important to the entrepreneur and innovative local development in rural areas. The number of units in the group was stable in the 2000-2005 period. Important part of local units represented peripheral areas in regional scale. Characteristics important to rural development connected to education and entrepreneurship are still big, meaning of features connected to innovativeness also rose.

In the third group referred to as "good but weaken", the number of localities belonging are growing strongly but increasingly appear mostly in more peripheral parts of the region. Share of crucial features connected to education were decreasing and characteristics important to entrepreneurship were fading. Still important remaining features belonging to innovativeness but generally for rural development in this group of units other characteristics such as research had become significant.

The socio-economic situation in rural areas of the Opole Voivodship underwent significant changes during the analysed period (see: Figure 2). We can observe a considerable internal diversification of the region. This calls for an action aimed at equalising development chances of local units. A support to less developed regions is essential in order to strengthen the general competitive position of the Opole Voivodship, which may cause an inflow of investments. Results from foreign cluster structures show that it is impossible to create clusters without a sufficient number of participants.

Conclusions for the Opole region

The great importance of education and innovativeness in the process of increasing investment attractiveness of a region is referred to in numerous works. The role of high schools and R&D units is stressed in particular. There is a significant scientific and research potential in the Opole region. However, it is underutilised. This potential can contribute to an improvement of the competitive position of the region. It is characterised by a strong concentration in Opole (the main city of the region).

High schools play an important role at all stages of constructing and supporting cluster structures in rural areas. However, their present role consists mainly in preparing qualified personnel (e.g. specialised courses required from the point of view of the conducted economic activity, meetings, conferences, etc.), while for rural areas it is important to establish and strengthen links between rural inhabitants and the scientific and research environment.

The significant difference between the level of education of rural and urban inhabitants in the region result mainly from the lack of financial means, lower level represented by rural schools, commuting problems and mentality of rural inhabitants who attach a greater importance to direct results in finding a job at an early age (!). The image of the region is poor which results from a relatively low level of education, innovativeness and entrepreneurship in rural areas.

Thanks to broadly understood investments in education in rural areas chances

for an increased competitive advantage over other regions. The key to development of the region and of the rural areas in particular is the ability to learn and become more innovative than the competition. It is important to promote innovative attitudes and to develop programmes promoting innovative culture.

Due to the lack of a proper number of participants, creation of clusters becomes difficult. Attracting new investors to the region increases the inflow of financial means that produces a synergic effect and enables to utilise experience of a growing number of foreign partners. Many of them have already passed the incubation stage of cluster structures.

A lack of a concrete co-operation on a broader scale between local entrepreneurs and the R&D sector causes an unsatisfactory development and functioning of clusters in the region. Access to research results by local entrepreneurs enables them to meet the competition of bigger and external firms. Unfortunately, enterprises active in rural areas hardly co-operate with R&D institutions neither in the region nor outside.

Undoubtedly, the insufficient financing of the R&D sector in the Opole region is of a great importance. The outlays for the R&D sector here are lower than in neighbouring regions and in the whole country. It seems necessary to do all that is possible to strengthen the financial position of R&D institutions, as they are decisive for the innovative situation of the region.

Advantages resulting from functioning of clusters in rural areas may assume several forms such as stimulating innovative structures, creating regional innovation systems, promoting the idea of the information society, building innovative policy based on various sectors of economic activity.

The question about a possibility of creating cluster structures in the Opole region remains open, therefore. First initiatives should be commenced indicating potential possibilities. Any support of these initiatives is important. All actors or regional development may participate in them including high schools, R&D institutions, public administration, local development leaders and entrepreneurs themselves.

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About the history of the Nordic-Scottish University Network on Rural and Regional Development

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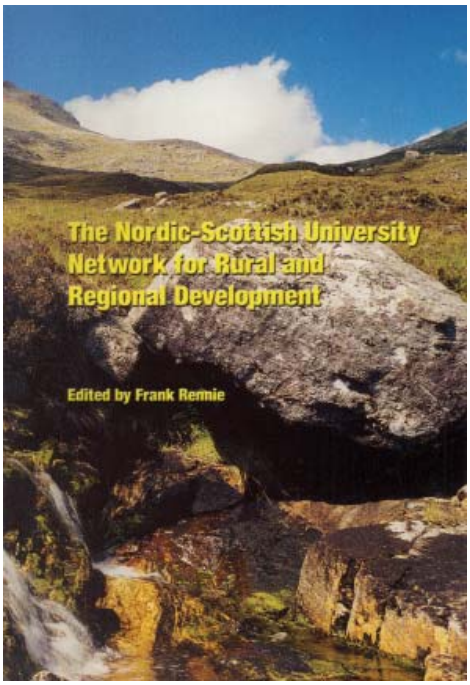

Photo: Pirjo Siiskonen

The background of the series of ten Nordic-Scottish Conferences on rural development 1997-2007 is in the co-operation between the Nordic Council of Ministers and the Scottish Office. In 1990´ies there were preparations done for a Plan of Action for the dimension of the Northern Periphery inside EU. One result of these discussions between the Nordic Council of Ministers and the Scottish Office was that the Nordic-Scottish University Network for Rural and Regional Development was established in 1996. Initiatives for co-operation on three other areas were presented: information technology (IT), private forestry and small and medium size enterprises (SME's). The follow-up was that four different university level networks started to co-operate.

NÄPS (Nordiska Ämbetsmannakommiten för Regionalpolitik) funded the preparation of a project for Rural and Regional Development Network in 1995-1998. This project was funded by the the Nordic Council of Ministers and coordinated by the University of Helsinki, Mikkeli Institute for Rural Research and Training. Project co-ordinators were Pirjo Siiskonen in 1995 and Hilkka Vihinen 1996-1998.

The objectives of the co-operation mentioned were:

- to encourage good practice in education, research and development work
- to foster the exchange of practical experience of rural and regional development
- to pioneer new approaches to education and training in sparsely populated remote areas
- to foster research on rural issues
- to develop new ways to disseminate rural research information and
- to improve and increase links between the academic community and the practitioners.

Photo: Pirjo Siiskonen

It was supposed that one possible way of co-operation might be Nordic-Scottish conferences on rural development. The 1st Conference was organized in Finland, near Mikkeli in Heimari Resort Centre on 4 - 5 Sept. 1997 and the theme of the conference was Rural and Regional Development. Working groups were organized for the following themes: Rural and Regional Policy Implementation, Mobilizing Local Communities, Women and Rural Development, Environment and Heritage Management as Tools for Rural and Regional Development and Information Technology for Rural Development and Education. The keynote speaker was Mark Shucksmith from Scotland. The conference was co-organized by Mikkeli Institute for Rural Research and Training and University of Highlands and Islands Project. There were 55 participants from all northern countries and Scotland and one from Australia.The conference papers were published in Pasi Saukkonen & Hilkka Vihinen (eds.). Rural and Regional Development. University of Helsinki, Mikkeli Institute for Rural Reseach and Training, Publications 61, 1998, 187 p.

The 2nd Annual Conference was held in Lerwick, Scalloway & The Isle of Yell, Shetland, Scotland 3 – 8 Sept. 1998. The theme of the conference was Strategies for Sustainable Development in Rural and Remote Regions and it was organised by University of Highlands & Islands Project. The conference in Scotland had 62 participants from all six network countries and the working group themes were Marine Natural Resources, Democratisation/Rural Health and Sustainable Development in Rural and remote Communities. The resulting publication was entitled Rural and Remote Regions: Strategies for Sustainable Development. Proceedings of the 1998 Nordic-Scottish Universities Network Conference, edited by Neil Crisholm, 77 p.

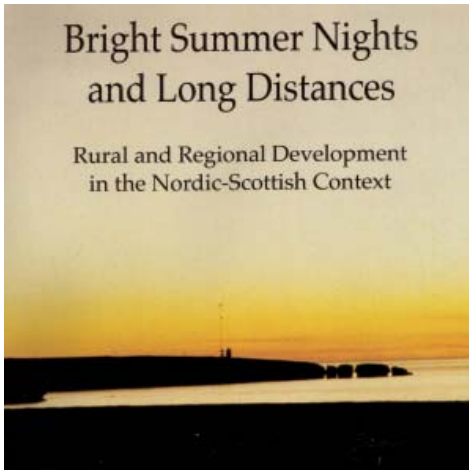

Photo: Pirjo Siiskonen

The 3rd Annual Conference was held 16 - 19 Sept. 1999 in Stjørdal, Trondheim, Norway. There were 42 participants in the conference. It was organized by Centre for Rural Research (Allforsk) and the theme was *Rural and Regional Development in Northern Periphery Local development – New business – Rural Women.* The publication was edited by *Magnar Forbord*

& Tove Stavrum and it was entitled Rural and Regional Development in Northern Periphery. Report 4/2000, Centre for Rural Research, 190 p.

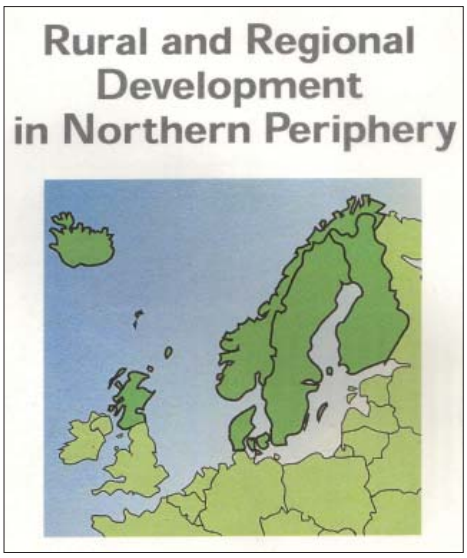

Photo: Pirjo Siiskonen

The 4th Annual conference took place in Akureyri, Iceland 7.-10. September 2001 with 46 participants. The theme of the conference *was Regional development practices in small societies – Rural-urban interaction – Rural identity – Rural services and education*. The conference was organized by the University of Akureyri. The publication of the conference was edited by *Ingi Runar Edvardsson* and it was entitled *Bright Summer Nights and Long Distances. Rural and Regional Development in the Nordic-Scottish Context.*

The 5th Annual Conference was held in Danmark, at Roedding Folk High School 6 - 9 Sept. 2001 and it was organised by the Danish Centre for Rural Research and Development supported by the Faculty of Social Sciences at the University of Southern Denmark. The conference theme was *Rurality in a Nordic-Scottish Context Policy & Politics in Rural and Regional Development, New Paradigms for Rural Development.* The conference publication was edited by *Hanne W. Tanvig* and the entitled *Rural Policy and Politics in a Nordic-Scottish Perspective*. Working Paper 1/02, 2002, Danish Centre for Rural Research and Development, Esbjerg, 141 p.

The 6th Annual Conference was organized in Östersund, Sweden by the National Institute for Working Life (NIWL) 24 - 27 August 2002. The theme of the conference was *Sustainability in Rural and Regional Development*. The conference publication was edited *by Lars Olof Persson, Ann-Mari Sätre Åhlander and Hans Westlund (eds)* and entitled *Local Responses to Global Changes, Economic and Social Development in Nothern Europe's Countryside*. Arbetsliv i omvadling 2003:11, 292 p.
The 7th Annual Conference of the Nordic-Scottish Network for Rural and regional Development took place together with International Rural Network

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Conference and the common theme was *Taking Change: Rural Community Empowerment in Rural Development, Rural Health and Rural Education.* The combined conference took place in Inverness, Scotland 23 - 27 June 2003. The participants had the possibility of following many parallel sessions and extra programmes. The publication of the papers was entitled *The Nordic-Scottish University Network for Rural and Regional Development*, Proceedings of the 2003 Annual Conference Inverness, Scotland and it was edited by *Frank Rennie*, UHI Millenium Institute, 144 p.

The 8th Annual Conference came back to Heimari, Finland and was organized by Mikkeli Institute for Rural Research and Training and Agrifood Research Finland 17 - 19 June 2004. The theme of the conference was *National Rural Policies and Entrepreneurship in the Rural Context.* The publication was edited by *Torsti Hyyryläinen* and published as an English Supplement of the Finnish Journal of Rural Research MUA 4/2004.

The 9th Nordic-Scottish Conference was held in Island by the theme *Rural and Regional Development* in association with the 14th Nordic Symposium in Tourism and Hospitality Research 22 - 25 Sept. 2005.The conferences were organised by the University of Akureyri Research Institute (RHA) and the Icelandic Tourism Research Center.

The 10th Annual Conference of the Nordic-Scottish University Network for Rural and Regional Development took place once again in Denmark. The theme was *Innovation Systems and Rural Development.* The timing of the conference was exceptional: 8 – 10 March 2007, held at Brandbjerg Hoejskole, Denmark. It was organized by the Danish Centre for Forest, Landscape and Planning at The University of Copenhagen and it was hosted by *Hanne Tanvig.*

In order to summarise something of the history of the network we can list the main themes of the conferences as well as some similar features of them.

The main themes of annual conferences have been:

- rural/regional policy/development
- local communities/development

- enterpreneurship in rural areas
- sustainable development
- rurality/rural identity
- rural services, education, health
- environment, nature, landscape, natural resources, heritage
- information technology
- tourism
- rural-urban interaction, and
- rural women

The conferences have always been multidisciplinary and both researchers and practitioners have participated. Also an excursion has always been included and experienced useful. After the conference the presentations have been published in a book. So we have now a collection of ten interesting books telling of the ten years´ history of the conferences and the network.

All the time the network has been working on a voluntary basis without any society or official organizing body. The network has had contact persons in each country and this small group has taken charge of the continuity of activities. The voluntary work done in the member countries has been successful to keep the network alive. The main channel of information has been a website.

One of the most important results of the network has been co-operation and contacts between the members and participants, also co-operation in research between countries and research institutes. Increase in the co-operation between research and development workers is one of the results. Conferences and co-operation between Scotland and the northern countries has brought forth information and broadened the understanding of rural circumstances in the member countries. We have some common history, we have similarities in nature, climate and culture as well as rural circumstances, which can easily be compared. We can learn from the good practices in different countries.

After the ten years´ period it is possible to say that the network has reached the objectives and the need for continuity can be seen.

Photo: Pirjo Siiskonen

Photo: Pirjo Siiskonen

Timetable for the last 10 years

Time	Place	Theme	Organizer	Publication	Special features
4-5 September 1997	Heimari, Finland	Rural and Regio-nal Development	Mikkeli Institute of Rural Research and Training and Univ. of Highlands and Islands Project	Pasi Saukkonen & Hilkka Vihinen (eds.). Rural and Regional Development. Univ. of Hel-sinki, Mikkeli Institute for Rural Reseach and Train-ing, Publications 61, 1998, 187 pp	
3-8 September 1998	Lerwick, Scalloway & The Isle of Yell, Shetland, Scotland	Strategies for Sustain-able Development in Rural and Remote Regions	Univ. of Highlands & Islands Project	Rural and Remote Regions: Strategies for Sustainable Devel-opment. Proceedings of the 1998 Nordic-Scottish Universities Network Confer-ence, edited by Neil Crisholm, 77 pp	
16-19 September 1999	Stjørdal, Trondheim, Norway	Rural and Regional De-velopment in Northern Periphery Local devel-opment – New business – Rural Women	Centre for Rural Re-search (Allforsk)	Magnar Forbord & Tove Stavrum (eds.): Rural and Regional De-velopment in Northern Periphery. Report 4/2000, Cen-tre for Rural Research, 190 pp	
7-10 Sep-tember 2000	Akureyri, Iceland	Regional development practices in small socie-ties – Rural-urban inter-action – Rural identity – Rural services and education	University of Akureyri	Bright Summer Nights and Long Distances, Rural and Regional Development in the Nordic-Scottish Con-text, ed. by Ingi Rúnar Edvards-son. Univ. of Akureyri, 2001, 205 pp	
6-9 Sep-tember 2001	Roedding Folk High School, Denmark	Rurality in a Nordic-Scottish Context Policy & Politics in Rural and Regional Development, New Paradigms for Rural Developmet	Danish Centre for Rural Research and Development sup-ported by Faculty of Social Sciences at the Univ. of Southern Denmark	Tanvig, H.W. (ed.) (2002): Rural Policy and Politics in a Nor-dic-Scottish Perspec-tive. Working Paper 1/02, CFUL, Esbjerg.	

24-27 August 2002	Östersund, Sweden	Sustainability in Rural and Regional Development	National Institute for Working Life (NIWL)	Lars Olof Persson, Ann-Mari Sätre Åhlander and Hans Westlund (eds.). Local Re-sponses to Global Chan-ges, Economic and Social De-velopment in Northern Europe's Countryside. Arbetsliv i omvadling 2003:11, 292 pp	
23-27 June 2003	Inverness, Scotland	International Rural Network Conference Taking Change: Rural Community Empowerment in Rural Development, Rural Health and Rural Education		The Nordic-Scottish Univ. Network for Rural and Regional Development, Proceedings of the 2003 Annual Conference Inverness, Scot-land, edited by Frank Rennie, UHI Millenium Institute, 144 pp	Together with International Rural Network Conference
17-19 June 2004	Heimari, Finland	National Rural Policies and Entrepreneurship in the Rural Context	Mikkeli Institute for Rural Research and Training and Agrifood Research Finland	Finnish Journal of Rural Research. English supplement 4/2004	
22-25 September 2005	Akureyri, Iceland	Rural and Regional Development in association with The 14th Nordic Symposium in Tourism and Hospitality Research	Univ. of Akureyri Research Institute (RHA) and the Icelandic Tourism Research Center		In associa-tion with 14th Nordic Symposium in Tourism and Hospi-tality Research
8-10 March 2007	Brandbjerg Hoejskole, Denmark	Nordic-Scottish Univ. Network for Rural and Regional De-velopment Innovation Systems and Rural Development	The Danish Centre for Forest, Land-scape and Planning at The Univ. of Copenhagen		The 10th Anniversary Conference of the Network

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Forest & Landscape Working Papers

No.	1	• 2004	Experiences with web-based teaching in forestry
No.	2	• 2004	Distribution of tree seed and seedlings
No.	3	• 2004	Identifying forest-livelihood research priorities in Mozambique
No.	4	• 2004	Breeding for die-back resistant Dalbergia sissoo in Nepal
No.	5	• 2005	Farmers' planting practices in Burkina Faso
No.	6	• 2005	Cocoa agroforests in West Africa
No.	7	• 2005	Observations on timing and abundance of flowering and fruiting of woody plants
No.	8	• 2005	Tree seed in Malawi
No.	9	• 2005	Commercial distribution of tree seed in small bags
No.	10	• 2005	Using soft systems methodology to develop a mango forest management and planning decision support system in a buffer zone
No.	11	• 2005	Integration of Urban Woodland Policies
No.	12	• 2005	Substitutes or Complements?
No.	13	• 2005	Landscape values of rural inhabitants in the Sound region
No.	14	• 2006	not yet published
No.	15	• 2006	Timing and abundance of flowering and fruiting of woody plants in the Hørsholm Arboretum
No.	16	• 2006	Medicinal plant markets and trade in Maputo, Mozambique
No.	17	• 2006	Carbon-Nitrogen Interactions in Forest Ecosystems
No.	18	• 2006	A review of forest economics research in Bolivia
No.	19	• 2007	Proceedings of a workshop on agroforestry tree seeds for farmers
No.	20	• 2007	Case studies of nurseries in Malawi
No.	21	• 2007	Protocol for establishment of trials with Baobab and Tamarind within the SAFRUIT project
No.	22	• 2007	Evaluation of an international series of Pinus kesiya provenance trials for adaptive, growth an wood quality traits
No.	23	• 2007	Larch wood – a literature review
No.	24	• 2007	The potential of larch wood for exterior use – Report from a joint Nordic research project
No.	25	• 2007	A floral and faunal biodiversity assessment of Prey Long
No.	26	• 2008	Proceedings of the 8th International Christmas Tree Research & Extension Conference
No.	27	• 2008	Innovation Systems and Rural Development. Proceedings from 10th Annual Conference, Nordic-Scottish University for Rural and Regional Development

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