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Rurality, Rural Policy and Politics in a Nordic-Scottish Perspective

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Preface

This book is a collection of papers from the 5th annual conference in the Nordic-Scottish University Network for Rural and Regional Development. The network is part of a longer initiative taken in 1994 by the Scottish Office and Nordic Council of Ministers to promote liaison and co-operation between the regional development agencies in Scotland and the Nordic nations for their mutual benefit. In addition to the University Network, the initiative includes three other areas: Information, Technology, Private Forestry, and Small and Medium-sized Enterprises. Further information on these projects can be obtained from Highland and Island Enterprise, Inverness, Scotland.

The University network for Rural and Regional Development was established in 1996. It is led by Dr. Pirjo Siiskonen at Mikkeli Centre for Rural Research and Training in Finland. Up till now, the main activity of the network has been to establish contacts and networks by annual conferences held in September. The first conference was held in Mikkeli, Finland, 1997, the second in Shetland, Scotland, 1998. The third conference was held in Stjördal, Norway, in 1999, the fourth in Akureyri, Iceland, 2000, and the latest in Esbjerg/Rödding, Denmark, 2001. This book includes selected papers from the conference.

The conference and this publication were made possible through financial aid from Southern Denmark University, Faculty of Social Science, Danish Centre for Rural Research and Development and the participants.

We are grateful to all, especially those who made contributions to this book.

Finally thanks to all involved in the preparation of this conference, in particular Monica Stoye.

Danish Centre for Rural Research and Development, spring 2002

Hanne Tanvig
Head of Centre

Hanne W. Tanvig

Introduction

The 5th annual conference at the Nordic Scottish University Network for Rural and Regional Development was based on three sessions:

- **Rurality in a Nordic – Scottish Context**
  How do we define and understand rurality in our national context? Do we speak about the same subject?

- **Policy & Politics in Rural and Regional Development**
  Local, regional, rural, agricultural, etc. Policy and politics for rural development have different approaches. Do these approaches counteract or complement each other?

- **New Paradigms for Rural Development**
  Empowering resources and qualifications. The transformation of passive areas to developing areas.

The three sessions were supplemented by a workshop to make a whole of the three more classic conference sessions and contributions from researchers, so that the themes had an element of action included, and also to allow practicians to take the floor:

- **Workshops: Converting Research Into Policy**
  Translating thought into action. Discussions on the three sessions.

These issues are very central to the Nordic-Scottish Network, which aims at bringing the individual nations closer to each other in the question of rural development. To do so it is of course a prerequisite to gain knowledge of the others' conception of rurality – both in regard to delimitation of rural areas and the problems and potentials for development related hereto – and in regard to our conception of what rural policy and politics are or can be. It is also important to gain knowledge of trans-national initiatives, pointing at a possible future direction of development. It is especially important that researchers and practicians work closely together when expressing the rural problems, development possibilities, policies and politics.

Especially in Denmark, where rural development, rural policies and politics are relatively new fields of interest it is also important to learn from the countries to which we best compare us, such as the Nordic-Scottish countries, to become inspired and avoid mistakes.

In research and politics we can learn a lot from the lead of the other countries. The following is meant as an illustration of the span of concept formation regarding rurality and rural policies and politics only in Denmark, and this we do to call attention to the necessity of making concepts and definitions more rigorous here, if rural development is to be promoted and placed higher on the Danish agenda.

Not only are there various definitions of what a rural area is in Denmark, but they are also essentially different. Most of these many and different definitions of a rural area are in fact related to other things than

the rural areas themselves: for instance remaining area when towns have been identified, or the place where there are no big towns, or the place where only farming is allowed, or the place where you are not or do not identify yourself as a townsman.

In such unclear but diverted positions the development of rural areas can easily become an uncertain and secondary subject for debate and politics. One could say they are made passive. For instance it does not seem obvious to see them as an independent and social development potential. Never the less, the various definitions can include up to 40% of the total Danish population.

The development of rural areas is part of the agenda of the many players. Nationally the most central player is the Ministry of the Interior and Health (the relevant department), who grants project funds to local players, the Ministry of Food, Agriculture and Fisheries (with bigger financial funds but especially agriculture-oriented) and promoting EU-rural-area-programmes and the Ministry of the Environment (with land use and superior management of open land and spatial planning, typically aimed at preservation of nature and environment). No attention is paid to rural areas by for instance national industrial policy or education policy, not to mention for instance a major financial, national subsidy programme. At national level there is in fact no policy for rural development. The closest you can get to one are the efforts made by counties and municipalities to set up a rural district policy, which can be more decided by general and territorial views. But it is up to the individual counties and municipalities to lay down guidelines, aims and means for rural areas, again resulting in diversity, big differences and insecurity related to the social position of "the rural areas". Ad to this the many voluntary and local forces, working with development in their local society, for instance via the comprehensive net of local associations and networks.

So in Denmark in general we have a rural area policy, which is decided partly by sector - but not including all sectors – and partly by voluntary efforts made on county and municipal level and further more by efforts made by the local fiery souls. If not agriculture alone takes action. Each sector has its own objectives and does not distinctly try to bring rural areas into a more active and dynamic, acting role. The efforts made by local fiery souls often aim at another position, but they are clearly not able to counterbalance the situation themselves. Agriculture usually aims at keeping its monopoly of the rural areas.

Each contribution to this publication tells a part of the story of rural development in the countries in question. They were not written for us in Denmark, and therefore we shall not here try to link them up closely to each other and making a sort of synthesis. They must stand as separate contributions, which do address the objective nicely, and altogether they show that rurality, rural policy and politics are characterized by diversity. And maybe that is the way it should be? Non the less the Danish discussion may be a common discussion, if we could leave out of account the fact that in spite of everything there always will be a big difference due to the very different natural geographic conditions of the countries. Maybe it is more obvious that there must be a rural policy in a country with big problems related to distances than in a country like Denmark? But then what is the difference between regional policy and rural policy?

Here, on the other hand, we shall reproduce the main results from the workshop. Here you will find a lot of starting points for a common understanding. The discussions in the workshop showed in general, that a lot of

things are common and by our joint efforts – theorists and practicians cross-nationally – we will be able to continue the development of this area both regarding concept and understanding, read this:

- Almost all groups used the opportunity to specify and partly reword the main questions originally asked. This in itself expressed a large degree of involvement and ambition to ensure a professional and constructive result.
- We did not reach one directly operational definition of rural areas, but we got close. Namely that rural areas are territories (which can be regarded as regions, when you do not regard regions as determined by administrative limits), where there is a special harmony between the physical (nature), social (thinly populated/social relations), and financial elements (primary production and other trades are strongly affected by the physical dimension – agriculture still leaves its mark)
- We reached a clarification of the difference between rural policy and agricultural policy. Rural policy is a horizontal and territorial focus (rural territories and "regions") on many functional or sectorial policies including agricultural policies.
- The conclusion was also reached that more self-determination in rural areas is important, but that this depends on a number of conditions, for instance cooperation and formulation of rural policies on national and regional (administrative) level.
- Dissemination and access to knowledge are also conditions for self-determination. Here it was clear that much effort is to be made at local level to enable people to evaluate, use and get into a dialogue on knowledge production.
- Finally it was clear that encouragement of social capital and entrepreneurship jointly and individually are central elements or prerequisite for a positive development in rural areas. Here it was also emphasized that such elements alone are not sufficient. They must also be made a part of the "big" economy and policy.

John Bryden

Keynote: Session 1

Rurality in a Nordic Scottish Context

1. Introduction: Why do different ideas of 'rurality' matter?

How do we define and understand rurality in our national context? Do we speak about the same subject? Does it matter? [1]

The social and political construction of 'rurality' in different times, regions and countries is a topic of never-ending fascination. Exactly why do we have so many different ideas of what is rural in Europe, and especially the sparsely populated countries of Northern Europe? Exactly why have people's ideas of what *is* rural - or what it is to be rural - changed so radically over time? And why does it matter if there are such differences and changes? What are the specific characteristics and issues in the Nordic countries and Northern Scotland? These are some of the key issues I tackle in the paper.

In the context of the Nordic countries and northern Scotland we can find notions of rurality which are based (a) on the alleged primary sector (agrarian/fishing/-forestry/hunting) basis of rural society[2], (b) on the notion of 'wilderness', (c) on ideas of lifespace and lifestyle choices, and (d) on specific types of territory which may involve some or all of the foregoing. At least outside those 'rural' areas which are in effect now largely commuting zones or dormitories to the large towns and cities, three dominant constructions today are those concerning agriculture, environment, and territory. Each of these is associated with emphases on different kinds of policy activity and client group for these policies. However, for people moving with their feet into or out of rural areas, ideas of lifespace and lifestyle choice, which go along with ideas of urbanity or rurality which are partly imagined and partly real, are critical.

An agrarian construction of rurality seeks to reinforce the dominant EU, and often also national, focus on agricultural policy as the key issue for rural areas, very little thought being given to the situation and needs of rural

[1] This paper owes a great deal to many people. Most recently, I owe a particular debt of gratitude to my colleagues and friends on the EU funded DORA (Dynamics of Rural Areas Project) which has extended my understanding of rural processes of rural transformation, as well as provided much useful information of a more tangible kind. In the present context, Lars-Olof Persson's and Vania Ceccato's work on the Swedish case study areas in DORA has been invaluable, as has the work of Jane Atterton, Paul Courtney and Anja Timm on the Scottish case studies. In seeking to make sense of DORA at EU level, I am particularly indebted to Keith Hart, who collaborated with me on the International Comparative Analysis of that project. My friend Ottar Brox, of the NIBR in Oslo, has been a source of ideas and inspiration since my early days working in the Highlands and Islands of Scotland in the 1970's. Recently our collaboration on a collection of his works in English has been immensely valuable to me in seeking to understand the common, as well as differing, processes at work in Northern Norway and the Highlands and Islands of Scotland. The concept that 'people are doing it for themselves', originally used by Keith Hart and I in the International Comparative Analysis for DORA, comes from the Eurythmics song 'sisters are doing it for themselves' (Stewart/Lennox, 1985), but was not only inspired by the DORA findings, but also by my old friend and colleague, Elena Saraceno who since the early 1980's insisted on the importance of bottom up processes of pluriactivity and rural industrialisation in NE Italy. I hope she remembers this now that she is working for the Forward Studies unit of the President's Cabinet in the European Commission!

[2] We do not normally find a 'mining image', but clearly the mining of ores (not to mention oil and gas) has been important in Scotland, Norway and Sweden. This is not, however, something which people like to imagine.

citizens not engaged in agriculture or other primary activities, or indeed to the majority of farm households who derive income from off-farm work, or other non-agricultural enterprises.

An environmental construction of rurality goes along with a focus on urban consumption uses of rural areas, agri-environment policies, national parks and nature reserve policies, reintroduction of predators, and issues of access, tourism and recreation. It usually de-emphasises, or even ignores, the economic and social situation and needs to those living and working in rural areas.

A territorial approach on the other hand emphasizes that a rural economy and society, like an urban economy and society, is a complex and diverse set of economic, social, environmental and political or power relations which need to be addressed together at the territorial level, and mainly by people who live in that territory. So it includes issues of aerial division of powers, and democratic participation, as well as inter-relations between territories (urban and rural). It goes along with territorial development policies which cover the urbanized areas within 'rural' territories as well as those defined more strictly as 'rural'. It espouses a 'joined up approach' between sectors, agencies of government, and levels of governance, and a 'bottom-up' approach to local development with targeted and flexible support from central government and the EU.

2. The dominant focus of 'rural' policy in the EU

In terms of EU policy it is clear that the agrarian construction of rurality remains absolutely dominant, despite much rhetoric around rural development in the 'second pillar' of the CAP and even research which shows how damaging this preoccupation is to rural economies and societies, and a certain amount of progress through Structural and Cohesion policies and LEADER. After all, the CAP still absorbs about 50% of the EU budget, and 99% of that is going to agricultural clients or closely related activities. This dominance is frequently reflected also in national policies. Time and time again over the past decade and more, opportunities to shift the basis of rural policy away from agriculture towards a territorial approach have been lost[3]. Why should this be so?

The first point to note is the remarkably resilient power of vested interests locked into the CAP including in particular the main farmers' unions. These bodies make full use of representations of rurality which portray rural areas as dependent on agriculture, agriculture as the basis of rural society. In addition, although they effectively represent the larger farms, they ruthlessly use a rhetoric which relies on the now largely archaic images of European farming based on the small family or 'peasant' farm. It is obvious that there are also significant bureaucratic and media interests locked into the traditional agricultural policy. And there is a strong relationship between those vested interests in such bodies as CAP committees and consultation mechanisms. The volume of public resources involved – both national and EU – at well over €60 billion a year gives a very powerful motive indeed to both the recipients and the givers to organise and defend the status quo.

The second point is that, in contrast with the agricultural lobby, the non-farming rural

[3] The Structural Fund reforms of 1988 opened a door for the territorial approach in Objective 1 and 5b regions, and later Objective 6 regions. The idea of a territorial approach was also implicit in the Commission's own paper 'The Future of Rural Society' in 1989. The Maastricht Treaty of 1992 confirmed that rural development was an issue of economic and social cohesion. The Cork Conference in 1996 affirmed the need for a territorial approach. Agenda 2000 appeared to offer scope through the new 'rural development regulation'.

interests at national and EU levels are almost completely ineffective in terms of representation in politics and the media. The exception to this, which is important to note, is the mainly urban-based environmental interests who have become rather effective at both national and EU levels. I will argue that the kinds of alliances which were formed between rural people (especially small farmers and fishermen) and urban working class interests, for example in Norway and the Highlands and Islands, up until the 1970's have now been completely undermined, and they have yet to be effectively replaced. This vacuum of political economy over the past 20 or so years has played into the hands of the commercial agricultural lobby who have large interests to defend, and also to what might be termed the extreme end of the environmental lobby.

Thirdly, central bureaucracies are remote and isolated, and officials are with a few very notable exceptions absorbed with satisfying their political masters, and of course the media, all of whom are based in the large seats of power and rather far from peripheral rural areas. They are locked into committee structures which give real power to the agricultural lobby, and they depend largely on the latter for support and advice. At EU level this problem is reinforced by the absence of adequate intelligence (data, analysis) of changes taking place in rural economy and society, and of an active media and organization of rural interests which could both promote the need for such intelligence and utilise it to inform policy changes. One important example is the total failure of EUROSTAT to provide an adequate database to support important indicators of rural social and economic change at even NUTS III geographical levels.

I want now to contrast this policy focus with the pressures and needs which are arising from the principal economic and social changes in the rural regions of Europe's northern periphery.

3. Economic and social changes in the northern Periphery

I focus on four key changes which are however interconnected one with the other, namely:

- Demography and migration
- Employment
- Rural-urban relations
- Political economy

4.1 Demographic patterns and trends in rural areas

The most striking, and in some respects least noticed, demographic change in rural areas in western Europe is their transformation from areas of relatively high to relatively low reproduction rates which are today commonly less than unity and falling rapidly. This has been caused not just by falling family sizes and later marriage, common throughout Europe, but also to inward and outward migration which has been differentiated by age. It has lead in turn to negative natural changes in population, particularly in rural areas beyond the commuting zone to larger towns and cities. It means at least two things. First, that maintaining or increasing population in rural areas is now critically dependent on the nature and extent of migration flows.

Second, that the traditional if unintended role of rural areas in providing a 'reserve army' of (youthful) labour for urban-based development is diminishing. I will return to this point later.

Migration flows differ in character between rural areas, and have implications for the social composition as well as emerging possibilities in the 'new economy'. Since most rural areas, and all of those in the Northern periphery, are characterised by youth out-migration, the most significant differences concern the extent and nature of inward migration. In rural areas with commuting possibilities, it is often younger families which move out to, or back to, rural areas for a broad set of reasons connected with lifestyle and quality of life, including access to cheaper housing. In rural areas beyond the commuting zone, the nature of migration flows is critically dependent on the scale and nature of employment and enterprise opportunities what we call 'new economy' sectors and in the public sector, even if quality of life/ lifestyle factors and housing costs remain very important in the migration motivation and decision. Where employment is relatively available and the labour market diverse enough to offer opportunities for people in a range of occupations and with a range of skills, as well as entrepreneurship, then the return migration and inward migration of younger people, commonly with children, can be significant. Where it is not, positive migration balances depend on retirement age, or near-retirement age, people moving in. In all cases, in-migrants are moving back to, or into, rural areas because they perceive them as offering a higher quality of life or preferable lifestyle[4], a greater sense of community, or some other less-tangible attribute. There is indeed a new interest in living in rural places, and not only amongst the elderly. From being recipients of what was thought of as a 'surplus' rural population, then, cities and towns have become a source of population, at least in the more successful cases, for rural areas.

Viewed over the longer term, we must recall that peripheral rural areas of Scandinavia and Scotland were for a considerable period during the 19th and 20th Centuries a principal source of people who migrated to towns or overseas in search of a better life. Fertility and reproduction rates were often higher than in urban areas. This, together with technological and structural changes in the primary sectors, and indeed losses of governance and primary processing functions, meant that rural people comprised a 'reserve army of labour' for urban industrialisation and service sector growth, and the expansion of what became known as the 'new world', especially N America. This is no longer the case. This fact has important implications for the political economy of northern rurality which I will return to later.

The new interest in living and recreating in rural space represent a new set of demands which Marsden at al (1993) term 'consumption of rural space' which has led to 'commoditization', for example of environment, culture and heritage. In another sense, these new values have led to new forms of comparative advantage for rural areas, and new economic activities, which both attract inward migrants and sometimes help to retain young people in rural areas (Galson, 1992; Bryden et al 1996). At the same time, new conflicts arise about property rights, access to housing and land, and in other ways. These conflicts are both substantive, arising from for example inward migrants forcing up housing prices for locals (Shucksmith, 1990) or increasing pressure for recreational access to land, and subjective in terms of different perceptions and representations of rurality acting out in local political and social conflicts (Marsden & Murdoch, 1993).

[4] Which includes lower crime rates, cleaner environment, outdoor recreational activities, scenic attributes, gardening opportunities, smaller schools, and in some cases a better health service (fewer patients per doctor, shorter waiting times for hospital treatment, for example).

4.2 Employment changes in rural areas

Demographic changes, and especially migration patterns, are closely connected to changes in the scale and nature of employment and self-employment in rural areas. It is useful to consider trends in three basic groups of economic sectors, namely:

- the 'traditional' rural sectors consisting of primary production (agriculture, forestry, fishing, mining and hunting) and related supply, service, and first-stage processing;
- what I call the 'new rural economy' sectors linked with new 'consumption demands' and including tourism and recreation activities and related services, with new service type activities linked to Information and Communications technologies, and new value-added activities linked to niche markets;
- the public sector, including public administration, social security, law and order, health and education.

The proportion of the rural population and labour force engaged in agriculture and other primary sector activities has fallen steadily in all rural areas of western Europe, the northern periphery included. In our Scottish DORA study areas, employment in agriculture, forestry and fishing was less than 20% of the working population. This compared with over 20% in distribution, hotels and restaurants and around 30% in public sector services and between 15 and 41% in industry [Bryden et al, 2001]. In Sweden, public and private services dominate rural employment in all of the study areas, especially in the North, and even there employment in agriculture, hunting, forestry and fishing accounts for less than 8% of employment, which is similar to tourism [Persson & Ceccato, 2001: 48]. Agriculture is now, and has been for some time, a minority occupation and a diminishing element in rural economy and society, even in the more remote and poorest rural areas. Similar trends have taken place, if for different reasons, in forestry fishing and mining. In addition, many first stage processing activities related to mass markets in food (meat slaughtering, dairy products, etc), forestry (saw milling etc), and mining (ore production) have either diminished or have become heavily centralised, often in urban areas. It is probable that these trends will continue in future as structural, technological, and policy changes take effect.

This shift in employment, which is reflected also in enterprise structures and self-employment, is paralleled by shifts within agriculture itself, whereby some farm families – usually a minority in fact - have become larger and more commercial in operation, whilst many – usually most – have adapted either by leaving the industry altogether, or by letting others use their land and taking up non-farming employment or self-employment whilst remaining in the farm house, or, most commonly, by combining farming with non-farming employment or in some cases non-agricultural enterprises such as farm tourism on the farm. The growth in off-farm working in farm households, as well as engagement in activities like farm tourism, was particularly marked among farm women[5]. Most farm households today, in most W European countries, as in the northern periphery, are therefore very dependent on opportunities for employment and enterprise which often have little or nothing to do with primary production, and are by no means solely reliant on income from farming.

[5] It is now nearly a decade since a report of a major 12 country study of farm household adjustment and pluriactivity in western Europe pointed this out [Bryden et al, 1993]. Although more recent comprehensive data is not available on a comparable basis, it appears that this trend, established between 1981 and 1991, has continued.

The extent to which rural areas have been able to replace the loss of primary sector employment with secondary and tertiary employment, and the precise nature of that replacement, has been highly variable, as is confirmed by our DORA study areas and their differing performance. The critical features of our successful DORA study areas in these respects concern (a) the extent to which 'new economy' activities have emerged, (b) the importance of, and trends in, public sector employment, and (c) accessibility to urban employment centres. I do not believe that EU policy should involve itself in the commuting zones around major towns and cities, where the problems are tied up with growth, urban development, urban-suburban relations, planning and the like. Therefore, my main focus is on issues relating to 'new economy' and the public sector which are critical for the areas beyond the commuting zone.

The first point to note from our recent work on DORA is that although shift-share analysis in all our rural study areas predicted reductions in employment as a result of sectoral and national trends in labour productivity, the weight of declining sectors like agriculture, etc., relatively successful areas either bucked that trend completely by demonstrating employment growth, or did not do as badly as predicted.

The second point to note is that, although public sector employment remains an important factor, the more successful rural areas are those which have successfully developed 'new economy' activities. Nevertheless, successful areas also keep their public service sectors and emplyoment, and it is always important. One public service in particular which seems to be increasing everywhere is health care, usually linked with the ageing of the population. In Norra Norland in Sweden, for instance, employment in health care accounts for ***a quarter*** of all employment - up to ***six times*** as important than agriculture, forestry, fishing and hunting! In fact around half of the female labour force is engaged in education and health [Persson & Ceccato, 2001]. An influx of elderly can also bring employment in this and other areas of service provision.

The purpose of DORA was to ask why some areas in much the same kind of geography (peripherality, physical characteristics, etc) had been more successful than others. It is not my purpose here to report on the findings, which are still being analysed, but I will say that so far we have found the reasons, and associated processes, to be rooted in the following:

- Cultural traditions and social arrangements in the shift from state to market
- Infrastructure and peripherality
- Governance, Institutions, and Investment
- Entrepreneurship
- Economic structures and organisation
- Human resources and demography

These are interconnected in very important ways. But that is for a later paper after the final outcomes of the DORA project later this year. However, some indicators of more successful development of the new economy are:

- New forms of value-added linked to traditional activities, cultural heritage and environment, which are transformed, through effective place-marketing involving private-private and private-public co-operation at local levels. A good example is the Orkney Marketing Scheme.
- More effective development of tourism and recreation, and establishment of links with other sectors at local level, especially through use of local food and food products, cultural manifestations, and exploitation of cultural and

environmental heritage and features including music, language, archeology, ecology. Frequently also this involves innovative use of ICT for marketing and tourist information etc. Occupancy rates for tourism accommodation are commonly much higher in the successful areas, and hence profitability and employment.

- More effective application of ICT by local people.
- Cooperation between enterprises in different sectors to build critical mass for marketing & promotion, and add value in a number of areas.
- Significantly higher rates of employment and self-employment, and higher levels of education and training.
- Good local governance marked by an institutional structure which is open to private-public cooperation and third sector involvement, encourages inter-agency co-operation, and where institutional boundaries are common.
- Historical social and cultural, as well as structural, conditions which encourage independence rather than dependence.

4.3 Rural-Urban Relations

As can be readily seen from the foregoing, there have been radical changes in the relations between urban and rural areas. From being a source of raw materials and food, and a 'reserve army' of labour, for the urban areas, rural areas have often become a net recipient of urban migrants seeking 'the good life' which they imagine to be present there, as well as increasing numbers of urban people coming for tourism and recreation, heritage, culture, family connection, and simply to enjoy the landscape and environment[6]. The importance of signs, symbols and styles of consumption to modern individualism and identity have also led to the emergence of new 'niche' markets. Close to towns, urban areas benefit from a mobile labour force in the surrounding rural areas, but suffer from pollution linked to commuting and congestion, and loss of tax revenues linked with the middle classes who are moving out. Urban and suburban middle classes take a considerable interest in rural areas, but mainly because of environment and landscapes, and recreational possibilities which can conflict with traditional rural activities and established property rights (over access issues, for example).

[6] Marsden, Murdoch and others have emphasised that the role of the countryside has changed from one of 'production' to one of 'consumption' of its various non-tangible and partly or wholly imagined features.

4.4 Political Economy

Political alliances around rural development support between the urban working class and small farmers, fishermen, hunters and foresters were based on the 'surplus' of labour generated in rural areas by a high reproduction rate and the structural and technological changes in the primary sectors. The logic was that if the flow of migrants could be stemmed by rural development then wage levels of the urban working class would be less threatened. Thus in both Norway and the UK, development initiatives towards the peripheral north were argued for and supported by the urban Trade Unions and the left-of centre political parties in the 20th Century [see especially Brox 1978, 1991 and 1996 for the Norwegian case]. The basis for this alliance has now gone because of falling rural reproduction rates, changing rural occupational and class composition, loss of power of the working classes and the fact that the 'reserve army' of labour is now comprised of immigrant populations from third countries.

The character of the commuting areas around the towns and cities, which benefit from in-migration of middle class urban dwellers often with young families, has become sub-urban, and their functions are largely concerned with providing a professional labour force to the urban areas and surrounding satellite urban and service centres. Where these areas are not fiscally and administratively integrated with their main urban labour markets (and service centres), there are conflicting interests, with the urban areas suffering what they see as a loss of tax revenue.

Beyond the commuting areas, as I have argued, the old alliance between the rural small self-employed farmers and fishermen and the urban working class has disappeared. Meanwhile, the demographic composition of urban areas has become much more heterogenous in social and cultural terms, and family and other roots in the rural hinterlands much more attenuated. The recreational and environmental interests, predominately urban and suburban in character, represent a powerful new set of interests, often with effective lobbying power at national and EU levels, and good media backing. Many of them take an interest in, or are actively involved in, rural activities. On the other hand, they need a resident rural population to maintain the environment in rural areas as they would wish, and to provide services to visitors etc. Whilst their image of the future of rural areas, as well as some of their activities, have often been at odds with that of rural residents, they represent the main potential allies for rural people in future. The construction of these alliances is fraught with difficulty, but is absolutely necessary for both parties. It may be facilitated by inward migration flows.

However, that is only one side of the story. The other, and it is an important finding of DORA, is that 'people are doing it for themselves'. Or at least this was a common characteristic in the DORA study areas in all four countries, which included Sweden and Scotland. This is manifest in the fact that successful study areas are marked by a more vigorous, and small scale, local entrepreneurship in all of the areas of 'new economy'. However, entrepreneurs are not doing this alone. They are supported by more effective institutions which have, or have sought for themselves, greater fiscal and functional autonomy, and which are thus able to define and support local priorities, create local public goods related in important ways to new economy activities, make effective use of universities, colleges and research centres, and tap external sources of funding. It is striking that none of our successful areas have become so through reliance on external initiatives and central government or EU decisions or structures alone.

5. Conclusions & Policy observations

I have tried to show how the various notions of rurality in Northen Europe have arisen, and why they matter. It is clear that an agrarian construction of rurality has driven, and maintains, the enrormously wasteful expenditure on the CAP and related national agricultural policies. Equally, I have reaffirmed that images of the 'good life' in rural areas are driving inward migration and tourism and recreation activities, as well as activities involving ICT and other entrepreneurship.

I have tried to demonstrate the demographic and employment changes which have taken place in rural areas, and how more successful rural areas are marked by positive migration flows and the development of 'new economy' activities, many of which exploit the new 'consumption' demands.

Equally, I have explored, in a limited way, the changing political economy of rural areas and rural-urban relations.

I have hinted at the conditions which encourage or inhibit such success, highlighting the linked themes of culture, infrastructure and peripherality, governance and institutions, entrepreneurship, economic structures, and human resources and demography all of which emerged in our international comparison of the 16 DORA case study areas [Bryden & Hart, 2001fc]

There are important implications for national and EU public policies. One is that there are far more important issues than agriculture to be addressed. Another is that the institutional and governance structure is critically important, and largely a national mater to resolve. There is little point pouring EU development money into situations where this is manifestly inadequate, like Caithness in the north of Scotland. Yet another is that the support structures of the EU and national government need to be flexible and sensitive to local conditions and priorities which are highly variable. Another is that the scope of rural development policies needs to be enlarged to include issues of quality of life, institutional arrangements, and the quality of governance in general. Equally, there must be more 'joined up thinking and action' at all levels. Another is that the explicit and implicit support given to traditional lobbies, and especially the agricultural lobby, needs to be redirected to new rural interest groups which represent territories and not sectors. Finally, in this context, resource transfers and fiscal equalisation policies remain critical. I have more, but for another place and time.

It may not, of course, be possible to turn around the decline of each and every rural place in the northern periphery, or indeed elsewhere. However, the important thing is that local people are given the power and reponsibility to take action, and that they are given the appropriate financial and other support to do so by the EU and central authorities. There is another opportunity ahead in the next four years, starting with the mid-term review of CAP and structural policies in 2002, to turn EU policy around. This is an opportunity which must be grasped by all those who have the future of rural areas in Europe at heart.

References

Atterton, J., Bryden, J., Courtney, P., and Timm, A. (2001*). Dynamics of Rural Areas: National Report-Scotland.* Aberdeen.

Berglund, S., Johansson, M., and Persson, L.O. (1996*).* Public Sector and Depopulating Regions in Sweden. I: Johansson, M. and Persson, L.O. (eds) (1996*), Extending the Reach: Essays on Differing Mobility Patterns in Sweden.* Sweden: Swedish Institute for Regional Research (SIR).

Bor, W. van den, Bryden, J. M. and Fuller, A. M. (1997). *Rethinking rural human resource management: The impact of globalisation and rural restructuring on rural education and training in Western Europe.* Netherlands: Mansholt Institute, Wageningen.

Brox, O. (1978). Phases in the Development of North Norwegian Settlement Structure. I: S. Saugestad Larsen (ed*), The Local Unit in a Wider Context*. Mimeo. University of Tromso.

Brox, O. (1991). *Typical Patterns of Norwegian Rural Problems*

Brox, O. .(1996). Out of Poverty: The case of Norway. Bakgrunnsrapport, *UNDP-Mote I Oslo, Sept. 1996*. Norway: Norwegian Institute for Urban and Regional Research.

Bryden, J., Bell, C., Gilliat, J., Hawkins, MacKinnon, N. (1993). Farm Household Adjustment in Western Europe 1987-1991. Final report to the EC Commission on the research programme on farm structures and farm household pluriactivity. Published by EC Commission in its "*Research Series*" in 1994 in English and French.

Bryden, J. M. . (1994). Interactions between Farm Households and the Rural Community. I: Dent and MacGregor, *Rural and Farming Systems Analysis, European Perspectives*. CAB International.

Bryden, J., Salant, P., Shucksmith, M., Burnett, K., and Roberts, D. (1996). Broken Traditions: Agriculture and Rural Society in England. Report for the Ministry of Agriculture, Fisheries and Food, *Occasional Report No 1 march 1996*. London: Arkleton Centre.

Bryden, J. and Bollman, R. Rural Employment in Industrialised Countries. *Agricultural Economics 1416 1999,* 1-13.

Bryden, J. M. and Munro, G. M. (2000*).* New Approaches to Economic Development in Peripheral Rural Regions. *Scottish Geographical Journal, 116(2)*, 1-14.

Bryden, J. and Hart, J.K. (2001). *Dynamics of Rural Areas: International Comparative Analysis*, Draft. The Arkleton Centre for Rural Development Research.

Cloke, P. & Little, J. (1990) *The Rural State? Limits to planning in rural society*. Oxford: Clarendon Press.

Cloke, P. & Thrift, N.J. (1987). Intra-class conflict in rural areas. *Journal of Rural Studies, 3*, 321-34.

Dawe, S. P. and Bryden, J. M. (2000). Competitive Advantage in Frontier Regions of Europe: Redefining the Global-Local Nexus. I: Lithwick, H. and Gradus, Y. (2000), *Developing Frontier Cities*. Kluwer Academic Publishers.

Galston, W. A. (1992). Rural America in the 1990s: Trends and Choices. I: *Policies Studies Journal Vol. 20, No. 2.*

Halfacree, K. H. (1994*).* The importance of 'the rural' in the contitution of counterurbanization: Evidence from England in the 1980s. *Sociologia Ruralis 34, 2/3,* 164-189.

Johansson, M. (1996). Residence, Employment, and Migration in Four Types of Swedish Localities 1972-1992. I: Johansson, M. and Persson, L.O. (eds) (1996*), Extending the Reach: Essays on Differing Mobility Patterns in Sweden.* Sweden: Swedish Institute for Regional Research (SIR).

Johansson, M. and Persson, L.O. (eds) (1996*). Extending the Reach: Essays on Differing Mobility Patterns in Sweden.* Sweden: Swedish Institute for Regional Research (SIR).

Long, A. and J. Douwe van der Ploeg. (1994). Endogenous Development: Practices and Perspectives I: *Born From Within: Practice and Perspectives of Endogenous Rural Development*. Van Gorcum, Assen.

Lowe, P. (1977). Access and amenity: a review of local environmental pressure groups in Britain, *Environment and planning 9*, 35 - 58.

Marsden, T., Murdoch, J., Lowe, P., Munton, R., and Flynn, A. (1993), *Constructing the countryside.* London: University College London Press.

Meyer, H. von (1996). Rural employment in OECD countries: Structure and Dynamics of Regional Labour Markets I: Bollman, R.D. and Bryden, J.M. (1996), *Rural Employment: An International Perspective*. CAB International.

Murdoch, J. and Marsden, T. (1994) *Reconstituting Rurality.* London, University College London Press.

Newby, H. (1979). *Green and Pleasant Land? Social Change in Rural England.* London: Wildwood House.

Persson, L.O., Westholm, E. and Fuller, A.M. (1996). Two contexts, One outcome: The importance of lifestyle choices in creating rural jobs in Canada and Sweden. I: Bollman, R.D. and Bryden, J.M. (1996), *Rural Employment: An International Perspective*. CAB International.

Persson, L.O. and Ceccato, V. (2001). *Dynamics of Rural Areas: National Report-Sweden*. Stockholm.

Saraceno, E. (2000). Alternative Models of Urban development in Frontier Regions: The Case of Friuli, Italy. I: Lithwick, H. and Gradus, Y. (2000), *Developing Frontier Cities*. Kluwer Academic Publishers.

Shucksmith, M. (1990). *Housebuilding in Britains countryside.* London: Routledge.

Shucksmith, M. (1994). Conceptualizing Post-Industrial Rurality. I: Bryden, J. (ed) *Towards Sustainable Rural Communities*. Published in English and French in October 1994. Ontario: University of Guelph.

Sproull, A., Bryden, J. and Black J.S. *Telematics, rural economic development and SMEs: Some demand side evidence.* Informationen zur Raumentwicklung, Bonn. Special Issue on Rural Issues.

Terluin, I. J. and Post, J. H. (2000). *Employment Dynamics in Rural Europe*. CABI.

1. Introduction, Research Questions & Theoretical Background

Introduction

The purpose of this paper is to report the initial findings of a project looking at the influence of perceived environmental quality on entrepreneurial activity in rural areas. Rural decline has become a major focus for concern in Scotland. The disadvantages of remoteness and peripherality continue to put rural areas at an economic disadvantage. This economic plight is reflected in a lack of employment opportunities, particularly for well-qualified, skilled workers. The 'traditional industries' of agriculture, fishing and forestry are in decline, and the jobs they once provided seem only to be replaced by low-paid, low-status jobs in the service industries – if they are replaced at all. The provision of new employment opportunities has been identified as a key part of any action plan intended to turn around the fortunes of rural areas. Policy makers, and others with an interest in the re-vivification of rural areas, have focused much attention on the potential offered in this respect by new businesses. There is evidence, although the case is far from proven, that small- and medium-sized businesses can provide relatively more jobs than larger firms. Thus, there has been a major push in recent years to increase the number of small- and medium-sized businesses being founded in rural areas.

The activities of rural entrepreneurs, both potential and actual, have thus moved to centre stage in the rural development debate. Research in this area is somewhat diffuse: despite a few major studies and reviews (e.g. Keeble et.al. 1992, Curran and Storey 1993) there exist many gaps in our understanding of why rural entrepreneurs do what they do. This study aims to explore and develop some ideas about one particular aspect of entrepreneurial activity, that of environmental enterprise, a field in which there is growing academic interest.

Research Question

- How do rural entrepreneurs make use of perceived high quality rural environments in relation to their businesses?

Theoretical Background to the Study

As with all multi-disciplinary studies, the literature pertaining to the subject area is wide and varied. The roots of this study lie in such diverse fields as rural geography, rural sociology, enterprise and small business studies, environmental philosophy and psychology – the list could go on indefinitely. Despite this daunting array of

academic work, however, there are certain themes that can be highlighted and explored to provide a background to the subject matter of the study. To begin with, it is necessary to review the socio-economic situation in rural areas at present, and to examine briefly the role of entrepreneurship and business start-up in rural development. Finally, a brief discussion about environmental values will provide an introduction to the research proper.

The Scottish Rural Economy Today

The challenges facing the rural economy are widely reported. It seems that not a day passes without some newspaper headline broadcasting to the nation the latest disaster to befall rural areas. Underlying these headline-grabbing events, is an ongoing cycle of rural decline that, despite being less dramatic, is nonetheless relentless in its effect on rural communities. The traditional rural industries of farming, fishing and forestry are undergoing major changes, and new methods of working, increasing pressure on prices and profits, and the need to operate in a global economy have resulted in a long-term decline in employment in these industries, once the mainstay of the rural economy. Although actual employment numbers in farming have held steady in recent years (at around 70,000) this comes at the end of a long, steady decline and it is unlikely that numbers will increase substantially. Employment in seafishing too is declining at a rate of about 4% each year since 1993. Some of these jobs have been replaced by an expansion in the tourist industry, and other services, though even this sector has seen a reduction in employment number recently (Lawson & Ritchie 2000).

The effects of 'peripherality' are well documented: larger firms which can offer 'quality' employment opportunities to skilled employees tend to gravitate towards the urban 'core', where they can achieve scales of production, and meet their subcontracting and servicing requirements. Thus, as Anderson (2000) notes, "gravitation works to strip out higher order functions from the periphery" – the periphery which we know as 'rural'. The effects of peripherality mean that rural businesses are bound to remain small, and are likely to experience problems due to the constraints imposed by distance (Keeble et.al. 1992). We can conclude, then, that employment opportunities for skilled, highly educated workers are limited in rural areas: thus the rural-urban 'brain-drain' that drains rural areas of its "best human talent" (Anderson 2000).

The paradox for young people in rural areas seems to be that if they strive to attain high standards of educational achievement, they will inevitably be forced to leave their homes to seek appropriate employment opportunities. On the other hand, if they do not leave the area, to attend tertiary education, they will have "to reconcile themselves to a life of limited opportunities, circumscribed by the low level of available training and employment and exacerbated in many cases by lack of transport or access to housing" (Dey and Jengscht 2000). The social consequences of this shortage of opportunities for skilled employees are well documented (Shucksmith *et.al.* 1996).

The story, for Scotland at least, is not as bleak as it has perhaps been painted. Jones, Caird and Ford (1984) describe how the Highlands and Islands region is experiencing 'counter-urbanisation' and for the first time in many years, population levels are rising, though this phenomenon is not uniformly widespread. They attribute this shift to a 'green wave' of changing values in which

people are choosing to remove themselves from the cities, and to live a different, 'rural' lifestyle, described by Hegarty (1995) as "counter-cultural". 'Quality-of-life' is widely reported to be the motivating factor behind these moves. Yet, such 'quality' is highly contested in rural areas, and the conflicts that result from differing understandings are also widely documented (Jedrej and Nuttall 1996). Yet, despite these controversies, it is appears that in-migrants to rural Scotland are stimulating the provision of new employment opportunities through the establishment of new businesses in their chosen locations (Findlay *et.al.* 1999)

Enterprise and Rural Employment

The importance of entrepreneurship in the wider economy is well established. Yet what is entrepreneurship? Despite the reams of research attached to the subject, there is no functional definition of the term. Like pornography, we know it when we see it, but we cannot define it in a way that will embrace all it's aspects. The complexity, diversity and evolution of human behavior (of which the action of entrepreneurship is a representation) make any search for defining qualities problematic. As a concept, entrepreneurialism has become identified with small business, with job creation and innovation, with business start-ups. It is this aspect of entrepreneurship that we are concerned with in this study.

Bygrave (1998) argues that the success of the US economy to date has been the result of its innovative and entrepreneurial culture. In the UK, the Thatcherite government seized firmly on the idea of creating an "Enterprise Culture", which has been carried on into the philosophy of the Blairite Labour government. The provision of new employment opportunities, through the establishment and growth of new businesses in rural areas, has been hailed as one of the key ways in which to tackle the problem of rural decline and depopulation, as is witnessed in the stated aims of Highland and Island Enterprise (HIE 1999). The Scottish Executive, for example, has published a series of guides entitled *New Ideas in Rural Development*, which include titles such as "Setting up a Wildlife Tourism Initiative" and "Becoming an Entrepreneur in Rural Scotland". There is some evidence that more rural businesses are being established: Illouz-Winicki and Palliard (1998) report that such rises are occurring in many OECD countries, including remote rural parts of the UK. The draft of the Scottish Business Birth Rate Strategy (Scottish Enterprise 2000) review acknowledged that business start-up in rural areas was indeed significantly higher than that in the rest of Scotland. Despite this, the studies of rural entrepreneurs remain somewhat few and far between. In order to encourage and stimulate the establishment of rural enterprises, one could argue, we need to be able to understand and explain what it is rural entrepreneurs are doing, and how they are doing it.

Valuing the Environment? Environmental Enterprise

Some of the authors referred to above give certain hints about the potential importance of the 'natural' environment in relation to rural enterprise. Hegarty's reference to a 'counter-culture' for example, suggests a cultural shift that is informing the actions of people choosing to relocate themselves to rural places. Illouz-Winicki and Palliard (1998: 13) are more explicit, suggesting that a suitable strategy for would-be

entrepreneurs is to "rely on local resources, natural and cultural, on the local setting, knowledge… there may be a genuine market for rural amenity (striking landscape, cultural heritage, natural resource)". Here then are two clues. Firstly, that there has been some shift in values by which people have come to value certain aspects of 'rurality' and 'rural environments'. Secondly, there is the potential for enterprising individuals to exploit this shift in values for commercial gain.

Of course, valuing 'rurality' and 'natural environments' is nothing new. Symbols such as 'nature', and 'the countryside' are endowed with strongly anti-industrial connotations, described by Lowe and Morrison (1984). Concern may have moved beyond the preservation of this disappearing 'arcadian' way of life, to a wider concern for 'the Environment', yet as Anderson (1995) points out, "the environment is inevitably intertwined with the countryside… the countryside for many is the last tangible arcadian 'environment'". Whether this is a mistaken belief (as discussed by De-Shalit 1996), it seems that words and ideas including 'rural', 'natural environment', 'nature' and 'the Environment' are used almost interchangeably, so intertwined have the concepts behind them become (Barry 1999).

What has changed in recent years is the ability of people to 'access' this 'environment', in one way or another. 'Access' to 'natural environments' can be achieved in two ways. Firstly, through physically being in that environment, perhaps to participate in some form of outdoor recreation (witness the growth in such opportunities in recent years). Secondly, one can access the 'environment' by 'buying into' the idea of 'environment'. Benton (1995) discusses the increasing commercialisation of the environmental movement in the US and offers a useful deconstructionist critique of 'environmentalism'. A widely reported consequence of environmentalism has been a higher level of public concern about, and interest in 'the environment' and 'nature'. Goodin refers to the 'Green value theory', which, essentially, suggests that 'natural' things are inherently more valuable than man-made or 'artificial' things. As he puts it, "naturalness [is] a source of value" (Goodin 1992). Most of the examples that Goodin uses refer to the potential destruction and recreation of valued landscapes by developers. However, it is easy to see how this value theory can be used to explain some of the phenomena with which Benton is concerned. In the Western world, where environmentalism is most 'advanced', images and symbols of the 'natural environment' are being sold to consumers. Furthermore, environmentalism itself has been 'elevated to a socially desirable level" (Benton 1995), and an association between oneself and 'the environment' is also social desirable. Thus, purchasing some item that carries with it some aspect of 'the environment' "can elevate self-esteem and possibly even social status".

Benton's discussion focuses on environmental pressure groups, but it is easy to envisage the role played by entrepreneurs in this debate about the commodification of the environment. Indeed, it is could be said that in this way environmental pressure groups are actually acting 'entrepreneurially'. Entrepreneurship was described above as the "creative extraction of value from environments". We can now appreciate the true breadth of this description. Not only do entrepreneurs have access to their personal 'environments' (or 'milieu' (Barry 1999) from which to extract values – they have 'the Environment' with which to work, which incorporates many potential sources of value – 'nature as countryside', 'nature as heritage', historic heritage. Having recognised these sources of value, the task remaining to the entrepreneur is to somehow commodify this value, to reduce or re-package it in a form

that is sellable, as a recognisable product or service. This is where the innovation of 'environmental' enterprise lies, in the ability of entrepreneurs to recognise, commodify and sell 'the Environment' to their customers.

2. Study Area

Perthshire is a region located in the centre of Scotland, sharing a northern border with the Highland Region. It is a large region, and very varied in physical characteristics, ranging from the low-lying fertile farmland of the Carse of Gowrie, the major urban centres of Perth and Dundee, to the mountainous areas in the north. Of the population of 130,000, 70% are considered to be 'rural' dwellers. As a region, Perth & Kinross has the second fastest growing population in Scotland, with a slight over-representation of older people (50% of the migrants to the region are over the age of 50: Findlay 1998, unpublished).

Highland Perthshire lies at the far north-western edge of Perth & Kinross region. In many ways, and certainly in the minds of many inhabitants, the area has more in common with the Highland Region lying to the north, than with lowland Perthshire. The three towns of Dunkeld, Aberfeldy and Pitlochry are the main centres of population. Outside the towns, small villages struggle against population decline. A study by researchers from Dundee University (Findlay, 1998) which examined out-migration in the village of Crieff, which lies just to the south of the study area, found that some 23% of long-term households reported at least one out-migrant, the vast majority (93%) being the child of the head of the household. It can be expected that this situation is, if anything, more severe in the Highland Perthshire area. Paradoxically, as in many rural areas, in-migration has become a major local issue. This is reflected in Census data for the Highland Perthshire area; the number of retired people living in the area more than doubled between the 1981 and 1991 censuses (1031 to 2099), while the economically active population increased only slightly, from 4525 (1981) to 5613 (1991). Highland Perthshire, being both 'rural' and relatively accessible is increasingly popular with both retirees and 'lifestyle migrants'. However, in-migration has not been uniform throughout the region, and there are many small villages facing the loss of vital services, through lack of use.

Scottish Enterprise Tayside oversees business enterprise in Perth and Kinross as a whole, which includes Highland Perthshire. Statistics tend to be gathered by the enterprise companies at the Regional level, so business start-up and general employment figures for Highland Perthshire alone are quite difficult to come by. Since 1996, the number of new businesses started in Perthshire as a whole has increased from 97 during the year, to 163 in 1999. The general picture seems to be that, despite being less 'remotely rural' than parts of the Highlands, Highland Perthshire still suffers from many so-called 'rural' problems. Jobs in primary sector industries are declining, and are being replaced (if at all) by poor-quality jobs in the service industries. Employment data gathered in the censuses of 1971, 1981 and 1991 show that the area has followed a similar pattern to many rural areas: full-time jobs have declined, part-time and self-employment has increased in tandem.

Highland Perthshire is itself varied in character, though predominantly mountainous, including the peaks of Schiehallion and Ben Lawers, both beloved by walkers and naturalists. Many lochs and rivers intersect the mountain ranges. Agriculture is dominated by sheep farming, and although primary sector industries still

contribute to the economy, it is dominated by the service sector, particularly tourism. The beauty of the scenery of Highland Perthshire is acknowledged widely. Lochs, woodlands, rivers, castles, moorland and mountain combine to form landscapes and views that have been admired widely, and now form the basis of the region's tourist industry. Large estates, such as the Atholl Estates, dominate the land ownership pattern, and their sporting and farming interests contribute strongly to the appearance, and economy, of the region.

Highland Perthshire satisfies many of the criteria that can be understood to determine (in a subjective way) a 'high quality natural environment'. These characteristics include the 'rural' nature of the place, the opportunities it offers for 'peace and quiet', and outdoor recreation, and the scenery of the hills and rivers. Thus, it is an ideal place in which to base this study.

3. Methodology

Qualitative methods of investigation have been identified as the most appropriate in this study. Dilthey ([1894] 1977, in Henwood & Pidgeon (1992) suggested that while a hypothetico-deductive method may be appropriate in the natural sciences, this is not the case in the human 'sciences'. Instead, he directs, the human sciences should be premised on the search for Verstehen – 'meaning' or 'understanding'. The current naturalistic paradigm has several characteristics associated with it. These include an emphasis on description rather than explanation, the importance of exploring the meaning of behaviour in context, a view of the research process as generating working hypotheses rather than proving, or otherwise, immutable facts, and an interest in the emergence of concepts from the data. The use of qualitative methods of data collection and analyses is also strongly associated with this paradigm because it is believed that they overcome some of the limitations associated with quantitative methods. The principal emphasis of this research paradigm is that to move from data towards theory. This directly contrasts with the a priori hypotheses of the hypothetico-deductive mode. For example, this study was not begun with a clearly stated hypothesis in mind. Rather, an area of interest was identified, around which vague ideas and thoughts are formed, and the research methodology was designed to allow the subject area to be investigated freely. In this study, an extensive, critical review of the literature has developed 'pre-understanding' of the research area, which informs the early stages of data collection and analysis. This pre-understanding can result in a certain amount of 'filtering' of the data by the researcher, yet is crucial in order to develop a broad understanding of the issues under examination.

The actual research process was guided throughout by the *grounded theory* technique. First developed by Glaser and Strauss (1967) and more recently by Strauss and Corbin (1998), this is more a way to organise the research process in a rigorous manner, rather than a technique in itself. Researchers, such as Rennie *et.al.* (1988) have illustrated the usefulness of this technique in the human sciences. The primary aim of the method is to generate theory through the close inspection and analysis of qualitative data.

Data for this study was collected through a series of in-depth, semi-structured interviews. Respondents were selected from a database of small businesses in located in the study area. Sampling was guided initially by convenience, and then as the research process progressed, purposeful sampling was used to select respondents. Potential

respondents were contacted initially by letter, and then a follow-up telephone call was made to arrange a time and location for the interview. All interviews took place in the respondents place of work / home. Thirty interviews were completed for use in this particular study, although it is part of a wider (PhD) study. Each interview lasted between 40 minutes and several hours, though there was not necessarily any correlation between the length of interview and 'usefulness' of the data gathered! The interviews were recorded using both a hand-held tape recorder and by taking extensive notes, and were all fully transcribed soon after.

Once collected and transcribed, the material was worked through systematically and labels were generated to describe the emerging categories. The aim of the initial rounds of data analysis was to generate new categories and the researcher is essentially free to label as many categories as seems appropriate. The requirement on the researcher is that these low-level categories *fit* the data well. Thus, the analysis process is a combination of the researchers' ability to recognise and label new categories, and requirement that these categories fit the data. In order to move towards a conceptually complete understanding of the data, detailed descriptions of the categories are written as the researcher proceeds, and the method of constant comparative analysis is used to orient the search for new categories. Thus, data collection and analyses proceed in successive rounds, with the emerging theories informing the details of the interview schedule and the direction of questioning. As Henwood and Pidgeon (1992:105) put it "the researcher at first perceives only unstructured chaos in the data, as if looking through unfocused conceptual lenses… as analysis proceeds, and order is generated, the lenses become more sharply focused". When the 'lens' is fully focused, theoretical saturation is reached, at which point no more instances of variations are found.

Problems Encountered

The timing of the data collection proved somewhat problematic as it took place during the summer months, the busiest time of year for many small businesses. Yet, in practice, very few respondents refused to be interviewed, and most were very generous with both their time and responses. The intention had originally been to include some farmers and other agricultural businesses in the survey, but the Foot and Mouth outbreak precluded this, as access to farms was likely to be problematic.

4. The Data, Analysis and Conclusions

The Respondents and their Businesses

The respondents are all involved in small rural businesses, most often as owner-managers of the business in question. There is considerable variation in the personal characteristics of the respondents, both in terms of their personal situations, and the ways in which they operated their businesses. Indeed, one of the acknowledged challenges to enterprise research is this variability; it appears nearly impossible, at first glance, to categorise a group as diverse as the respondents.

Table 1 – List of Respondents and their Businesses

	Name	L/C	F/M	Type of Business	Previous	Form of Business	Market	Niche
1	Jackie	L	F	Jewellery manufacture	Employee*	Craft cultural / retail	N	Tourism
2	Gerry	C	M	Organic & Whole food shop	Video rental	Unconventional trading	N, L	Tourism, local need
3	John	C	M	B&B	Employee	Cultural servicing	N	Tourism
4	Kyle	C	M	Cycle hire and sales	Employee	Experiential, trading	N	Outdoor tourism, retail, local need
5	Pamela	C	F	Wildlife ranger	Employee**	Cultural, experiential	N	Tourism
6	Elaine	C	F	Wildlife ranger	Employee**	Cultural, experiential	N	Tourism
7	Mary	L	F	Campsite / Caravan	None, family business	Cultural servicing	N	Tourism
8	Nan	C	F	2nd hand Bookshop	Consultant	Unconventional retail	N, L	Cultural tourism, local need
9	Elisa	C	F	Village grocers shop	Employee	Conventional retail	N,L	Basic local need, tourism
10	Linda	L	F	Outdoor clothing shop	Employee*	Conventional retail	N, L	Outdoor tourism, local need
11	Richard	C	M	Computer services	IT consultant (failed)	Servicing	L, N	Tourism, local need.
12	Kate	C	F	Pottery and Shop	None	Craft cultural, retail	N, L	Tourism, local need
13	Margaret	L	F	Taxi Coach Hire & Bus Company	None	Conventional servicing	L, N	Basic local need, tourism
14	Peter	C	M	Game Processors	Employee*	Unconventional servicing?	L, N	Advanced local, regional need
15	Max	C	M	Wildlife artist	Employee	Craft cultural	N	Cultural
16	John	L	M	Architect	None (family)	Unconventional servicing	L	Advanced local need
17	Simon	L	M	Smokery	None (family)	Unconventional production	L, N	Tourism, local need
18	Tim	C	M	Project Management	Employee	Unconventional servicing	N	Globalised.
19	Gordon	L	M	Building firm	Employee	Conventional production	L	Basic local need
20	Dave	C	M	Village grocers shop	Employee	Conventional retail	L, N	Tourism, basic local needs
21	Alex	C	M	Artist & Gallery	None	Craft cultural	N, L	Tourism, some adv local need
22	James	C	M	Diving school	Employee	Experiential	N, L	Tourism
23	Mike	L	M	Nursery, Landscape Gardeners	None (family)	Conventional trading, retail, servicing	L, N	Basic local needs, some tourism.
24	Susan	L	F	Organic Farm Shop	None (family)	Unconventional production, retail	L, N	Advanced local needs, tourism.
25	Greg	C	M	Craft joiner/handyman	Employee	Conventional production	L	Basic local needs
26	Carla	C	F	Backpacker hostel	None	Cultural servicing	N	Tourism
27	Sarah	C	F	Training Services	Employee	Unconventional servicing	L, some R	Advanced local and regional need
28	Anne	C	F	Deer Park and Campsite	Farming	Cultural servicing, some retail	N	Tourism
29	Beth	C	F	Cooking Agency	Freelance cook	Unconventional servicing	N, some L	Tourism, advanced local needs.
30	Tom	C	M	Mountain Bike Hire	Employee	Experiential	N	Tourism

*Currently managing the business. Not owner-managers.
**Employees of the Blair Atholl Estate Ranger Service. The service operates as part of the commercially run estate.
C / L = Cosmopolitan / Local
M / F = Male / Female
N = National, R = Regional, L = Local

Nonetheless, as a group of rural business owners, they are not untypical of the area. Both 'traditional' and more innovative business types are represented in the sample. Certainly, all the businesses in the sample fall into the category of small- and medium-sized enterprises, with fewer than 100 employees. In fact, the majority fall into the category of micro-businesses, with fewer than 10 employees. Furthermore, many are family owned and run, which satisfies a broad understanding of small businesses as being "owner or family managed" (Brunaker 1993).

The Emerging Properties of the Data

Two categories emerged from analysis of the data. That is, the respondents fell into one or another of two groups, in terms of the way they, and their business, related to the 'high quality environment' in which they were located. The two groups have been labelled as 'environmental entrepreneurs' and 'conventional entrepreneurs' respectively. The implications of the titles will be discussed, but firstly, a description of each group will explain and detail the differences between them. These differences have not been aligned to any personal characteristics of the entrepreneurs (such as 'local' and 'cosmopolitan' in Anderson (1995)). Rather, the differences are clustered around the businesses themselves, in the kind of business they are – the products they sell, the goods and services they offer, the way in which these are marketed, and their targeted customer markets.

1. The perceived high quality rural environment acts as a resource for the business.

This group can be described, broadly as 'environmental entrepreneurs'; they are engaged in the commodification of environmental resources through their enterprise. Entrepreneurship has been described as the "creative extraction of value from environments". This group of rural business owners are indeed engaged in this activity. They recognise the environment in which they are located as being of high quality, and as a source of value. In a variety of ways they 'extract' the value of this environment, commodify and then sell 'the environment' on to their customers. In this way, the perceived high quality environment serves as a resource; it provides the 'raw material' from which rural entrepreneurs can extract value.

The target customer group that is served by these businesses is very much dominated by the tourist market. Although the economy of rural areas is essentially underpinned by the presence of tourists and visitors, the entrepreneurs in this group rely particularly heavily on the tourist market, and are well aware of this. Thus, the products, goods and services offered by these businesses are of the type that will appeal to such a market. They are seen as 'special' products, not prosaic run-of-the-mill items. The products themselves take various forms, and this variation is discussed in more detail below. Ranging from hire of a bicycle, to handcrafted jewellery, from scuba diving lessons to organic ready meals, the products and services provided by this group are diverse. Yet, they have something in common. They all make use, directly or indirectly, of their location within an environment that is widely perceived, by both producers and consumers, as being of 'high quality'.

More evidence of this association with the 'high quality' environment is obvious in the way in which these products and services are

marketed to the customers. Advertising material refers to, for example, the 'natural' origins of the products, or to the "Natural Splendour" of the area in which the business is located. There is a heavy emphasis on both 'naturalness' and 'tradition' in the production of the goods – even when the actual manufacture of the product may be far more mundane. Jackie, a jewellery maker, for example, markets her products as handcrafted from local materials (in this case, compressed and coloured heather stems), and the customer is given an opportunity to see the 'craftsmen' at work in the workshop. In fact, the bulk of the jewellery is manufactured in a factory near Irvine. The location of Highland Perthshire was chosen as a good site for a sales base-cum- workshop because of the high

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Table 2 – Environmental Entrepreneurs (Group 1)

	Name	L/ C	F/ M	Type of Business	Previous	Form of Business	Market	Niche
1	Jackie	L	F	Jewellery manufacture	Employee	Craft cultural / retail	N	Tourism
2	Gerry	C	M	Organic & Whole food shop	Video rental	Unconventional trading	N, L	Tourism, local need
3	John	C	M	B&B	Employee	Cultural servicing	N	Tourism
4	Kyle	C	M	Cycle hire and sales	Employee	Experiential, trading	N	Outdoor tourism, retail, local need
5	Pamela	C	F	Wildlife ranger	Employee	Cultural, experiential	N	Tourism
6	Elaine	C	F	Wildlife ranger	Employee	Cultural, experiential	N	Tourism
7	Mary	L	F	Campsite / Caravan	None, family business	Cultural servicing	N	Tourism
8	Linda	L	F	Outdoor clothing shop	Employee	Conventional retail	N, L	Outdoor tourism, local need
9	Kate	C	F	Pottery and Shop	None	Craft cultural, retail	N, L	Tourism, local need
10	Peter	C	M	Game Processors	Employee	Unconventional servicing?	L, N	Advanced local and regional need
11	Max	C	M	Wildlife artist	Employee	Craft cultural	N	Cultural
12	Simon	L	M	Smokery	None (family)	Unconventional production	L, N	Tourism, local need
13	Alex	C	M	Artist & Gallery	None	Craft cultural	N, L	Tourism, some adv local need
14	James	C	M	Diving school	Employee	Experiential	N, some L	Tourism
15	Susan	L	F	Organic Farm Shop	None (family)	Unconventional production, retail	L, N	Advanced local needs, tourism.
16	Carla	C	F	Backpacker hostel	None	Cultural servicing	N	Tourism
17	Anne	C	F	Deer Park and Campsite	Farming	Cultural servicing, some retail	N	Tourism
18	Tom	C	M	Mountain Bike Hire	Employee	Experiential	N	Tourism

C / L = Cosmopolitan / Local
M / F = Male / Female
N = National, R = Regional, L = Local

tourist numbers in the area, and because of the association between the product and the 'high quality' of the local environment. Thus, the reality of the products' origins is masked, in a way, by the location of the sales point in this particular 'high quality' environment. Another, similar example, is that of a smokery business, located in a particularly remote, and scenic part of rural Perthshire. The business is about 15 years old, and is currently operating in a very modern, well-equipped factory. Simon, who runs the family-owned business, acknowledged freely "the environment we are located in is one of our marketing points…it does contribute a lot". He went on to make the association as well, between the aspects of naturalness and tradition, which were mentioned previously; "we use modern equipment but we do it in a traditional way, and it fits in with the whole image of the business – it's the nice scenery and the clean air. It's very important to us". Thus, the importance of the association between the product and the environment is made clear; customers like to think of rural businesses "being in a little shed in the Highlands", and rural entrepreneurs will exploit this when possible, in order to maximise the profitability of their business.

Kyle, who owns a mountain bike hire business, demonstrated another aspect of the entrepreneur's decision to locate their business in this particular location. He stated, "In Edinburgh or Glasgow, there are enough people living there who are into cycling and bikes to get a business going. Here, because visitors have somewhere good to cycle, the hire business can work". Thus, although Kyle recognised that he was probably operating at a disadvantage in terms of peripherality, the environment in which he is located allowed him to successfully operate his business. Kyle, like many rural entrepreneurs, values the environment in which he is located. Through his business, he is able to commodify these environmental values, and thus offer a 'valuable' service to his customers, who share these values.

A point that comes from the above discussion allows us to link the businesses in this group with the particular environment in which they are located. As discussed previously, Highland Perthshire has been identified as representing a 'high quality natural environment' both by the respondents in a previous study, and by the entrepreneurs interviewed during this study. When asked whether the business could be operated (as) successfully in a different location, responses were mixed. The majority responded that yes, in theory, the business could be operated elsewhere, in a different environment, but in doing so the business would have to change in some way. Simon, owner of the smokery discussed previously pointed out that although transport links would be better in an urban situation, "the environment we are located in is one of our marketing points… we get people here, buyers here, and they love it". Similarly, Alex, a wildlife artist who owns a gallery in one of the remoter glens said that the situation actually benefits his business, because it means that the surrounding environment is perceived to be of such high quality that "by the time [customers] get to the gallery, they seem to want to take something home with them – they want to take some of 'this' back".

A further categorisation within this group is possible, though it is difficult to absolutely place individual respondents in one group or another. It has been noted that 'tangible' and 'intangible' factors interact to influence rural businesses. In this case, we are talking about how these factors relate to aspects of the environment in which the business is located; how can we distinguish between the 'tangible environment' (physical natural resources) and the 'intangible environment'. (environmental values) One way is to look at the actual use the various businesses in this

category make of the environment. Again, two categories emerge.

A. The Environment as a Tangible Asset or a Physical Resource

There are many businesses in the study area that are based on the exploitation of the natural environment as a physical resource. It provides a tangible asset for their business. These businesses can be described as 'Experiential'. The product / service they supply is, essentially, an 'experience' of sorts. The business forms around the supply of recreational opportunities, of various sorts, to the customer. Outdoor recreation is big business now, and many entrepreneurs in the Highland Perthshire area are directly engaged in making such opportunities available to their customers. Examples include mountain bike hire, scuba diving schools, boat hire and camping sites. Such businesses enable people to experience 'the environment' through these activities – cycling, diving, sailing or camping. Kyle, who had recently opened a mountain bike hire and sales shop, acknowledged the importance of the quality of the environment in the success of his rural business, "…without the high quality environment there would be no business here for me".

The actual aspect of the environment used may vary, but all respondents falling into this category acknowledged that the perceived 'high quality' of the environment in which they are located contributes directly to the success of their business. This is particularly so in the case of enterprises such as B&B's, campsites and other types of visitor accommodation. These businesses (and there are many of them in the Highland Perthshire area) depend directly on exploiting, indirectly, the 'high quality environment' in which they are located. Although their product is really the accommodation they provide, the whole business is based on the fact that visitors are attracted to the area in the first place. Carla, owner of a backpacker hostel, is quite clear about the importance of the environment to her business, and the steps she takes to maintain this perception in the eyes of her customers. The area is famous for its dam, and the loch that has been created behind it, as well as the deciduous woodlands that line the shores of the loch. Carla says, "I would imagine that most visitors here don't really think about the dam and the loch being man-made, you know, affecting the environment like that… but I certainly don't talk about it!" Carla is making a direct correlation between 'natural:good, man-made:bad', which reflects the values she believes her customers to hold. When they visit the Highlands and Islands, they expect to find a "natural environment", and Carla knows that to disillusion them on this matter would not serve her business interests. This represents a quite conscious decision to 'use' the link between the environment itself and the values of her customers, who value 'naturalness', 'nature', and other aspects of this construction.

B. The Environment as an Intangible Asset: Environmental Values

These businesses are particularly interesting in relation to how the perceived 'natural' environment can be used as an asset in the business. In contrast with the group of businesses described above, the 'high quality' environment is not 'used' in a physical sense. Rather, it is the idea of the environment that is being used, and it is the conception of a 'natural' or 'traditional' environment is being used specifically. It is the difference between the tangible and the intangible that highlights the difference between this and the previous group. Whereas the physical environment in which such businesses are located and take place is something tangible, the idea of environment is much less easy to identify in the products sold and the services offered. Artisans and craftspeople make good examples of this group. Their products are quite tangible – pots and paintings for example, produced by potters and wildlife

artists living and working Highland Perthshire. The jewellery manufacturer discussed previously is another good example. Similarly, there are several speciality food producers operating in the area – organic farmers, wholefood shops and the smokeries mentioned before. What unites this diverse group of entrepreneurs and their businesses is that they all make use of their association with the idea of the 'natural environment'. In selling their products they make an appeal to the values of their customers, with whom they share certain values that relate to a belief that 'natural equals good, artificial equals bad'. Although their products may seem diverse, they share common ground through their exploitation, or at least appreciation and use of, the particular environmental values held by their customers. Thus, on one level, being located within a perceived 'high quality' environment makes a necessary connection between the business and the value of that environment. Then, at another level, the product itself is perceived by the customer to carry some of these values. One could buy a well-made ceramic pot, or a tasty organic sausage in any major urban centre. However, if one values 'rurality' and 'naturalness', an item produced and purchased in a 'high quality rural environment' carries a certain added value – and it is this value which this group of rural entrepreneurs exploit, rather than exploiting the physical attributes of the location, as the previous group does. This value cannot necessarily be priced (though it is probably no coincidence that certain high value 'rural' products command premium prices). This is not to say that the physical environment has no connection with the existence of rural values; in all likelihood it does, as reported by the respondents themselves. However, the difference lies in that this purchasing of a 'rural' or 'environmental' commodity is not solely reliant on the existence of a certain type of physical environment.

2. The perceived high quality rural environment does not act as a resource for the business.

These respondents can be described as being 'conventional entrepreneurs' (if there is such a thing!). The key characteristic of this group of 'conventional entrepreneurs' is that they are unable, by virtue of the type of business they operate, to exploit the 'environmental values' that have been recognised and commodified, in their various ways, by the previous group. The products sold by these businesses tend to be quite prosaic, and non-experiential. Groceries and petrol, for example, as well as conventional services such as building, gardening and transport services form the majority of goods and services on offer.

Why, then, do these entrepreneurs choose to locate their businesses in a remote rural area, if they cannot reap the apparent benfits of such a location? Unlike the 'environmental entrepreneurs' they are not in a position to exploit the 'value' of the environment in which they are located as part of their business. In fact, they are in many ways disadvantaged by their location in a rural area. For the majority of entrepreneurs questioned, particularly incomers to the area, the 'quality-of-life' available in Highland Perthshire was the biggest draw – and often appealing enough to overcome the disadvantages of running a business in the area. The quality of the environment is certainly a major part of this 'quality-of-life' decision, and thus has a major influence on the decision of these entrepreneurs to locate their business in Highland Perthshire. The individual person's knowledge of the area varied from those who had holidayed in the region, to those who had "got on a train, come north, got off at Pitlochry, and wanted to stay in the area". Family ties, and other personal connections, are more likely to influence the location decision of those

entrepreneurs who are local to the area. Of all the business owners interviewed, only one person claimed that the decision to locate in the area had been a purely economic decision, and he was also the respondent who emphasised most heavily the subsequent difficulties he had experienced trying to run a grocery business in a small, rural village. The majority of other business owners appeared to see the location choice as a trade-off between business success (profitability or income) and access to the quality-of-life available in Highland Perthshire.

Table 3 – Conventional Entrepreneurs (Group 2)

	Name	L/ C	F/ M	Type of Business	Previous	Form of Business	Marke t	Niche
1	Nan	C	F	2nd hand Bookshop	Consultant	Unconventional retail	N, L	Cultural tourism, local need
2	Elisa	C	F	Village grocers shop	Employee	Conventional retail	N,L	Basic local need, tourism
3	Linda	L	F	Outdoor clothing shop	Employee*	Conventional retail	N, L	Outdoor tourism, local need
4	Richard	C	M	Computer services	IT consultant (failed)	Servicing	L, N	Tourism, local need.
5	Margaret	L	F	Taxi Coach Hire & Bus Company	None	Conventional servicing	L, N	Basic local need, tourism
6	Peter	C	M	Game Processors	Employee*	Unconventional servicing?	L, N	Advanced local and regional need
7	John	L	M	Architect	None (family)	Unconventional servicing	L	Advanced local need
8	Tim	C	M	Consultancy	Employee	Unconventional servicing	N	Globalised.
9	Gordon	L	M	Building firm	Employee	Conventional production	L	Basic local need
10	Dave	C	M	Village grocers shop	Employee	Conventional retail	L, N	Tourism, basic local needs
11	Mike	L	M	Nursery, Landscape Gardeners	None (family)	Conventional trading, retail, servicing	L, N	Basic local needs, some tourism.
12	Greg	C	M	Craft joiner/handyman	Employee	Conventional production	L	Basic local needs
13	Sarah	C	F	Training Services	Employee	Unconvention servicing	L, R	Advanced local and regional need
14	Beth	C	F	Cooking Agency	Freelance cook	Unconvention servicing	N, L	Tourism, advanced local needs.

C / L = Cosmopolitan / Local
M / F = Male / Female
N = National, R = Regional, L = Local

Another contrast with the above group is that the customer base of these businesses is much more likely to consist of local people. Three of the largest employers in the study area, a transport company a landscape gardening firm and a builders merchant, made it very clear during the interview that their businesses were focused on serving a local market, and that the custom of visitors and tourists was merely "the icing on top of the cake". As regards location, these businesses could quite feasibly be operated successfully elsewhere. Indeed, as the business owners pointed out, such business might even be more profitable if located, for example, on the edge of an urban centre where they would be more accessible to many more potential customers.

5. Conclusions

The aim of this study was to examine the ways in which rural entrepreneurs make use of the environment in which they are located. Specifically, the research focused on exploring how entrepreneurs exploit the values associated with perceived high quality environments. The findings demonstrate that rural entrepreneurs differ in their approaches in this respect. On analysis of the data collected during interviews with rural respondents, two categories emerged.

One group of respondents fell into a category that has been labelled 'conventional entrepreneurs', so called because their businesses and the way they operate them do not have an association with the environment in which they are located. Such businesses include traditional services such as village shops, builders' yards and local transport companies. The products that they sell, and the services which they offer, have little to gain from any perceived link with the 'natural' environment. They are too prosaic – 'what you see is what you get', in the majority of cases. Rather than being in a position to exploit the higher-order values attached to the local environment, these business people are likely to suffer the negative consequences of a rural location – increased operating costs, a small customer base, and a reliance on the seasonal tourist market. The most successful businesses in this group, and three of the largest employers in the study area, are run by local people who focus firmly on the local market, and not on the fickle attentions of tourists. Incomers attempting to run this type of business seem to experience more difficulties. Perhaps the resources which local entrepreneurs have access to – family support, a deep knowledge of the area and a firm place in local social networks – help them to succeed where incomers may fail.

The other group can be described as "environmental entrepreneurs". Their business are characterised by having an association with the environment in which they are located. The nature of this association varies, as some business make use of the tangible physical aspects of the environment (outdoor recreation, for example) while others exploit less tangible values attached to the idea of 'natural' environments, and the wider idea of 'natural heritage'. This latter group are able to do so because of the higher value that society attaches to 'nature' and 'natural' than to their opposites – 'artificial' or 'man-made'. Being located in a perceived high quality rural environment, the entrepreneurs are able to directly extract these values from the environment, and to 'sell the environment' onto their customers. Thus, their businesses are quite definitely rooted in the rural, high quality, environment. Craft businesses, and other small manufacturing enterprises fall into this group. Their products have a certain value of themselves, and this is enhanced by the association between the place of production (a 'natural environment') and the advertised method of production ('traditional'). By the entrepreneurs' own admission, it would be difficult to operate the business in the same way or as successfully elsewhere, that is, in a location which did not possess the qualities which people recognise as indicating a 'high quality natural environment'.

A case study described by Bryden & Munro (2000) seems to share some characteristics with this group. "The entrepreneurs reconciled the mobile resources – themselves – with immobile resources – cultural and social values implicit within material culture in a specific environment. They commoditised this in … the product of their company, relating their business not just to economic but to wider social and cultural renewal in the Highlands and Islands". This process of recognising a source of cultural or social value, in this case 'naturalness', and

the 'natural environment', and the commodification of this value in the form of a good or service, is what the 'environmental entrepreneurs' discussed above are engaged in. The "specific environment" in which they are located is one which is perceived by many – both entrepreneurs and customers alike – to be one of 'high quality', a 'natural environment' despite the acknowledged fact that the environment is in fact far from natural. 'Nature' and 'rurality' have become sources of value in themselves, and if they are perceived to be present in a location, that can be an indication of 'high quality'.

As Shucksmith (2000) points out "Rural space—the countryside—is becoming a consumption good. It is becoming something that people from the towns like to consume, either by going there or by living there. It is not often where they do their production, but it is increasingly where they do their consumption". The rural entrepreneurs described above make it possible to consume 'rurality' in many different forms. The distinction between the two groups can be highlighted in a comment made by Richard, running a small IT consultancy. With two failed businesses behind him, he had decided to move into a small town in order to try again. When questioned about this decision to re-locate he said about his previous location "…was completely different – beautiful and a fabulous environment, but unfortunately you can't live on scenery". In fact, the 'environmental entrepreneurs' in this study have proved that this is exactly what can be done. This recognition, that the environment (which incorporates scenery, heritage, nature etc) can act as a source of value to be exploited, and to then capitalise on this value is what constitutes the 'entrepreneurial act' in the case of these individuals.

References

Anderson, A.R. (1995). *The Arcadian Enterprise: An Enquiry into the nature and conditions of rural small business.* Aberdeen University: Unpublished PhD thesis.

Anderson, A.R. (2000). Paradox in the Periphery: an Entrepreneurial Reconception, *Entrepreneurship and Regional Development*, *vol. 12, no.2*, 91-110.

Barry, J. (1999) *Environment and Social Theory*. London: Routledge.

Benton, L.M. (1995). Selling the Environment or Selling Out? Exploring Environmental Merchandising. *Environmental* Ethics, *17(1),* 3-22.

Bryden, J. & Munro, G. (2000). New Approaches to Economic Development in Peripheral Rural Regions. *Scottish Geographical Journal*, *116(2),* 111-124.

Bygrave, W. (1998). Building an Entrepreneurial Economy: Lessons from the United States. *Business Strategy Review, 9(2),* 11-19.

Curran, J. & Storey, D.J. (eds.). (1993). *Small firms in urban and rural locations*. New York: Routledge.

De-Shalit, A. (1996). Ruralism or Environmentalism? *Environmental Values, 5*, 47-58.

Dilthey, W. ([1894] 1977). *Descriptive Psychology and Historical Understanding*. English translation. The Hague, Martinus Nijhoff.

Findlay, A. et.al. (1999). *Study of the Impact of Migration in Rural Scotland*. Edinburgh: Scottish Office Central Research Unit.

Findlay, *A. (1998).* Further Analysis of Perth and Kinross Survey Data. *Source: Perth & Kinross Council Rural Partnership.* Unpublished.

Glaser, B & Strauss, A. (1967). *The Discovery of Grounded Theory.* Chicago: Aldine.

Goodin, R. (1990). *Green Political Thought.*

Hegarty, H. (1995). Counter-Urbanisation in West Cork. I: Kockel, U. (ed), *Landscapre, Heritage and Identity: Case Studies in Irish Ethnography,* 179-196. Liverpool: Liverpool University Press.

Henwood, K.L. & Pidgeon, N.F. (1992). Qualitative Research and Psychological Theorising. *British Journal of Psychology, 83,* 97-111.

HIE (1999). *Strategy for Enterprise Development*. Inverness: Highlands and Islands Enterprise.

Illouz-Winicki, C. & Paillard, D. (1998). New Business in Rural Areas. *The OECD Observer. 210*, 12-16.

Jedrej, C. & Nuttall, M. (1996). *White Settlers: The Impact of Rural Repopulation in Scotland*. Luxembourg: Harwook Academic Press.

Jones, H., Caird, J. & Ford, N. (1984). A home in the Highlands. *Town and Country Planning*, *November*, 326-327.

Keeble, D, Tyler, P., Broom, G. & Lewis, J. (1992) *Business Success in the Countryside.* London: HMSO.

Lawson, K. & Ritchie, N. (2000). Employment in Rural Scotland. *Scottish Economic Report, January 2000, Chapter 3*. Edinburgh: Scottish Executive.

Lowe, P. & Morrison, D. (1984). Bad News or Good News: Environmental politics and the mass media. *Sociological Review, February*, 79.

Rennie, D.L., Phillips, J.R. & Quartaro, G.K. (1988). Grounded theory: a promising approach to conceptualisation in psychology. *Canadian Psychology*, *29(2),* 139-150.

Shucksmith, M. (2000). *Evidence given to the Rural Development Committee*, 16th May 2000. http://www.scottish.parliament.uk/official_report/cttee/rural-00/ra00-1302.htm

Shucksmith, M., Chapman, P., Clark, G,M., Black, S. & Conway, E. (1996). *Rural Scotland Today – The best of both worlds?* Aldershot: Ashgate Publishing Ltd.

Scottish Enterprise (2000). *The Scottish Business Birth Rate Strategy: Inquiry 2000.* Glasgow: unpublished.

Strauss, A. & Corbin, J. (1998). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory.* London: Sage.

Policy Focus on Growth and Labour Market Performance

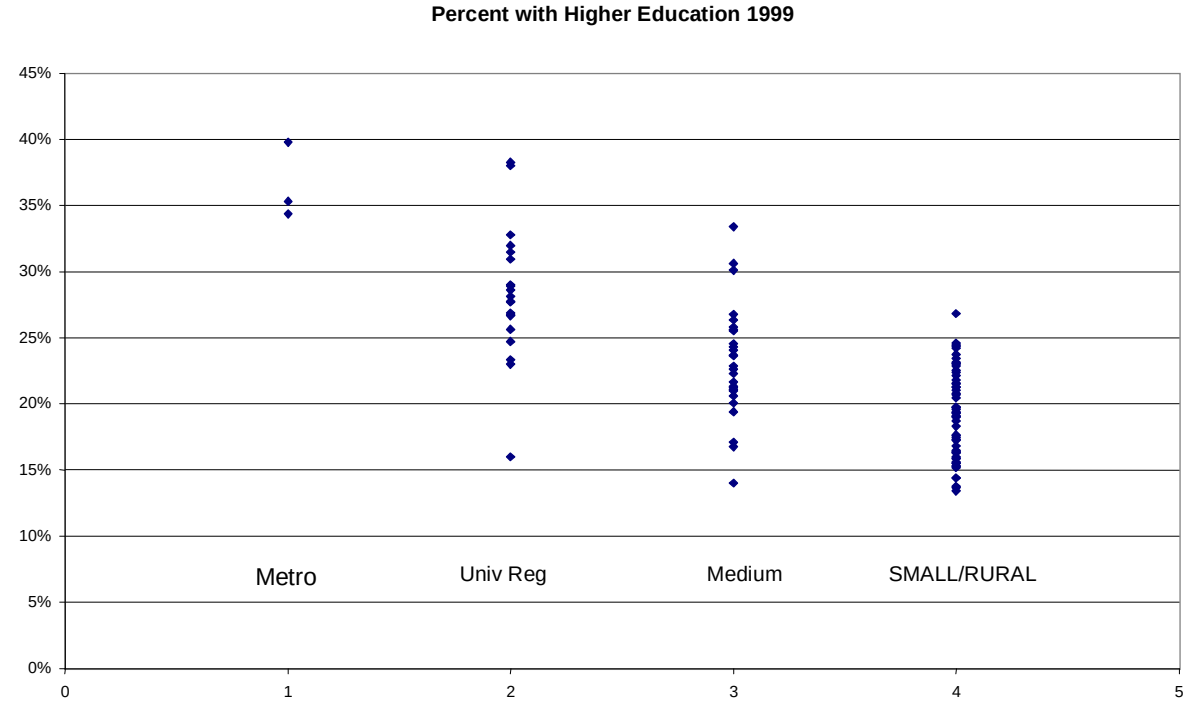
With only a few metropolitan regions, but numerous medium sized and small towns with rural hinterland, Sweden faces problems in reaching a recently suggested objective for regional growth policy, i e to maintain and create well performing local labour markets in all parts of the country. The strategy proposed for achieving this is ”regional enlargement”, e g extended commuting areas, increased labour mobility and widened wage range. The current appr. one hundred local labour market areas range from the majority with less than 30 000 inhabitants, to only four with more than 200 000. Upward labour mobility and inter-industry exchange options are severely constrained at the numerous small labour markets compared to the dynamic metropolitan regions.

During the last decades of the 20th century, out of these smallest labour markets 45 decreased their population. The performance of these declining labour markets is in general poor, not necessarily in terms of unemployment, but rather in terms of diversity of employment oppportunities. They are characterized by limited attraction to locals and migrants searching employment careers and experience a continuous net loss of migrants. In addition most of the small LLMs supply a labour with low educational level – less than 25 percent of the labour force has more than 15 years of formal training (Figure 1). Already today, this is an obvious restriction for new economic sectors to establish and grow in these regions.

Out of the medium sized 25 labour markets only five increased in population numbers during the last 30 years.

A population forecast for the period 2000-2010 and further on is based on the assumption that the migration pattern from the last decades of the 20th century is likely to persist. Out of the 60 smallest LLMs not less than 55 are expected to lose population in the coming ten years. Out of the 60 medium sized LLMs, only three are expected to increase in population, while the majority is likely to experience severe losses. Six of the LLMs with more than 100 000 inhabitants are predicted to increase in population numbers (Nygren & Persson 2001; Persson 2001a)).

Figure 1. Labour force with more than 15 years of formal training 1999 (%). 109 local labour markets within four regional categories.[7] Sweden.



Source: Persson 2001a.

[7] The 109 Swedish LLM areas are classified according to a selection of production conditions. The purpose is to identify similarities in the fundamental production conditions that prevail. This does not necessarily mean that we expect all LLMs within one and the same regional category perform at the same level in all respects. The LLM regions are analyzed and weighted on the basis of five fundamental production conditions.

This procedure resulted in four major regional categories:

- Metropolitan: Sweden's three main conurbations Stockholm, Gothenburg and Malmö
- 20 regions with a full university and main regional centers, with a regional institute of higher education.
- 27 medium sized manufacturing industrial regions or service centers
- 59 small/rural. manufacturing industry-biased regions or with a high proportion of employees in the public service sector.

Increasing Demographically Determined Service Demand

Mainly because of the ageing population, more employment will be generated in the local and regional service economy. Currently, as an average for Sweden, approximately half of the labour market consists of jobs in the local economy, i e for a market within the borders of a functional commuting area. These jobs are largely in personal services - health care, schools, social services - and retail trade, local transportation and small business services. Such manual, social or communicative jobs have to be performed at a specific place and time, and most of them are not likely to be replaced by robots in a foreseeable future. This is particularly valid for personal services involving personal attention, which according to some authors are likely to become still more important in the future (Reich 2001).

Projection of Demographically Determined Local Employment

The regional population forecast has been used also to calculate future demand for local services. We have estimated that future labour demand will remain as it is specified today relating to the age structure. This can be viewed as a politically agreed minimum level of service quality. The main alternative for population in 2040 will generate a demographic "determined" labour demand corresponding to 53 percent of total labour force in the country as a whole. This is a moderate increase as compared to today's 49 percent. However, it should be carefully noticed that in a not too distant future, we expect a number of local labour markets to be demanding more than 100 percent of the local labour force to supply the – more or less - politically decided objectives for local services.

The regional planning problem is obvious. In a future situation, where two thirds of the labour force in some thirty of the Swedish LLMs has to be occupied in health care, social services, and other mainly publicly financed jobs, the market for labour is likely to collapse. In addition, there is an obvious risk that at the same time, the labour market for private business in service and goods production will erode as well, simply because of increasing shortage of qualified local labour.

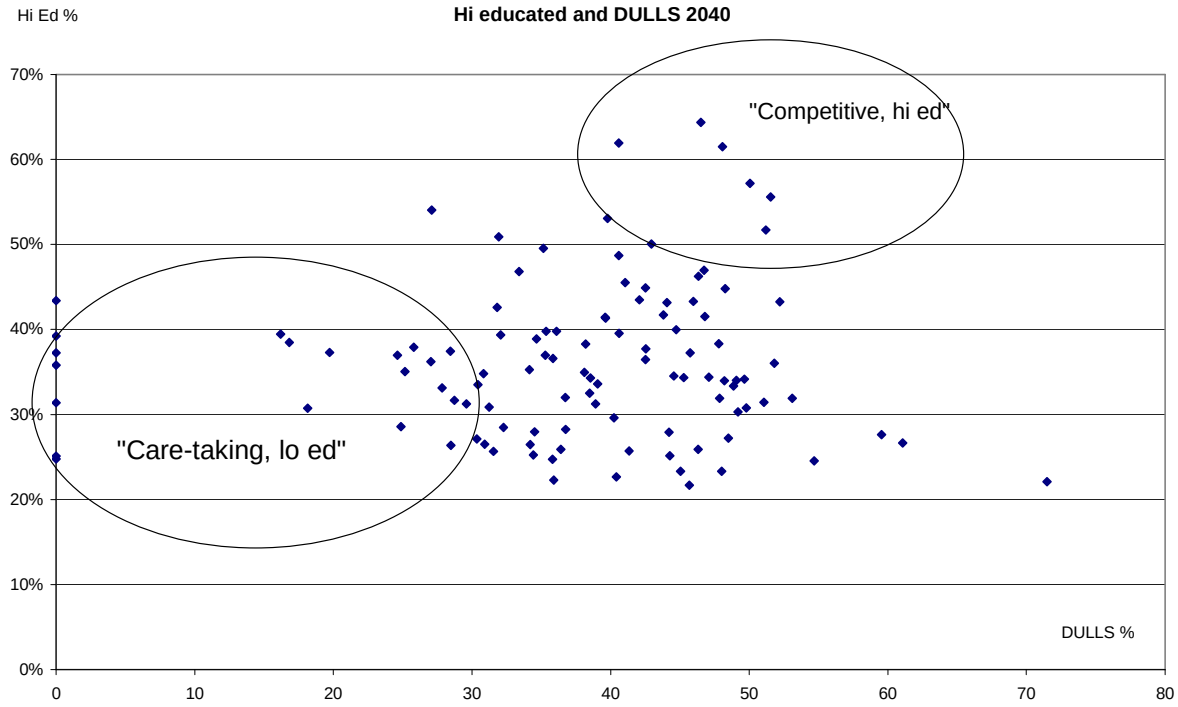
A classification of 109 local labour markets 2040 by estimated proportion of

(1) labour force with long formal education (>15 years) and
(2) labour unbound by local service demand

reveals that some 20 LLMs are likely to have difficulties in developing as efficient markets for labour.[8] Projections of the future education level in each region are based on historical trends of participation rates in higher education in specified age groups and on the assumption that the present government's goal that 50 percents participation rate in post secondary education will be fulfilled at the national level. The low education level of the future labour force is likely to hamper development of competitive industries in these regions, at the same time as the supply decreases - or even empties - of labour unbound by the local demand for services and personal attention. We expect the social policy in Sweden to give priority to such services to be supplied with qualified local work force.

[8] These LLMs, each with more than 70 percent of employment in local services and less than 40 percent of labour force with more than 15 years of training are located in all parts of the country. Southern Sweden*:* Hagfors, Hedemora, Västervik, Eksjö, Hällefors and Laxå. Northern Sweden: Arjeplog, Arvidsjaur, Bollnäs-Ovanåker, Jokkmokk, Kalix, Pajala, Sollefteå, Strömsund, Torsby, Övertorneå, Gällivare, Kiruna, Lycksele-Malå, Storuman.

Figure 2. Classification of 109 local labour markets 2040 in Sweden by projected proportion of (1) total work force with > 15 years formal education and (2) supply of labour unbound by local service demand (DULLS).



Source: Persson 2001a.

Depopulating Regions - a Challenge to Regional and Rural Policy in the EU

Hence, depopulation is not only the process where the number of inhabitants of a region is decreasing. Depopulation can also be seen as decrease of certain segments of the workforce and the population, which may have severe effects on the conditions for economic growth as an absolute depopulation. Both in Southern and Northern Europe, there is now an ongoing concentration of the population and economic activities to urban areas. Such an evolution, if persistent, will increase regional disparities and counteract measures to promote economic and social cohesion.

During the Swedish Presidency of the EU in June, 2001, the Ministry of Industry, Employment and Communication organised a conference on regional depopulation (http://www.inforegio.cec.eu.int/wbdoc/doc conf/depop/index_en.htm). The objective was to discuss the depopulation of regions and the challenge of reversing the present negative trend. The conference focussed on the exchange of experiences from different regions in Europe. Regional presentations focusing on policies and policy measures provided a background to a discussion between policymakers on the “best policies” to adopt both at the national and the European Union leve (Persson 2001b).

Towards a Typology of Depopulating regions

During the Conference, a number of case studies of the structure and the performance of depopulating regions in the EU were presented. It was suggested that there exists a certain typology of such areas. This structure could be described by three geographic and demographic indicators, and the performance in turn as well in three separate dimensions (cf Persson & Ceccato 2001).

The starting point is that one dominating feature for these areas is that they, as many regions outside metropolitan regions, are in a *varying rate of depopulation.* The reason is a negative natural reproduction rate, low fertility rates and net loss of migrants.

Secondly, these areas are to a *varying extent dominated by* a *sparse settlement*, where the northern areas are particularly sparsely settled.

Thirdly, some of them – particularly in northern Member States - are located at the *periphery of the country*. Some regions in Southern Europe are relatively closely located to regional centres with higher education facilities and other services.

These three varying features concerning the demographic and spatial structure of the areas are important to keep in mind in designing strategic policy recommendations for each of the types of areas. The guiding principle is that, for a general policy for these regions, there is a need for flexibility and local influence.

The Importance of Realistic Objectives

No doubt, depopulation is one of the most complicated problems to be addressed by policy, particularly if the objective is set to regenerate the population structure. This will be pronounced in the regions that already have a long history of population decline. In addition, an increasing proportion of labour demand will come from the ageing local population's need for basic services. Many small regions are facing the risk that more or less their entire future labour supply has to match jobs and positions offered in health care and social services for immediate local consumption. Besides the associated financial problems, which have to be solved within the national welfare systems, we expect this development to become a challenge to both labour market and regional policy in the decades to follow.
We anticipate that in specific regions, the public sector will give priority to training, recruitment and motivating an increasing share of the local labour for this demographically determined welfare and service production. At the same time, this is likely to further reduce the local supply of labour for economic activities in the private sector. This clearly counteracts the regional policy goals stressing the importance of economic growth and well functioning local labour markets in all regions. Evidently, it has to be put into question whether the labour supply problem can be solved by traditional labour market mechanisms in these regions. It could be questioned which incentives to economic development and restructuring of the economy are feasible in these regions, which are likely to experience permanent shortage of labour due to the demographic structure of the local population.

A Need for Flexibility

A call for flexibility in policy design and implementation will also increase the need for active and competent regional and local partnership. They always have a key role for the proper implementation of regional and structural policies. It might, however, be argued that in cases of depopulation the need for a regionally based understanding of the resources, problems and future possibilities will be very important. Policies need to address this and facilitate an active role for the local and regional partnership.

Flexibility is also needed when it comes to selecting measures. Traditionally, regional policies have tended to rely upon direct grants and operational aid. This might in some cases, when provided for by the guidelines for regional aid, be unavoidable. More emphasis may, however, in the future be placed on an active role of the private sector, a shift to loans instead of grants and a more elaborate working partnership between the private and the public sectors. Moreover, such a shift in emphasis may provide a much-needed increase in the "leverage effect" of public spending (including the transfers from the structural funds). The evolution of entrepreneurship, with active use of start-up grants and other policy measures targeting the SMEs will form an important part of such a shift in development strategy.

The analysis of the differing performance of depopulating areas suggests that there is at least a three-dimensional variation between areas. Firstly, the *economic performance* measured in GDP or similar per capita, varies considerably, but much more due to the presence of valuable natural assets – mineral, energy – in some areas than due to the productivity of the labour force and differing investment rates.

Secondly, the *performance of the local labour* market differs, whether this is measured as unemployment rates or labour activation rates for different segments. However, it should be noticed that in many countries the national labour market policy levels out much of the variation measured this way, between local labour markets. The differing rates of freedom of choice for the individual is subject to a larger variation, shown for instance by the fact that the public sector has a dominating role as an employer particularly in the Northern regions. The size and diversity of the local labour market, which are very difficult to change by means of policy, is decisive for the freedom of choice at the individual level.

Thirdly, there are significant differences in *performance of the service infrastructure* and supplies between the regions studied. Again particularly the Northern European regions stand out as vulnerable to cut backs of public services, and also having accessibility problems of quite another dimension than the Southern European regions.

Given this three-dimensional specification of the performance, a strategy for each of the regions has to take the causes of these differences into consideration.

Figure 3 illustrates the characteristic structure and differing performance of two hypothetical depopulating regions in a sparsely populated environment. Figure 4 illustrates tentatively the differing performance of two depopulating regions with a more dense settlement structure.

Figure 3. Tentative characteristics of one Well and one Less Well Performing area in more densely populated regions in the EU.

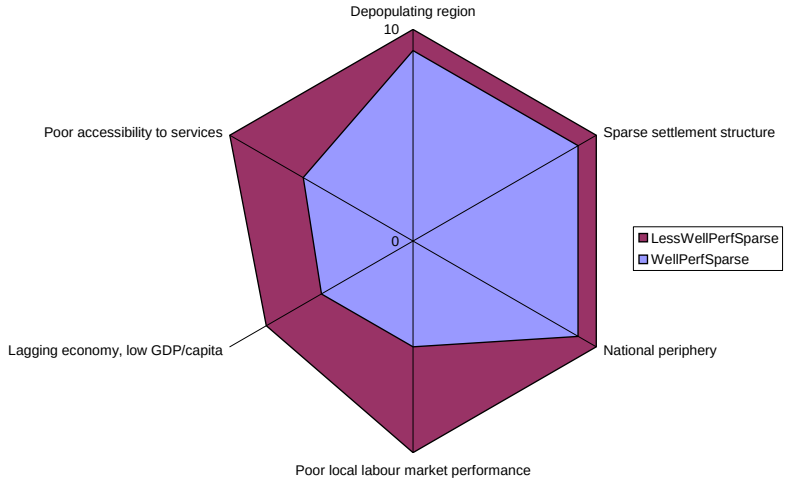
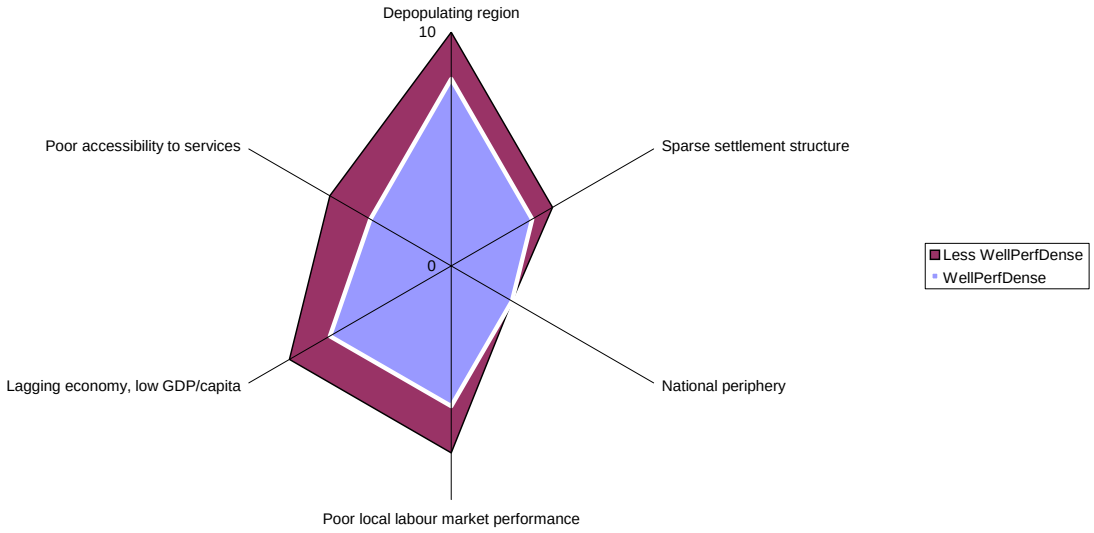


Figure 4. Tentative characteristics of one Well and one Less Well Performing Depopulating Region in sparsely populated regions in the EU.



Towards a Framework for Policy

Let me outline the contours of a dual regional policy design, with one set of measures aimed directly at encouraging economic growth and better functioning of the regions and another set aiming at equalising the living conditions for the population.

Measures for economic growth

The first set of measures – for stimulating economic growth - consists of (a) structural efforts and (b) stimulation to endogenous growth.

(a) The structural measures should be directly aimed at improvement of the accessibility through communication infrastructure. In more densely populated EU regions the road infrastructure and public transportation network should be of particular importance in such strategy, in order to ”enlarge” the local commuting area and get these rural regions into closer contact with regional centres with a much more varied labour market and modern industrial sectors within the new economy. In Northern peripheral areas, this strategy has limited effect because of the long distances. Here, a modern ICT-infrastructure has to be invested by means of public intervention. The future development of these regions into a modern knowledge based economy depends on the modern technology to overcome geographical distances. Investments in such infrastructure may be an important element in a strategy for development of regions facing depopulation. It may attract businesses by lowering their installation costs and thus enhancing the advantages of the region concerned. Investments in telecommunications networks and educational facilities as well as the existence of public services such as nurseries and hospitals may increase the possibilities of changing the negative trend. Diffusion of broadband techniques, facilitating telemedicine and learning at distance are associated elements.

It is furthermore important to develop a working relationship between the structural policies at the EU level, national level and activities pursued at the regional level. The aim should be to achieve complementarity between EU and national policies. This has to be addressed also by an adaptation of the guidelines for regional aid to increase the scope for national policies.

(b) Stimulation of endogenous factors should aim at improving the capacity of the networks in the rural areas and between rural areas and urban centres. These networks have to be built upon historical economic and cultural traditions grounded in each region. The improvement of the competence of the workforce is of outmost importance. As we have seen, one characteristic of regions facing depopulation is that the skilled and educated are the first to leave. It is accordingly important to provide opportunities to increase the competitiveness and competence of those who remains. Resources ought to be available for the diffusion of "best practices" and networking between regions. Community initiatives and innovative actions are important measures with a view to these needs.

Measures for improved living conditions

The *second element* of the dual policy suggested here, i e measures to maintain the relatively equal living conditions between regions, is deeply rooted in most European welfare states' tradition. Equality of living conditions includes transfers to local governments/municipalities for providing services transfers to individuals for compensating low incomes and severe other measures. There is a strong need for better co-ordination of these efforts between differing sectors. There is also a need for reorganisation and new technology used in basic services, particularly to cut costs and improve quality and accessibility. This is major and challenging task in the remote and depopulating regions.

Implementation of this dual strategy should be done in co-operation between local/regional actors and the nation state, in order to adapt to local conditions, i e, according to the type and tradition of the depopulating areas in consideration.

References

Nygren, O. & Persson, L.O. (2001) *Det enkelriktade Sverige*. Tjänstesektorn och den framtida regionala befolkningsutvecklingen TCO.

Persson, L.O. Dynamic And Collapsing Local Labour Markets Demographically Determined Projections of Local Labour Market Performance. I: *41st Congress of the European Regional Science Association, Zagreb, Croatia 29th August - 1st September 2001.*

Persson, L.O. Regional Development and Depopulation. I: *Reflections On The Conference On Regional Depopulation As Challenge For Structural Policies*, *12-13 June 2001, Lycksele, Sweden*.

Persson, L.O. & Ceccato, V. A. (2001). *DORA - Dynamics Of Rural Areas, National Report – Sweden* (FAIR6-CT98-4162). Stockholm: Nordregio.

Reich, R.B, (2001). *The Future of Success..* New York: A. Knopf.

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The Regional (Policy) Components of Agricultural Support in Norway – An Analysis of Principles

1 Introduction and Background

1.1 Background

Regional concerns play a major role in Norwegian politics[9]. Important goals of Norwegian regional policy include the maintenance of present settlement patterns (i.e., keeping the population scattered throughout the country) and the development of economically viable regions in all parts of the country. The general regional policy includes such measures as regionally-differentiated employers' social security contributions and investment support. Sector policies have also, to a significant degree, been influenced by regional concerns. For many years, regional concerns have thus played a role in the development of Norwegian agricultural policy, in addition to such issues as farm incomes, food production and self-sufficiency, environmental quality, and production efficiency. Regional policy issues have been used to explain the high production costs in Norwegian farming, and therewith the high level of subsidies and the high food prices in Norway.

Agriculture in Norway has been supported in many ways. Norwegian agricultural policies are complex, which makes it difficult to define and determine which of the policy components are a result of regional policy, and which components are the results of other considerations. However, the political goals, the numerous policy measures that have been and are applied and the formulation of these measures strongly indicate the presence of regional considerations in agricultural policies.

Not only agriculture receives support because of regional policy concerns. For various reasons, it could be interesting to compare the level of support to various business sectors. What are the arguments for support allocated to the different business sectors? Does agriculture receive more support than other industries? Do regional concerns play a more important role in the development of agricultural policy than for other sector policies? Is it more efficient to support agriculture than to support other industries in order to achieve regional policy goals?

In an ongoing research project "The Regional Policy Components of Agricultural Support in Norway, and Comparisons with other Sectors"[10], we discuss and try to quantify the regional policy components of Norwegian agricultural policy.

[9] According to Heidar (2001:5), Norwegian politics have their own profile, which is brought out by three persistent themes: Norway is a small and young state in the European periphery, its politics operate within an egalitarian social structure, and are marked by the strength of the periphery. Heidar (2001:104-107) contains a short description of Norwegian regional and "district" policy.

[10] The project is financed by The Research Council of Norway

1.2 Project Goals

In the application for grants for this project, the following questions were specified:

- How is the term "industrial support" defined?
- What is the regional policy component of industrial support?
- How can the regional policy component of industrial support be quantified?
- What have the effects of the support been with regard to national regional policy goals, and which international challenges does Norwegian regional policy face today?
- How does the regional policy profile in agricultural support schemes compare to the regional policy profile in support schemes for other business sectors?

Based on these issues, the following project goals were formulated:

PRIMARY GOAL

To develop, test and evaluate systems to classify and operationalize industry support to the private business sector according to regional profile, and which can be used to analyse the effect of support on national regional policy goals, under consideration of international challenges.

PARTIAL GOALS

1) To discuss the term "industrial support" and to determine how much of the support that can be regarded as part of the regional policy in a broad sense.
2) To develop methods to analyse the regional policy effect of industrial support to the private business sector in general, and to agriculture specifically.
3) To use the developed method(s) to calculate and analyse the effect of the regional policy component of agricultural support in relation to national regional policy goals, under consideration of international challenges.
4) To compare the regional effect of support to agriculture with corresponding measures towards other industries.

1.3 The Aim and Outline of this Paper

This paper primarily deals with the partial goals 1 and 2 mentioned above. The paper focuses primarily on the agricultural sector, and we emphasize the discussion of principles. At present we have not many conclusions to present. In the section following this introduction, we define some key terms. Section 3 deals with how to estimate industrial support, while section 4 deals with how to define and estimate the regional policy component of industrial support. We end the paper with some conluding remarks in section 5.

2 Definition of Key Terms

2.1 Industrial Support

The term "industrial support" is used in many different contexts[11]. In an Official Norwegian Report (Norges offentlige utredninger 1988:21, p. 147) it is defined as, "In broad terms, industrial support includes all the advantages of a business or a business sector in relation to other businesses or business sectors, and which can be influenced by the authorities."

Statistics Norway defines the "*effective rate of assistance*" to an industry as "… the additional remuneration to the owners of an industry's primary inputs which is the result of the aggregate effect of public (governmental) measures."(Holmøy et al. 1993:7).

Industrial support can be given in many different forms, e.g., via the state budget (budget subsidies), protection against foreign competition (border protection), public purchasing schemes, support to advisory services, research and development, etc.

Certain businesses and business sectors pay taxes/levies that others do not have to pay. Investment taxes do not affect all industries equally. Whether to consider those that have to pay more in the form of taxes and levies as receivers of "negative support", or those that pay less as receivers of industrial support is a matter of perspective. The competitive conditions on the domestic market are not always the same as under free competition. For example, the Norwegian electricity market has been deregulated for some years now. Nevertheless, there is still a substantial degree of price discrimination, which is, in part, politically determined and thus represents an element of subsidy.

Other forms of support include export bans, guarantee schemes, "non-trade-barriers" etc. However, these are not discussed in this paper.

[11] The Norwegian term is "næringsstøtte".

2.2 Agricultural Support

The main forms of support for Norwegian agriculture have been budget subsidies and border protection:

Budget subsidies: Support given via the state budget as general price subsidies, regional price subsidies, product-specific support, headage or acreage support, investment subsidies, investment grants, interest support, reimbursements of farm relief costs, transport subsidies, market regulation support, etc.

Border protection: This support implies the protection of domestic agricultural products against competing imported goods by use of import tariffs, which cause the prices of the foreign products to lie above the world market prices. This results in a larger domestic production than would have been the case in an open market. Before 01 January 1995, Norway had quantitative import restrictions. In principle, it was prohibited to import many of the products that Norway produced itself. However, supplementary imports, and even free import, were possible under certain conditions.

Taxes and levies used to be part of the general policy in Norway; there were few measures specific for agriculture. In recent years taxes and levies have been more directly incorporated into agricultural policy, e.g., by special tax deductions for farm income and by including levies in the annual negotiations on prices and other measures between the Norwegian government and the farmers' unions.

Multifunctionality has become a key word in national and international agricultural policy in recent years. The Norwegian government has defined agriculture's role in maintaining viable communities in remote areas as one element of a multifunctional agriculture (Ministry of Agriculture, Norway). However, if the concept of multifunctionality and the political arguments are taken seriously, this could have consequences for the general conception of agricultural support. Some of the transfer to agriculture can be seen as payments for public goods, i.e., that agriculture performs certain services such as maintaining the cultural landscape, securing future food supplies, etc. It is just as wrong to call this a subsidy as it would be to say that paying for a haircut is an income subsidy for hairdressers (Buckwell, 1998). In theory, subsidies and payments for services can be clearly distinguished, but this distinction may be difficult to make in practice. In this paper, we have not made any distinction between the two. Furthermore, we have not distinguished between payments to individuals in order to fulfil some income target[12] and industrial support. All support is designated as industrial support. Our focus is on budget subsidies and border protection, and on determining how much of these support measures that can be defined as regional policy support.

[12] Farmers are both producers and consumers. Some agricultural policy measures aim at the farmers as consumers; for instance income support to fulfil an income target. Other measures are introduced to increase or restrict the production of some products or to fulfil environmental goals. These measures are targeted towards the farmers as producers. In the present Norwegian agricultural policy, income is regarded as an instrument to fulfil other goals, not as a goal in itself. The distinction between farmers as producers and farmers as consumers and a corresponding destinction between policy measures, might be relevant when discussing the regional policy component of agricultural policy, but we have not pursued this discussion.

3 Methods for Estimating Industrial Support

Several methods have been developed to estimate the effective rate of support. Each year, the Ministry of Finance calculates governmental budget subsidies, and the results are published in the national budget (e.g. St.meld. nr. 1 (2000-2001)). The calculations include the State's net costs associated with the various support schemes. Net costs are defined as the difference between the total annual expenses and income within each scheme. Only those support schemes that are funded via the state budget's expenditure side are included. From 1999, the Ministry of Finance has also calculated the tax relief resulting from exemption clauses and other special regulations. Such tax relief is defined as tax expenditures. Taxes and fees that are higher than those resulting from the general tax regulations are termed tax sanctions.

The State's budgetary industrial support was estimated at NOK 18.627 billion in 1999, and at NOK 18.464 billion[13] in 2000 (St.meld. nr. 1 (2000-2001) p. 152). Of this, agricultural support amounted to approximately NOK 12.5 billion in each of the two years, and support to the forestry sector was approximately NOK 250 million per year.

Industrial tax expenditures and tax sanctions include NOK 140 million in the form of special tax regulations in forestry. Low social security contribution rates in agriculture and forestry accounted for NOK 320 million, whereas special tax allowances for farmers are estimated at NOK 280 million. Many schemes are aimed at other business sectors or at industry and commerce in general, including such measures as the as regionally-differentiated employers' social security contributions (NOK 6,800 million), exemption from or reduced CO_2-tax (NOK 2,175 million), high depreciation rates in the petroleum sector (NOK 5,900 million), and exemption from the consumer's tax on electricity for industry (NOK 3,940 million). The major item under tax sanctions is the investment tax (NOK 6,500 million).

Both the FAO and the OECD have developed systems for measuring the level of agricultural support. A lot of these systems were developed in the 1970s and 1980s (OECD, 1987; Josling & Tangermann, 1990). Both Josling & Tangermann (1990) and the OECD (1993) discuss many different measures for agricultural support, such as Nominal Rate of Protection (NRP), Price Adjustment Gap (PAG), Nominal Rate of Assistance (NRA), Effective Rate of Protection (ERP) and Effective Rate of Assistance (ERA). Eventually, the OECD focused on Producer Subsidy Equivalents (PSE) and Consumer Subsidy Equivalents (CSE). PSE is defined as:

> «…the level of (per-unit) producer subsidy that would be necessary to replace the array of actual farm policies employed in a particular country in order to leave farm income unchanged.» (Josling & Tangermann, 1990:346)

This has also been formulated in another way:

> «the monetary value that would be required to compensate farmers for the loss of income resulting from the removal of a given policy measure.» (OECD, 1998:5)

The OECD (1998:4) points out that in recent years PSE has been defined in two different ways, as an indicator for the value of transfers to (i) producers and to (ii) agriculture via agricultural policies in a given year. None of these definitions corresponded with the way PSE originally was calculated. The OECD thus changed the calculation method, and has now introduced four measures for support, please refer to OECD (1998) for a closer definition of the different terms:

[13] On average NOK 8.11 were equal to EUR 1 in the year 2000 (estimated as average of the monthly averages published by Norges Bank, 2001)

PSE = Producer Support Equivalents
CSE = Consumer Support Equivalents
GSSE = Transfers to General Services to Agriculture Collectively
ASE = Transfers to Agriculture

Norway is one of the countries with the highest PSE percentage. OECD has calculated the following national figures for Norway (1999): a total PSE of NOK 21.013 billion, a PSE percentage of 69, and an ASE of NOK 21.854 billion (Budsjettnemnda for jordbruket, 2000a p. 180). All three figures (PSE, PSE percentage and ASE) have increased from 1996 to 1999.

Since the early 1990s, Statistics Norway has calculated the effective rate of assistance. The effective rate of assistance to an industry is defined as:

> *«…the additional remuneration to the owners of an industry's primary inputs which is the result of the aggregate effect of public (governmental) measures. The calculation of this "additional remuneration" requires that the actual situation with all existing public support is compared with a hypothetical situation without any support measures.»* (Holmøy et al., 1993:16; our translation).

When calculating ERA, one has to take into consideration both direct and indirect support, such as subsidies or taxes/levies that suppliers of agricultural inputs receive or pay. ERA cannot be defined and estimated for sheltered industries[14] (Fæhn et al., 2001a).

Statistics Norway has estimated effective rates of assistance for several years. An extract of the 1998 calculations is shown in Table 1. The table shows effective rate of assistance to some industries in 1998 and the contribution from various categories of policy measures. The support is measured as percentage change in factor earnings per unit of gross value of production (Fæhn et al. 2001a).

Table 1 shows that the composition of industrial support varies considerably between the different industry sectors. For agriculture, most of the support is associated with the income side (subsidies and the effect of border protection).

In addition to agriculture, the meat processing and dairy industries, the production of consumer goods, the metallurgical, and shipbuilding industries had the highest level of support in 1998. The assistance to the ship building industry comes mainly from subsidies. These subsidies are reduced substantially after 1998, see Appendix 2. Trade and product taxes and price discrimination are important for the metallurgical industries.

Compared with the purpose of this paper, the composition of the support and the level of total support are more important than the exact value of the figures. An essential question in this project is how to determine the share of the support that can be considered as regional policy support. The rest of the paper deals with that question.

[14] By a "sheltered industry" we mean an industry that is not subject to import competition because technological reason or factors in relation to the preference structure prohibit foreign trade. Industries that are potentially subjected to competition, but are protected by trade policy measures, are not treated as sheltered. It is assumed that if subsidies to sheltered industries were removed, the product prices would be adjusted and the factor earnings kept constant. Subsidies to sheltered industries can be measured by the effect on the industries' product prices. For further discussion see e.g. Fæhn et al. (2001a).

Table 1. ERA-contribution from various categories of policy measures, 1998. Per cent.

Industry	Trade and product taxes	Capital taxation	Payroll taxes	Subsidies	Market price support	Price discrimi-nation	Total
Agriculture	-1.1	-1.2	0.4	51.8	46.3	-0.3	95.9
Forestry	-0.6	4.4	0.4	6.2	2.7	0.0	13.1
Fisheries	3.9	4.9	0.3	5.7	-0.1	0.0	14.7
Fish farming	-3.7	-1.3	2.0	1.6	0.0	-0.3	-1.7
Meat processing and dairy	8.5	-0.4	1.2	30.3	27.2	-0.6	66.3
Production of other consumer goods	0.0	-0.5	0.9	11.4	11.1	-0.6	22.3
Metallurgical industries	20.7	-0.5	1.5	1.1	0.3	16.7	39.8
Shipbuilding	-0.1	-0.4	1.7	26.4	0.0	0.1	27.6
Wood processing	7.7	-0.5	0.5	1.6	-0.1	3.7	12.8
Production of chemicals	7.8	-0.4	0.6	1.3	0.5	3.9	13.6

Source: Extract from Fæhn et al. (2001b), table 4.3.

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4. Regional Policy Component of Industrial Support

In order to determine the regional policy component of industrial support, at least the following issues need to be considered:

- Which criteria can and should be used in order to classify a measure as regional policy support?
- What is region and 'regional'?
- How much of the support can be considered as regional support?

4.1 Criteria for Classifying Support

The Norwegian Ministry of Local Government and Regional Development (*Kommunal- og regionaldepartementet, KRD*) is conducting an extensive study on the effects of sector-related regional policy. In that connection, the various governmental policy measures are divided into the following categories (quoted from Mønnesland, Markussen & Skyberg, 1999:3):

1. Programmes/measures based on regional policy concerns
   a. Special regional policy programmes under KRD
   b. Sector measures based on regional policy concerns
   c. Sector measures, including regional policy concerns as one of several motives

2. Programmes that are not based on regional policy concerns – but that nonetheless are expected to have regional policy effects.

3. Programmes/measures that are not expected to have any significant regional policy effects.»

Item 1 includes programmes that are motivated by regional policy concerns. Those listed under 1a are regional policy measures in the more restricted sense, including such measures as employers' social security contributions, investment subsidies, etc. Items 1b and 1c are measures within certain sectors, such as agriculture, motivated by regional policy concerns. Measures in category 2 are not based on regional policy motives, but one assumes that they have regional policy effects nevertheless. The policy measures in category 3 do not aim at strengthening certain regions, and they also do not have that effect.

This indicates two criteria for classifying support: the intended purpose and the actual effect of the support measures. A third criterion is the formulation of the support schemes: how much emphasis is placed on the regional dimension within the individual scheme/measure? The occurrence of geographically-differentiated support would be one criterion for the determination of the regional dimension.

In addition to these criteria, a description of where agriculture really takes place seems to be relevant. In this context "where" can have several interpretations; for instance how many farm holdings there are in each county. Criteria concerning economic activity might also be used. We have applied the system described in appendix 1.

4.2 Classification of Agricultural Support

About 78 % of the population in Norway live in "very central" and "central" regions, please refer to Table 2. About one half of all farm units (holdings) are located within these two regions (Table 3). The two least central regions, called "not central" and "rural", together are home to about 14 % of the Norwegian population, and 37 % of all farms. In the discussion about Norwegian agricultural policies, it is often claimed that many of the support schemes primarily aim at supporting thinly populated and poorly developed rural areas. However, the figures in Tables 2 and 3 show that a large share of agricultural holdings are located in urbanised regions, thus modifying the alleged statement concerning the function of agricultural support. On the other hand, the number of holdings, area of agricultural land in use etc. per thousand inhabitants are highest in the most rural regions.

The Ministry of Local Government and Regional Development's budget proposal for 2001, containss a description of sector-related regional policies (St.prp. nr. 1 (2000-2001))[15]. In this discussion, regional policy is categorised into two groups, according to its purpose:

A: Measures which explicitly are based on regional policy concerns, and which directly favour certain regions beyond the point of compensation in order to secure regional parity;

[15] A more recent description can be found in St.meld. nr. 34 (2000-2001), but that descriprion is so detailed as that in St.prp 1 (2000-2001) KRD.

Table 2. Population distribution in Norway - Number of inhabitants in thousands by region, 1998.

	Eastern	Southern	Western	Trøndelag	Northern	Total
Very Central	990		511	169		**1,669**
Central	1,022	212	317	75	181	**1,807**
Semi Central	47	24	106	67	91	**335**
Not Central	75	9	117	25	106	**333**
Rural	54	10	101	52	85	**301**
Total	**2,188**	**255**	**1,151**	**388**	**463**	**4,445**

Source: Orderud et al. 2001, based on data from population statistics (Statistics Norway)

Table 3. Number of agricultural holdings in Norway by region[1)], 1999.

	Eastern	Southern	Western	Trøndelag	Northern	Total
Very Central	2,751		2,897	691		**6,339**
Central	17,039	1,771	5,986	2,929	1,178	**28,903**
Semi Central	1,958	619	3,221	2,510	1,257	**9,565**
Not Central	3,785	243	3,989	928	1,505	**10,450**
Rural	3,474	616	5,989	2,769	2,586	**15,434**
Total	**29,007**	**3,249**	**22,082**	**9,827**	**6,526**	**70,691**

1) The table is based on preliminary estimate. According to the definitive estimate, the total number of holdings is 70740. (Statistisk sentralbyrå, 2001)
Source: Orderud et al. (2001), based on data from the Agricultural Census 1999.

B: Measures and programmes which level out and compensate in order to obtain economic parity between groups and regions, or which are targeted at specific regions because of prevailing local conditions, and which have special importance with regard to business development, employment, local economy or settlement. Only measures exceeding NOK 10 million are listed.

This is therewith a classification according to purpose. In group A, the sum of all agricultural measures amounts to slightly more than NOK 1 billion, see Appendix 2. These are measures that are regionally differentiated, with some regions receiving no support at all. The measures in group B amount to a total sum of about NOK 10 billion. The overall allocations via the state budget amounted to approximately NOK 12.5 billion. A large share of budget subsidies to agriculture is thus classified in group B.

The acreage and cultural landscape support scheme is an important element in group B, measured in monetary terms. This scheme

aims at equalizing incomes between types of farming, farms of different sizes, and in different regions. Regional concerns are thus one of several aims of such schemes. Other aims are to maintain the agricultural landscape and to secure that agricultural land is used for agricultural purposes. Farmers all over the country are entitled to this kind of support, but the rates are differentiated according to type of crop, the acreage of each crop, and region. Farms in remote areas receive most support per hectare for a given crop.

Certain productions show a clear "regional" pattern, with nearly all producers typically located in remote areas. One example hereof is goat milk production, which in Norway is greatly concentrated in rugged fjord and mountain areas. In such cases, the measures can have a regional aims without a specific regional differentiation of the subsidy rates.

As mentioned, agricultural policy can be classified according to its *regional effect*. One way of estimating such effects is to use historic data to estimate changes after the introduction of some spesific measures or changes of the measures. Another method is to start with the present situation and estimate effects of removing a policy instrument. Such estimations can be carried out using economic models, such as partial or general equilibrium models. These can be based on a geographical division of the country, and the model must be regionalized accordingly. The model must include the most common policy instruments, and has to be calibrated to the actual situation in a given year. When the model is calibrated the effects of policy changes can be modelled. The regional effects might then be measured by indicators such as the estimated changes in regional distribution of production, employment, and income. This allows the various policy instruments to be classified according to their effects.

For agriculture, there is one such model in Norway, called JORDMOD. A previous version of the model has been used to analyse the regional effects of changing agricultural policies (e.g. Lajord, 1991; Prestegard, 1992). The model has recently been revised and updated (Gaasland et al., 2001). We plan to use this model to estimate effects of policy measures, for instance by modelling regional effects of removing some policy measures.

So far, we have discussed subsidy schemes, their regional effects, and their effect on different business sectors. Another approach would be to study the effect of policy measures at the farm level. For instance to estimate how much of the farm income is derived from the various subsidy schemes.

An overview of the system of argricultural incomes at farm level in Norway is presented in Figure 1. We assume that the holdings can be ranked according to their distance from the region where the holdings receive less support. In many cases this is the regions if the highest population density. This distance is measured along the X-axis. The Y-axis measures gross farm income, as NOK per holding. As can be seen, farm income consists of many different components. The market price forms the basis, and can be composed of two parts: the product value according to the world market price and the effect of border protection.

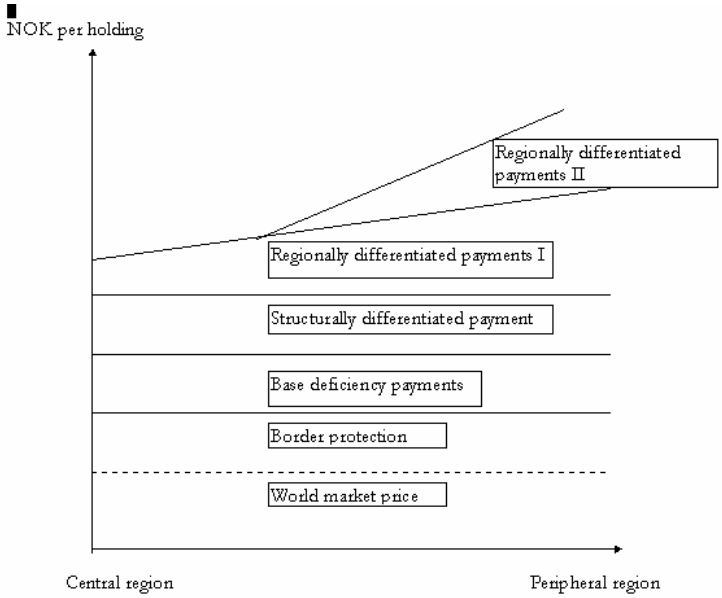
For some products, a base deficiency payment is made to all producers, such as the base deficiency payment for milk and meat. However, such payments have been reduced in the past years, mainly since 1990. Other schemes are structurally differentiated, e.g., headage support to livestock farmers. Many subsidies are regionally differentiated. Others, such as the acreage and cultural landscape support scheme, are graduated according to type of crop, the acreage on which it is grown, and the region. Such subsidies are called "Regionally differentiated payments I" in Figure 1. Finally, there are some subsidies which *only* are allocated to the more peripheral regions, whereas the best farming regions receive no support at all. An example of such a support scheme (called «Regionally differentiated payments II» in

Figure 1) is the regional deficiency payments for milk and meat.
Farm income composition varies between products. Not all elements mentioned above take part in the income formation of all products. Nevertheless, the figure does give a rough picture of the income composition in Norwegian agriculture.

One way to estimate the regional policy component would be the following:

1. Select some typical farm types, according to production and farm size.
2. Calculate the income composition of these farms, given that they are located in different regions.
3. Select to model with the lowest support (lowest support percentage).
4. Define the the regional policy component of this farm as zero.
5. All support exceeding this level is then defined as the regional policy component of the support.

Figure 1. Income composition of Norwegian farms

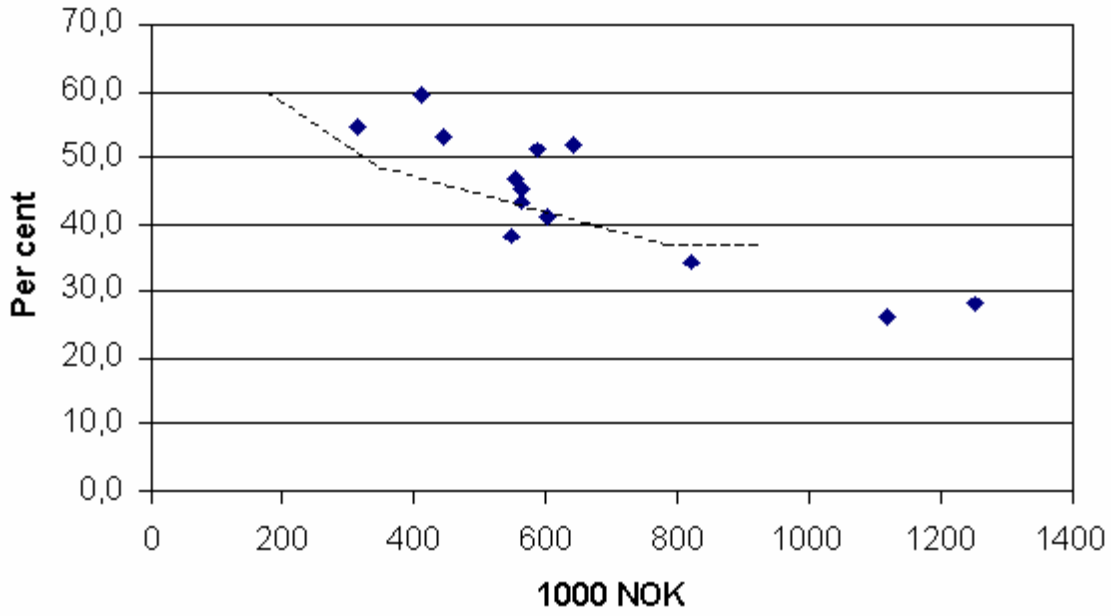


The figure has previously been published in Prestegard & Hegrenes (2000)

Figure 2 is an example of how much of the total gross farm income (including subsidies) on Norwegian dairy farms is derived from budget subsidies. Points to the left in the figure represent small dairy farms. The two points to the far right of the figure represent the farms with the lowest percentage of support (of total income). The percentage of support is low because these model farms represent large farms in regions with relatively low subsidy rates (per hectare, per cow, per litre etc.). In order to exclude the effect of farm size, comparisons could be made within narrow size groups, for instance farms with total gross farm income between NOK 575,000 and NOK 625,000. One might say that the model farm with least support in this group receives no regional support. The broken line in Figure 2 indicates the lowest support as a function of

gross farm income. Support above this line is regional support, according to this definition.
In figure 2, gross farm income (sum of market income and subsidies) is used to express farm size. If only one type of farming, for instance dairy farming, is to be considered, parameters such as number of dairy cows or total output (for instance litres of milk produced) could be used to express farm size. However, when evaluating several different types of production, combinations thereof or even different farm enterprises, total income is a better parameter for comparison. Absolute monetary values could also be used on the Y-axis instead of percentage.

Figure 2. Budgetary support as percentage of gross fram income (sum of market income and support). Model farms for dairy production in the year 2000 (model farms 1-15).



Source: Own estimates based on Budsjettnemnda for jordbruket (2000b)

As can be seen in Figure 2, there are relatively many model farms with a production income of around NOK 600,000. These models represents farms with approximately 12 dairy cows. On average the Norwegian dairy farms have approximately 14 dairy cows. Budgetary subsidies account for between 40 and 50 per cent of the total production income on the model farms with a production income of ca. NOK 600,000. Figure 2 also shows that farm size has a substantial effect on the subsidy percentage. However, since the smallest farms generally are in regions with the highest level of support, and the largest farms generally are in regions with the least support, the figure might exaggerate the effect of farm size.
The number of model farms in much smaller for other types of farming than for

milk production. Therefore, the model farms must be supplemented by other estimations. The data base for the model JORDMOD might be suitable.
One of the arguments for supporting agriculture in marginal regions is that there are so many spin-off benefits from agriculture. However, the issue of spin-off benefits from agriculture will not be dealt with in this project.

3. Concluding Remarks

Border protection and budgetary payments are the main ways of subsidising Norwegian agriculture. Subsidies to other industries are often in other forms. So far we have studied the regional importance of the various schemes by looking at the stated purpose of the schemes and how much money that is allocated through the schemes. Many support schemes have more than one purpose, regional concerns being one. We hope to gain more information on the importance for regional development of the various schemes when we have applied a partial equilibrium model to analyse effects of removing or changing the various schemes.

References

Buckwell, A., (1998). Agricultural Economics in a Brave Liberal World. I: Romarheim, H. & Haglerød, A., *Marked eller styring I landbrukspolitikken (The Role of Free Market or Market Interventions in the Agricultural Policy).* Oslo: NILF.

Budsjettnemnda for jordbruket. (2000). *Jordbrukets totalregnskap 1998 og 1999. Jordbrukets totalbudsjett 2000*. Oslo: Budsjettnemnda for jordbruket.

Budsjettnemnda for jordbruket. (2000) *Referansebruksberegninger. Regnskapstall 1998. Framregnede tall for 1999 og 2000.* Oslo: Budsjettnemnda for jordbruket.

Fæhn, T., Jørgensen, J.A., Strøm, B., Åvitsland, T. & Drzwi, W. (2001). *Effektive satser for næringsstøtte 1998. Beregninger som inkluderer skatteutgifter. Rapportet 2001/18*. Oslo: Statistisk Sentralbyrå.

Fæhn, T., Jørgensen, J.A., Strøm, B. & Drzwi, W. (2001). *Reduserte aggregeringsskjevheter i beregninger av effektive satser for næringsstøtte 1998. Rapporter 2001/25*. Oslo: Statistisk sentralbyrå.

Gaasland, I., Mittenzwei, K., Nese, G. & Senhaji, A. (2001). *Dokumentasjon av JORDMOD. Notat 2001-18*. Oslo: NILF.

Heidar, K. (2001). *Norway: Elites on Trial*. Boulder, Colorado and Oxford, UK.: Westview Press.

Holmøy, E., Hægeland, T., Olsen, Ø. & Strøm, B. (1993). *Effektive satser for næringsstøtte. Rapporter nr. 93/31*. Oslo: Statistisk sentralbyrå.

Josling, T. & Tangermann S. (1990). Measuring Levels of Protection in Agriculture: A Survey of Approaches and Results. I: Maunder, A. & Valdes, A., *Agriculture and Governments in an Interdependent World. Proceedings of the Twentieth International Conference of Agricultural Economists..* Aldershot: International Association of Agricultural Economists and Dartmouth.

Lajord, A., (1991). Jordbruket i distriktsøkonomisk samanheng. Regionaløkonomisk analyse av produksjon, sysselsetjing, inntekter og busetjing. (Agriculture in the Regional Economy: Analysis of Production, Employment, Incomes and Settlement). *Norsk landbruksforsking, Supplement Nr. 11.*

Ministry of Agriculture (22 August 2001). *Norway: Multifunctional agriculture and WTO trade negotiations.* http://www.odin.dep.no/ld/mf/

Mønnesland, J., Markussen, T. og Skyberg, T.E. (1999). *Kriterier for avgrensing av distriktspolitiske tiltak.* Oslo: NIBR og TØI.

Norges Bank (4. sep. 2001). *Exchange rates*. http://www.norges-bank.no/english/

Norges offentlige utredninger. (1988). Norsk økonomi i forandring. Perspektiver for nasjonalformue og økonomisk politikk i 1990-årene. *NOU 1988: 21*. Oslo.

OECD. (1987). *National policies and agricultural trade.* Paris: OECD.

OECD. (1993). *Study of Economic Assistance.* OECD. http://www.oecd.fr/agr/fish/documents.htm.

OECD. (1998). *Proposed new classification of PSEs, CSEs and total transfers..* COM/AGR/APM/TD/WP(98)2/REV2. Paris: OECD.

Orderud, G.I, Johansen, S. & Hegrenes, A. (2001). The Multifunctionality of Agriculture: The Regional Dimensions. Paper presented at seminar on the *multifunctionality of agriculture. Bergen 16- 18 February 2001.*

Prestegard, S.S. (1992). *Norsk landbrukspolitikk – legitimering og ulike verkemiddelsystem. (Norwegian agricultural policy – Legitimacy and different systems of policy instruments)*. Dr. scient. Theses 1992:5. Ås and Oslo: Norges landbrukshøgskole and NILF.

Prestegard, S.S. & Hegrenes, A. (2000). The Role of Agriculture and Agricultural Policy in Rural Settlement and Employment in Norway. Paper presented at conference *European Rural Policy at the Crossroads. The Arkleton Centre for Rural Development Research, University of Aberdeen, 29 June – 1 July 2000*. http://www.abdn.ac.uk/arkleton/conf2000/papers.htm

Statistisk sentralbyrå. (2001). *Jordbruksteljing. Endelege tal, 1999*. Store strukturendringar i jordbruket. http://www.ssb.no/emner/10/04/10/jt1999/ .

St.meld. nr. 1. (2000-2001). *Nasjonalbudsjettet 2001*. Oslo: The Ministry of Finance.

St.meld. nr. 34. (2000-2001). *Om distrikts- og regionalpolitikken. (On the district and regional policy).* Oslo: Det kongelige kommunal- og regionaldepartement.

St.prp. nr. 1 (2000-2001). *Kommunal- og regionaldepartementet. Budsjetterminen 2001*. Oslo.

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The Integration of Landscape and Agricultural Policies – Experiences from EU and the Four Member States England, Germany (Schleswig-Holstein), The Netherlands, and Sweden

1. Introduction

The physical environment, including the landscape, has traditionally been considered important for the development of agriculture and agricultural policy. The challenge has been to reduce the constraints for agricultural expansion and to exploit the nature resource potentials (Bowler, 1992; Vos and Meekes, 1999). Through the 19th and most of the 20th century agricultural expansion has been widely stimulated through public programmes such as heath and wetland reclamation schemes in Denmark, England, and the Netherlands (Olwig, 1984; Gilg, 1996; Van de Ven, 1996). In a few cases agricultural development was confined due to landscape and nature conservation values but generally, agricultural development has not been regarded as any threat to nature and landscape. On the contrary, drainage, diking, reclamation, irrigation and several other types of agricultural projects were seen as landscape improvements. Apart from national policies became the Common Agricultural Policy (CAP) established within the European Community in 1959 an increasingly important driving force in agricultural intensification.

In the 1960's and 1970's, negative environmental impacts of agriculture were documented and increasingly discussed (Carson, 1962; Commoner, 1971; Meadows et al., 1972). In the 1980's, a reform of the CAP towards a more environmentally friendly policy was proposed (CEC, 1985) and gradually a reformation of the CAP began. Parallel to the CAP reform, the process of establishing a European Ecological Network of important habitats connected through green corridors, the so-called Natura 2000 Network, established through the 'Habitats' directive (Official Journal, 1992) was initiated and EUCN started to formulate a strategy for 'threatened European landscapes' (Green, 2000).

On a more general level, an important component of sustainable development has been the call for the integration of environmental concerns into economic and sectorial policies, including agricultural policy.

Policy integration

Within the international environmental policy, integration of environmental concerns in the sector policies have been emphasized on several occasions, including the Stockholm Convention, the Brundtland Report and the Maastricht Treaty (Sørensen, 2001). At present, the integration principle is stated as a general principle covering all the policy areas of the European Union in Article 6 of The Amsterdam Treaty.

In this paper we focus on a specific part of the environment, namely the landscape, which we, with reference to Wascher (2000, p. 147) define as "*concrete and characteristic products of the integration between human societies and culture with the natural environment.*"

With respect to landscape issues in an agricultural policy context, we distinguish between three forms of policy integration. Firstly, substantial integration, which simply implies that landscape concerns are included in decisions taken in the agricultural policy process. Agri-environmental policies (AEP) and the new environmental requirements, for the payment of subsidies under the CAP, are examples of substantial integration. Secondly, the question of jurisdiction and responsibility is a matter organisational integration (Sørensen, 2001). The amendment to Article 1 in the Danish Agricultural Act of 1986, making environmental issues a lawful part of agricultural legislation is an example of organisational integration. Finally, we denote the comprehensive, physical planning as spatial integration, through which environmental and agricultural objectives may be coordinated and balanced for specific territories. The designation of agricultural areas such as 'Environmentally Sensitive Areas' within the already designated areas such as 'Areas of Outstanding Natural Beauty' in England is an example of spatial integration.

The success of policy integration will partly depend on how these three types of integration are practiced and combined, and how the cooperation between the 'environmental sector' typically represented by a Ministry of Environment, and the economic sectors in question is working.

In this paper, we describe experiences of integration of landscape objectives into the agricultural policy within the EU in general and within four member states in particular. The four member states are England, Germany (Schleswig-Holstein), The Netherlands, and Sweden. The paper is based on a study done for the Danish Governmental Committee for the preparation of a white paper on biodiversity and nature conservation (Busck et al., 2001). In addition to policy documents and other published material, the study has been based on information from interviews with policy makers, project officers, government officials, researchers and farmers in the four countries.

2. The development of the agri-environmental policy

So far, the most widespread form of integrating environmental concerns in the agricultural policy domain, including concerns for nature and landscape, has been the so-called agri-environmental policies (AEP). Emphasis will therefore be given to these policies in the following historical outline. In this context AEP is defined as a programme (i.e. a framework for schemes and measures) for supporting an environmentally friendly farming practice, which goes beyond "what could be seen as being good agricultural practice" (Scheele, 1996, p.4).

The pronounced modernization of agriculture in Northern Europe after the Second World War has made the environmental problems associated with agricultural intensification more widespread and more critical than in Southern Europe (Stanners and Bourdeau, 1995). On this background, it appears logical that the first three countries to introduce AEP were England, Germany (different Länder including Schleswig-Holstein) and the Netherlands. Even before the European Commission formalized the possibility for member states to compensate farmers for

losses or positive contributions associated with so called environmentally friendly farming practice, some experiences were gained with management agreements in the three countries mentioned (CEC 1986).

In 1985, Article 19 in Regulation 797/85 formalized the option for the member states (at their own expense) to introduce AEP schemes with the purpose of protecting, maintaining, and enhancing the environment. Article 19 was introduced after a proposal from the English Minister for Agriculture on the background of environmental conflicts in the Broadlands in Northwest of England where important nature conservation assets in the extensively grassed salt marshes were threatened by agricultural changes, first of all by reclamation. Besides England, The Netherlands and some of the German Länder were the first to use Article 19. Already in 1987, the Commission started to offer a 25 per cent co-funding of the AEP and more member states used this opportunity to develop a combined agricultural-environmental policy. By 1990, seven member states had initiated AEP schemes and a little more than 1 per cent of the agricultural area within European Community was covered by agreements (Table 1).

As part of the MacSharry reform in 1992 it was made obligatory for the member states to implement AEP (but still voluntary for the farmers to participate), and the overall objectives were environmental protection end improvement, maintaining farmer's income, and extensification of the production. It appears from Table 1, that the uptake of AEP agreements has increased considerably from approximately 1 per cent in 1990 to more than 10 per cent 5 years later. During the following 3 years, from 1995-1998, the uptake almost doubled, partly due to the extremely high uptakes in the three new member states, Finland, Sweden and Austria. The three countries had comprehensive national AEP-programmes prior to their entry in the EU.

The fact that AEP became obligatory for the member states is one reason for the increase in uptake after the 1992 reform. Other likely reasons are the increase in the raise of the co-funded share to 50 per cent (75 per cent for "Objective 1 areas") and the significant expansion of issues included in AEP (Article 2 in Regulation 2078/92). Thus, the new catalogue lists issues such as extensification, environmental protection, conservation of nature and landscape, re-introduction of extensive farming on abandoned agricultural land, landscape maintenance, breeding of threatened farm animals, and 20 years set aside.

As there are no rules as to which of the issues to include in the national programmes and schemes, much freedom of action is left to the member states, a freedom they clearly have chosen to use. The variation in the schemes is immense (Buller, 2000). Despite this, considerable overlap can be observed in the concrete regulations, which are found in the different schemes across Europe. Figure 1 shows the distribution of the different regulation issues found within the measures implemented in 22 agricultural areas in Schwitzerland and nine EU member states.

Table 1. Developments of uptake in EU agri-environmental policies EU reg. 797/85 (1990) and EU Reg. 2078/92 (1995 and 1998)

	Utilized Agricultural Area (UAA) x 1,000 ha (1998)	Proportion of UAA under Agri-environmental agreements (%)		
		1990 [1]	1995 [2]	1998 [3]
Belgium	1,375	-	-	1.7
Denmark	2,722	1.1	2.1	3.9
France	30,170	0.1	16.8	22.9
Greece	5,741	-	-	0.6
The Netherlands	1,848	1.3	0.8	1.9
Ireland	4,530	-	1.3	24.1
Italy	16,792	1.3	-	13.6
Luxembourg	127	0.5	-	75.9
Portugal	3,960	-	14.8	16.8
Spain	29,650	-	0.4	2.9
United Kingdom	15,870	1.5	4.6	14.6
Germany	17,335	2.5	31.3	38.9
EU-12	130,121	1.1 (7 countries)	11.8 (8 countries)	16.3
Finland	2,160	-	-	86.9
Sweden	3,180	-	-	51.6
Austria	3,585	-	-	67.8
EU-15	139,046		-	19.5

[1] Source: CEC 1991, quoted after Potter (1998) p.106 and Eurostat (1999)

[2] Source: CEC 1996, quoted after Potter (1998), p. 119

[3] Source: DGVI (1998a), p.21

- No data available or the Agri-Environmental schemes not yet implemented

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Figure 1. Land use and management provisions included in AEP- measures in 22 study areas in Switzerland and 9 EU member states.

Regulation issues in AEP management agreements	Austria A	Austria B	Switzerland A	Switzerland B	Denmark A	Denmark B	Germany A	Germany B	Spain A	Spain B	France A	France B	Greece A	Greece B	Portugal A	Portugal B	Sweden A	Sweden B	Sweden C	Sweden D	UK A	UK B	Number of study areas
Pesticides use	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	22
Mineral N-Fertiliser	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	21
Permanent Grassland	X	X	X	X	X	X	X	X			X	X			X	X	X	X	X	X	X	X	18
Livestock density reduction	X	X	X	X	X	X	X	X			X	X			X	X					X	X	14
Crop diversity	X	X								X			X		X	X							6
Abandoned land	X	X										X				X		X					5
Hedges	X	X									X										X	X	5
Minimum livestock density									X									X	X				3
Fallow land	X									X					X								3

Source: Andersen et al. (1999), p. 156

Regulations of pesticides, nitrogen, grassland management and livestock reduction appear in one or more measures in all or almost all areas. Issues, such as crop diversity, abandoned land, hedgerows, minimum livestock density and fallow land, are less common.

Measured by uptake AEP has been successful. The Fifth Environmental Action Programme 'Towards Sustainability' from 1993, set a 15 per cent uptake target for AEP by 2000 (CEC 1993), five per cent lower than the performed uptake by 1998.

The AEP has brought the public authorities throughout Europe in a positive relationship with the farming sector and with a substantial number of EU farmers. This is an important result by itself. When it comes to more substantial effects of AEP, there is only limited knowledge available in spite of a large number of national evaluations. At a cross national level a number of studies have been published focussing on scheme design, uptake, costs and other more general patterns of AEP (Whitby, 1996; Potter, 1998; DG VI, 1998; Rønningen, 1998; Huylenbroeck and Whitby, 1999; Buller et al., 2000). As part of an EU project on AEP some environmental effects of AEP have been analysed, showing significant effects in terms of reduction in the use of nitrogen and pesticides among farmers participating in AEP compared to non-participants as well as significant differences between participants and non-participants in terms of general protection and improvements of environmental assets were found (Primdahl et al., in press).

However, AEP is not the only example of policy integration within the CAP. The extensification premiums in the beef regime also contain regulations with environmental intentions and the extensification scheme has indeed had positive impacts on the maintenance of extensive grassland management on marginal semi-natural habitats in Denmark (Andersen et al., 2000; Andersen, 2001).

In addition, the set-aside regulations, which from 1992 became an obligatory part of the guarantee section, can to some degree be combined with environmental objectives. The less favoured areas directive and the forestry regulation are also examples of agricultural policies with environmental dimensions attached (CEC, 1999). However besides the AEP it was not before the new CAP reform, adopted by the Council in the spring 1999, that the integration principle has been playing a prominent role in the CAP. This is described in section 4.

3. National experiences with policy integration

Since AEP to a large extent is based on the principle of subsidiarity, it is on the concrete scheme and measure level that landscape concerns are integrated in the agricultural policy. In this section, we briefly outline some experiences gained on this level in four different North European member states.

English experiences

Physical planning and nature conservation have long traditions in England, which may be due to a long history of industrialisation and a historically dominating urban population. About 75 per cent of England is agricultural land of which more than half is grasslands, managed or semi natural. Due to a long period of continuous intensification, the arable proportion of the utilised agricultural area increased from just 27 per cent in 1938 to 53 per cent in 1987 and then dropped again to about 40 per cent.

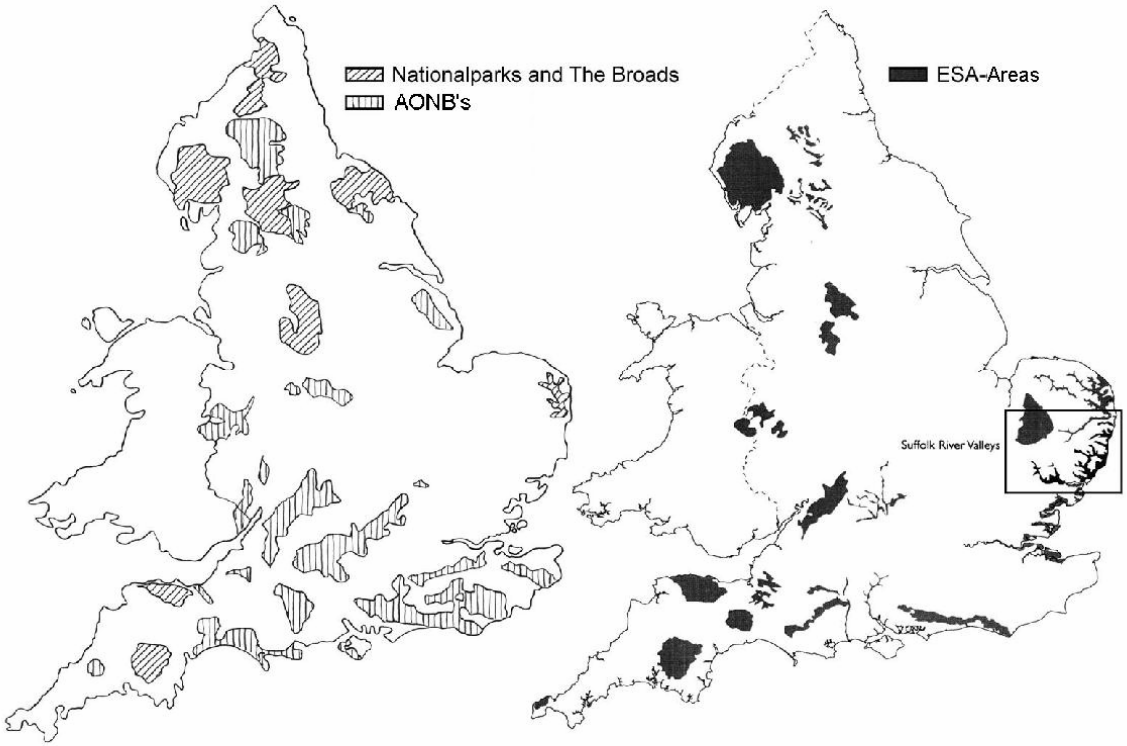
These changes have meant severe damages to habitats and landscapes and a number of policy initiatives were taken during the 1980's (Gilg, 1996; Countryside Agency, 2000).

Large proportions of the country are zoned as 'National Parks' and 'Areas of Outstanding Natural Beauty' (AONB), and at the local scale a great number of 'National Nature Reserves', 'Sites of Special Scientific Interest', 'County Wildlife Sites'/'Sites of Nature Conservation Interest' have been designated. The English 'Biodiversity Action Plan' was published in 1994 and has gradually been extended since then. Access rights in countryside and countryside policies in general are usually placed high on the political agenda (Green, 1996; Gilg, 1996) and a 'Landscape Character Map' delimiting and describing 186 characteristic landscapes in England (together with a smaller number of 'natural areas') has been published.

The first English AEP, the so called Environmentally Sensitive Areas scheme, started in 1987 with the designation of 6 ESAs, within which farmers were offered 5 year agreements. The ESAs has grown in area and in numbers since then and from 1994 ESA agreements have been offered to farmers within 22 ESAs (Figure 2). Since 1993, the agreement length changed from 5 years to 10 years with an option for the farmer of leaving the agreement after 5 years. Despite the enlargements of the individual ESAs, the uptake of agreements has gradually grown resulting in 45 per cent coverage of the total ESA area by agreements in 1999. Each ESA has its own objectives, measures offered, and monitoring systems, including quantified success criteria. Most ESA measures are designed for landscape and nature conservation purposes, such as conversion to permanent grassland, extensive grassland management, and hedgerow management (Potter 1988, Whitby 1996). An ESA agreement can be combined with concrete restorations and enhancement projects, so called 'conservation plans', such as new ponds and new fences. The ESA scheme has been the most successful and also the most developed AEP scheme in England. Compared to the major schemes in Schleswig-Holstein, the Netherlands and Sweden, the ESA scheme is more long-term oriented with specific targets for environmental changes and conditions. On the other hand, the uptake of ESA agreements is not particularly high compared to major schemes in many other EU countries including Sweden.

The Countryside Stewardship Scheme (CSS) is the other major AEP in England offered to farmers outside the ESAs. The CSS started in 1991, at first as an experimental scheme operated by the Countryside Commission, but from 1996 as a permanent scheme run by the Ministry of Agriculture, Fisheries and Food. Although the scheme is not spatially targeted, it is directed towards certain habitat types such as heath, moors, semi-natural grassland on calcareous soils, and hedgerow landscapes and towards valuable landscape elements, such as stonewalls and hedgerows. In Table 2, the distributions of the CSS agreements on different habitats, landscape elements and other issues are shown. It appears that CSS agreements concerning field boundaries, waterside lands, old meadows and pasture, chalk and limestone grassland, are the most widespread.

Figure 2. The designation of national parks, AONB's and Environmentally Sensitive Areas in England.



Source: ADAS (1997) and Rydin (1993)

Table 2. The number of agreements on different habitats (1999)

Type of agreement	Number of agreements
Access	14
Arable Margins	488
Chalk & limestone grassland	963
Coast	301
Countryside around towns	104
Field Boundaries	2102
Historic landscapes & features	526
Lowland heath	429
Old meadows and pasture	1102
Old orchards	227
Uplands	759
Waterside land	1599
Total number of agreements	8614

Source: www.maff.uk (1999)

Both the ESA and CSS Scheme are implemented by regionally based project officers, who often work in close cooperation with NGOs e.g. the Royal Society for the Protection of Birds and the Farming and Wildlife Advisory Groups. The two schemes are also given high priority in the new Rural Development Programme (see section 4) and CSS is expected to grow considerable in terms of uptake to become the larger of the two by the end of the budget period in 2007.
In conclusion, the English AEPs are well-developed, long term oriented and highly integrated with national and regional nature conservation and landscape objectives. Some administrative power has been transferred from the Ministry of Environment (from English Nature and the Countryside Commission). As it will be described in section 5, England has used the two new opportunities for integrating environmental concern into the agricultural sector, resulting in a doubling of the current AEP budgets over the next 6 years. The uptake of AEP agreements for the UK in general, is however, clearly below the EU average (Table 1).

German (Schleswig-Holstein) experiences

Germany has a strongly divided political-administrative hierarchy, with a federal government providing the framework for the environmental and agricultural policies, and relatively autonomous Länder operating within the federal framework. Therefore, the experiences described here only pertain to Schleswig-Holstein, and parallels cannot necessarily be drawn to other German Länder. In fact, AEPs are less widespread in Schleswig-Holstein compared to Germany on the whole (Grafen and Schramek, 2000).
Schleswig-Holstein's aims, within the countryside planning and management, include protection of habitats, the maintenance or restoration of natural processes and the creation of a biotope-network. Specific goals for the planning and management include that at least 15 per cent of the land territory must be covered by nature protection measures, and that the forested area should be increased to a total of 12 per cent. The areas designated as nature reserves or protected areas should be substantially enlarged from their present 2.5 per cent of the land area (MUNF, 1999).

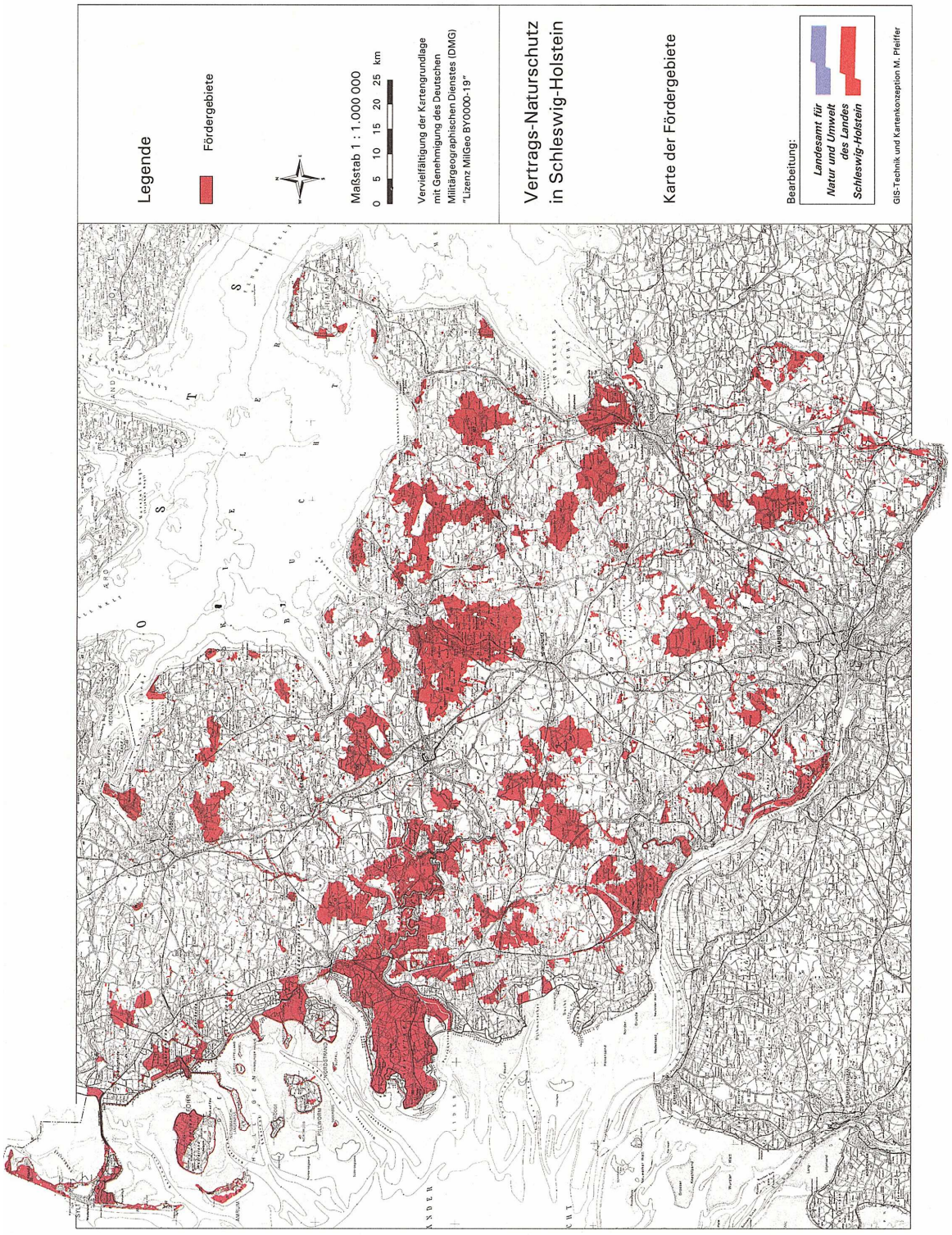
The landscape planning tools in Schleswig-Holstein consists of plans on tree levels (Land level, county level and local level), and they are to some degree coordinated with other plans that are oriented towards certain sectors or problems (e.g. plans for agriculture or development plans) (MUNF, 1999). Among other things the Land level 'Landscape Programme' (Landschaft-planung) recommends protection of areas of importance for nature protection and recreation, including an ecological network, consisting of core areas and corridors. These plans also designate areas within which 'Vertrags-Naturschutz' (see below) contracts may be signed (Figure 3). Other areas specified in the Landscape Programme comprise wetlands and rivers, groundwater protection areas, and geological features.
The Landscape planning framework at the county level ('Landschaftrahmenpläne') deals with the areas mentioned in the Landscape Programme on a concrete and action-oriented level. The local level 'Landscape Plans' (Landschaftpläne) contains detailed information on the conditions of nature and landscape, and deals with nature protection on a local level.
Schleswig-Holstein possesses some very valuable permanent grasslands, whose conservation depend on the maintenance of extensive agricultural use. Since the 1980's, the regional government has supported farmers, who maintained the traditional

agriculture. This policy was continued in the AEP-framework of the EU after 1992.
The agri-environmental schemes of Schleswig-Holstein comprise six main programmes. The extensification programme for permanent grassland, the so-called 'Vertrags-Naturschutz', payments for organic farming and agreements for traditional farming on the isolated Wadden See islands, are the most widespread in terms of uptake area (MLR, 2000)
Apart from the AEP schemes, land acquisitions play a role in the nature protection policy in Schleswig-Holstein, primarily within the 'Stiftung Naturschutz' (see below).
The AEP scheme 'Vertrags-Naturschutz' ('Contract-Nature Conservation' in English) originates from the Biotope-programme of 1985, formulated in order to maintain and protect the important wetland areas of the Wadden Sea. The Biotope-programme predated the EU AEP schemes. After the launch, the programme was extended to other extensive agricultural areas (Ziesemer, 1990). In 1998, the Biotope-programme was substituted with the present Vertrags-Naturschutz.
The primary aim of Vertrags-Naturschutz is to maintain extensive agricultural land use and to establish new biotopes. The programme is targeted towards habitats of importance for amphibians and birds associated with permanent grassland, forage areas for migrating birds, and other wet and dry permanent grassland. Besides grassland management requirements, the agreements require that 2 per cent of the area in question are set aside for the establishment of new permanent biotopes, e.g. hedgerows, ponds, or forest. It is explicitly mentioned in the contracts, that these biotopes will be protected as permanent features after the termination of the contract.
The Vertrags-Naturschutz contracts are only offered within certain areas, designated by the nature protection authorities in Schleswig-Holstein (Figure 3).

Three years after the Biotope-programme started in 1985, 24500 ha were covered by agreements. The number of contracts dropped in the first half of the 1990's, however. The relative success in the beginning was probably due to the fact, that the contracts did not require substantial changes in land management (Ziesemer, 1990). The areas were already extensively used, and the programme was conserving areas rather than developing new extensive land uses. After 1992, the requirements became stricter, as the density of grazing livestock permitted decreased from 3.5 to 1-1.5 per ha. The schedules for operations as grazing and mowing became fixed, and the set aside for the establishment of new biotopes became compulsory. Finally, other programmes, not least the "Grünland" Programme (see below) came into existence. In 2000, 900 agreements within the Vertrags-Naturschutz Programme were active, on the average covering 7.2 ha each.

The most important AEP scheme in terms of area covered is the Grünland-Programme (for grassland management). The scheme excludes the use of pesticides and fertilizers, and in the late 1990's, 2 per cent of the permanent grassland of Schleswig-Holstein was covered with agreements. In contrast to the Vertrags-Naturschutz, Grünland-agreements may be signed everywhere.
Another important instrument in nature protection in Schleswig-Holstein is the Stiftung Naturschutz (Nature Protection Foundation), with the aim to acquire land for nature protection within regions of high nature values. The founding has been active since 1978, and until 2000, approximately 15.000 ha had been acquired. Between 1988 and 1997, 91 million German Marks have been spent. The land acquisition strategy is primarily used in situations where lasting and far-reaching changes in land use are required, and where most commercial farmers are reluctant to participate in a restoration programme (personal

Figure 3. Designated areas within which Vertrags-Naturschutz agreements can be signed.



Source: MUNF, 1999

communication with an employee of the Stiftung Naturschutz, 1999, Stiftung Naturschutz, 1998).

The acquired land is managed by the founding, but some land is leased back to farmers. The conditions of renting match those of the Vertrags-Naturschutz, and the interest among farmers is growing due to other EU regulations (stocking density regulations). The strategy enables long-termed planning and management in contrast to the shorter termed AEP schemes. The strategy is costly, however, and the resources must be limited to certain selected areas.
In conclusion it can be said, that the many efforts to maintain and restore the extensive management of permanent grasslands have not lead to the wanted results. According to officials involved, this is particular due to the low flexibility of the schemes, but still the Vertrags-Naturschutz has contributed to the integration between agriculture and nature protection. Therefore, the voluntary agreements must be supplemented with other tools such as legislation and land acquisitions.
The Vertrags-Naturschutz programme offers more specific agreements with farmers compared to its predecessors. However, the programmes still offer limited flexibility, for instance it is impossible to have more livestock on the grassland, although it is acceptable from ecological points of view.
The acquisition strategy as implemented by the Stiftung Naturschutz is very popular and successful according to officials involved, and it has been stressed, that the money spent on Vertrags-Naturschutz could be better used on land acquisitions.

Dutch experiences

Agricultural land use in the Netherlands is very intensive compared to European standards (Eurostat, 1997), and there is a severe competition for land for different reasons and land prices are extremely high (LNV, 1999). The continuous intensification has impact on the structure and quality of natural and semi-natural areas (RIVM et. al., 1997) and already in 1975, the first governmental initiative to integrate nature and landscape concerns in agricultural policy was taken through the so-called 'Policy document on Agriculture and Nature Conservation' ('Relatia nota'). In this policy document, specific quantitative goals were set and possible instruments were identified. Today this strategy is still an important part of Dutch landscape policy. Essentially three objectives were outlined (BBL, 1989):

- public owned and managed areas for nature reserves
- integration of nature and landscape issues, when developing land use plans ('landinrichting') in the countryside, and
- development of measures to encourage farmers to preserve and manage nature and landscape within designated areas

In 1982, the policy presented in the Policy document on Agriculture and Nature Conservation led to organisational integration of agriculture, nature and landscape policies. The responsibility for nature and landscape policies was transferred from the former Ministry of Nature, Environment and Public Health to the Ministry of Agriculture and Fisheries, and the name of the ministry was changed to Ministry of Agriculture, Nature management and Fisheries. During the 1980's, the intentions and quantitative goals of the Policy document on Agriculture and Nature Conservation were sought implemented through public purchase of areas and the development of a diversity of nature and landscape management measures

for farmers within designated areas. The first management agreements were signed in 1981 based on individual negotiations between farmers and public officials. Today, compensation is standardized and the AEP Programme for environmentally friendly farming includes measures related to the following six groups (LNV, 2000):

- $ Conservation of natural handicaps (e.g. high water table)
- $ Conservation and development of valuable vegetation
- $ Conservation and development of meadow bird population
- $ Management of landscape elements
- $ Creation of buffer zones in relation to nature areas and landscape elements
- $ Conservation and development of biotopes for other fauna

In order to strengthen and concentrate the effort on nature and landscape management and to integrate these issues in agriculture, a plan for the establishment of a national ecological network was developed in 1990 and the AEP was (together with nature conservation) targeted towards these areas (LNV, 1990). The national ecological network builds on the ideas presented in the Policy document on Agriculture and Nature Conservation and consists of a coherent network of areas designated for either core areas for nature, nature development areas or ecological corridors (Lammers and Zadelhoff, 1996). The uptake of agreements within the AEP is rising, but is still relatively low compared to the situation in many European countries (Table 1) and as shown in Table 3 the development in public purchase is slow (RIVM et al., 1997).
The increasing public emphasis on nature and landscape values and especially the public land acquisition has caused severe conflicts between farmers, nature organizations and public authorities (Busck et. al. 2001). Alongside the efforts of the central administration to direct the development a number of local initiatives B the so called 'Environmental cooperatives' - have been established amongst farmers. Each initiative refers to the specific local problems. However common goals for the cooperatives includes the engagement in constructive dialogue with public authorities, reestablishment of the role of farmers as responsible managers of the countryside, and the provision of flexibility in regulation in order to be able to adapt to local conditions (Informatie- en KennisCentrum, 1998).

Table 3. Targets and realisation of the National Ecological Network in the Netherlands through acquisition and management agreements.

	Target for 2018	**Approved plans**		**Status ultimo 1999**	
	x 1000 ha	x 1000 ha	Per cent of target	x 1000 ha	Per cent of target
Acquisition for nature reserves	100	88	88	35	35
Acquisition for nature development	50	34	68	11	22
Uptake of management agreements	100	89	89	64	64
Total	250	211	84	110	44

Source: RIVM (2000)

According to an evaluation of the Dutch nature conservation policies, the national ecological network approach has been ecocentric, leaving only limited opportunities for integration of nature conservation with other land uses such as agriculture or tourism (Lammers and Zadelhoff, 1996). In addition, the evaluation points to the fact that less attention is paid to areas outside the network; consequently neglecting the nature conservation values in these so-called 'white areas'. Some of the critics have been taken into account in the recent revisions of the scheme for environmentally friendly agriculture, which has focused on three issues (LNV, 2000):

- Giving possibilities for private landowners to engage in measures, formerly restricted to public and private nature organizations. These are nature management contracts in large private or public owned nature areas and long term management contracts (30 years) for private landowners involved in converting arable land to nature areas.
- Increasing focus should be put on environmental outcomes to be achieved rather than on top down policy design and fixed implementation procedures. This includes the possibility of supporting cooperatives engaged in reaching defined goals through the development of methods adapted to local conditions.
- Creating possibilities to sign management agreements on areas outside the national ecological network.

In conclusion, the Dutch effort to integrate nature and landscape values in agriculture has a relatively long history starting with the Policy document on Agriculture and Nature Conservation from 1975. However, the uptake of management agreements concerning nature conservation in agricultural areas is still relatively low compared to the European average.

Since 1975 all administrative power for nature policies has been transferred to the Ministry of Agriculture, Nature management and Fisheries, a variety of AEPs have been developed and related to a comprehensive national ecological network of designated areas. The development has not been without obstacles and critics, which has led to a range of experiments initiated at both governmental and local level. The most recent development of the AEPs in the Netherlands is trying to focus on environmental outcomes to be achieved through management agreements rather than on top down policy design and fixed implementation procedures.

Swedish experiences

The first AEP in Sweden was introduced in 1986 and included a scheme for nature conservation in agricultural landscapes. The scheme was directed towards specific and/or isolated habitats such as traditionally mowed meadows or semi-natural grasslands of high ecological values. The AEP was enlarged in 1990 with the scheme "landscape conservation" introduced to preserve larger valuable landscape produced by specific types of agricultural production. Both schemes were designed and implemented by the Ministry of Environment, and the contract period was normally 5 years. All contracts were individual, with varying payment depending on the content of contracts and the circumstances of the individual holdings including the biological value of the agreement area in question (Rønningen, 1995; Carlsen and Hasund, 2000).

After the Swedish accession to the EU in 1995, a new agri-environmental programme under Regulation 2078 replaced the two

national schemes. The programme includes a scheme for education and information and 4 different management agreement schemes, with the objectives to protect agricultural landscapes and biodiversity and promote a more environmentally friendly farming practice (Carlsen and Hasund, 2000). With small adjustments the programme was continued in the new Rural Development Programme, which to day includes a scheme for education and information and three management agreements schemes for: (1) environmentally friendly agriculture, (2) an open and varied agricultural landscape and (3) conservation of bio-diversity and cultural heritage values in the farmed landscape (Jordbruksdepartementet, 2000).
With the Swedish accession to EU the whole administration of the AEP, including design and implementation tasks, was transferred from the Ministry of Environment to the Ministry of Agriculture. According to senior officers in both the Ministry of Agriculture and the Ministry of Environment the transaction was made in order to secure a complete integration of environmental and landscape consideration in the agricultural policy (Busck et al., 2001).

The scheme for 'environmentally friendly farming' includes measures for reducing the negative effects (mainly leaching of nitrate) on the aquatic environment caused by farming in specific designated areas and a measure for promoting organic farming. The two schemes are eligible all over Sweden. The scheme for 'an open and varied agricultural landscape' is directed towards the woodland areas in northern and central Sweden and aims to improve and maintain the landscape and prevent large scale abandonment of agricultural land through support of farming. The last scheme for protection of agricultural landscapes and bio-diversity includes different measures of which two are of most importance for the cultivated farm land, namely the measure for maintenance and restoration of semi-natural pastures and meadows and the measure for conservation of valuable natural and cultural heritage environments (e.g. biologically rich biotopes and habitats on or adjacent to arable land, local and regional features of farmed landscape, including traditional small buildings, tree-rows, stone-walls etc). In addition, the measures eligible throughout Sweden are targeted towards specific types of landscape elements and biotopes. For the whole programme most contracts are for five years, except 20 years agreements for development of new wetland areas under the measure for environmentally friendly farming (Jordbruksdepartementet, 2000; Jordbruksverket, 2001).
The highly varied Swedish AEP reflects the different environmental problems associated with the Swedish landscapes: leaching of nutrient (mainly in the southern Sweden), abandonment of permanent grassland, lack of maintenance or destruction of cultural heritage and mainly in the woodland areas in northern Sweden abandonment and overgrowing of arable and grass lands.
The overall ambition of the Swedish AEP has been high in terms of both budget and objectives and a relative high proportion of the agricultural area has been designated as target areas for the different schemes. Measured by uptake, particularly, the scheme for 'conservation of biodiversity and cultural heritage values' and the schemes for 'an open and varied landscape' have been successful (Table 4). However, as in other countries extensification measures (wetland creation, uncultivated fringes etc) directed towards arable land have had limited success.
Concerning the training scheme that includes education, information and demonstration the ambition has also been high. The training has been offered as traditional classroom courses or as individual guidance of farmers (preparation of a landscape quality plan). The courses have also been open for non-participating farmers and other persons with relations to farming. Until 2000, the training has been obligatory for all participating farmers, however, according to the new Rural Development

Programme; training is now voluntary, except for participants in specific grassland measures. Compared to other EU countries the money spend on training has been high (Buller, 2000). The Swedish Ministry of Agriculture has made a smaller survey on the effects of training based on interviews of 5000 farmers. The research concludes, that an essential part of the farmers (77%) has changed behaviour after participation in one or more training courses. The research also shows, that participation in two training courses increases the chance for a changed behaviour (Jordbruksverket, 2000).

In sum, the Swedish AEP is well developed and ambitious regarding both objectives and budgets and compared to other countries educational aspects have been given much attention. The AEP indicated both substantial and organizational integration, but spatial integration is weak.

Table 4. Schemes, contracted area, target area and budget for the environmental part of the Swedish Rural development programme.

Schemes /measures	Area under agreement 1999 (ha)	Target area (ha) 2000[1]	Target area in % of UAA	Budget 2000-2006 bill.SEK
Conservation of biodiversity and cultural heritage values				56
Maintenance and enhancement of semi-natural pastures and meadows	211000	450000	7	
Conservation of valuable natural and cultural heritage environments	590000	930000	19	
Maintenance of open landscapes	798000	600000	26	52
Environmentally sensitive areas				46
Establishment of bonds and protectionzones	4363	11500	1	
Reduction of nitrate leaching	1145	50000	4	
Organic farming				
Training	Participants (1999)	Target (yearly)		
	72200	60000	all	10
Other measures				54
Total (environmental schemes)				218
Total programme				22.9

1) Target area according to the Rural Development Programme
Source: Jordbruksdepartementet (2000), unpublished data from Jordbruksdepartementet autumn 2000.

4. Agenda 2000 - the new CAP

It has been argued that the CAP "embodies incrementalism rather than reform" (Wilson et al., 2000, p. 259). And it is true, that the final version of the new CAP represents a much more moderate change in policy direction, than the version agreed upon between the EU Agriculture Ministers few weeks before the reform was approved by the leaders of the member states. However, seen from a policy integration point of view, Agenda 2000 does indeed have a number of important new regulations.

First, the conversion from production-oriented subsidies to area/headege based support started in the 1992 reform is continued in the 2000 reform. Thus, the intervention prices will be reduced during the budget period 2000-2006, grain by 15 per cent, beef by 20 per cent, and dairy products (from 2005) by 15 per cent. These price support reductions will most likely result in less intensive agricultural production in line with several environmental policy aims. Also the introduction of the so called 'national envelopes' for the dairy sector, which enables the member states to introduce specific area payments with attached environmental conditions offers some new opportunities to include environmental concerns into parts of the CAP.

Second, Agenda 2000 contains two horizontal rules for the direct subsidies (Reg. 1259/1999, art. 3 and 4), which are closely related to the integration of environmental concerns.

Article 3 concerns the 'Environmental Protection Requirements', according to which the member states "shall take the environmental measures they consider appropriate in view of the situation of agricultural land-use and the production considered". Petersen and Shaw (2000) have done a preliminary survey of how member states have responded to this article. According to this, a relative large number of member states have not (in the fall 2000) drawn up any environmental requirements. This is the case for Austria, Belgium, Germany, Italy, Luxembourg, Portugal, Spain, and Sweden, of which Austria, Germany and Sweden have announced, that they do not have any intentions of such requirement, whereas some of the other countries are still awaiting a decision. Between the member states, which do have requirements, there is considerable variation in the purpose and substance of the requirements. Finland, Ireland and Great Britain have requirements to ensure that overgrazing is reduced; in Denmark and Finland there are requirements to reduce nitrate leaching. In the Netherlands requirements have been set up for the use of pesticides in certain crops, in France irrigation regulations are part of the requirements and so are rules of environmentally friendly management of set aside areas in England.

Article 4, the other horizontal rule of relevance to policy integration, is dealing with the so called 'modulation regulations'. These regulations enable the member states to transfer funds from the ordinary payments under the Guarantee Section to the Rural Development Programme (RDP). Various criteria may be used to reduce direct payments such as labour force, the prosperity, and the amount of payments granted to individual farms. Two countries, England and France have chosen to make use of the modulation option, and in both cases the primary motive has been to increase the budget for the Rural Development Programme (Dwyer, 2000). In England 2.5 per cent of the marked support payments has been transferred to the Rural Development Programme 2000/2001. These 2.5 per cent will gradually increase to 4.5 per cent in 2006/2007 resulting in a doubling of the RDP budget (MAFF 2000).

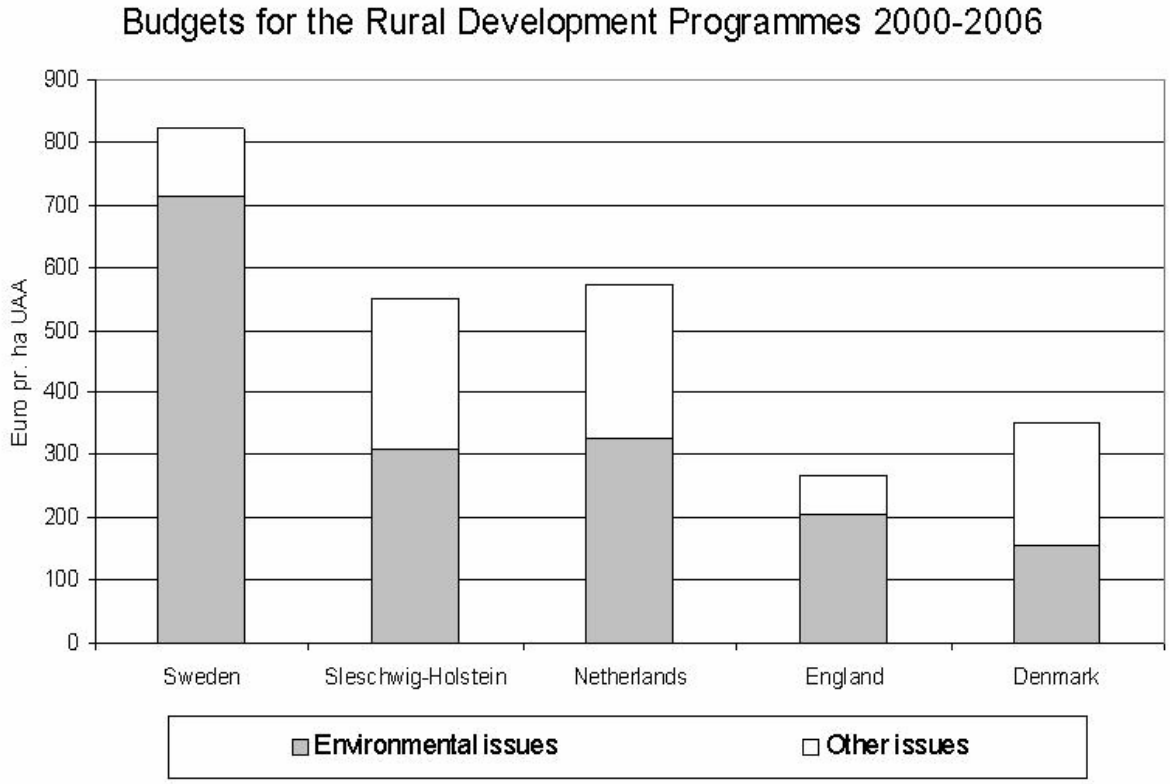
The third and final dimension to be mentioned is the Rural Development

Programme, which is an integrated part of the new CAP, although 50 per cent co-funded by the member states (25 per cent in objective 1 areas). The programme, which to a high degree is left to the member states to formulate consists partly of a continuation of existing measures such as the schemes for early retirement, afforestation, AEP, organic farming, less favoured areas, partly schemes for the modernisation and diversification. In addition, the RDP must include concrete rural development plans.

For the EU overall the RDP budget takes up about 10 per cent of the CAP budget. As for the former AEP, much freedom is left to the member states in designing the RDP.

Expressed in budget per ha utilized agricultural area (UAA) it is seen from Figure 4 that the Swedish budget is three times higher than the English is. It also appears from Figure 4 that the environmental dimension relatively seen is given much higher priority in England and Sweden than in the tree other countries. It may be argued that these national RDP budgets reflect, how and to what degree the member states seeks to integrate environmental concerns into the agricultural policies.

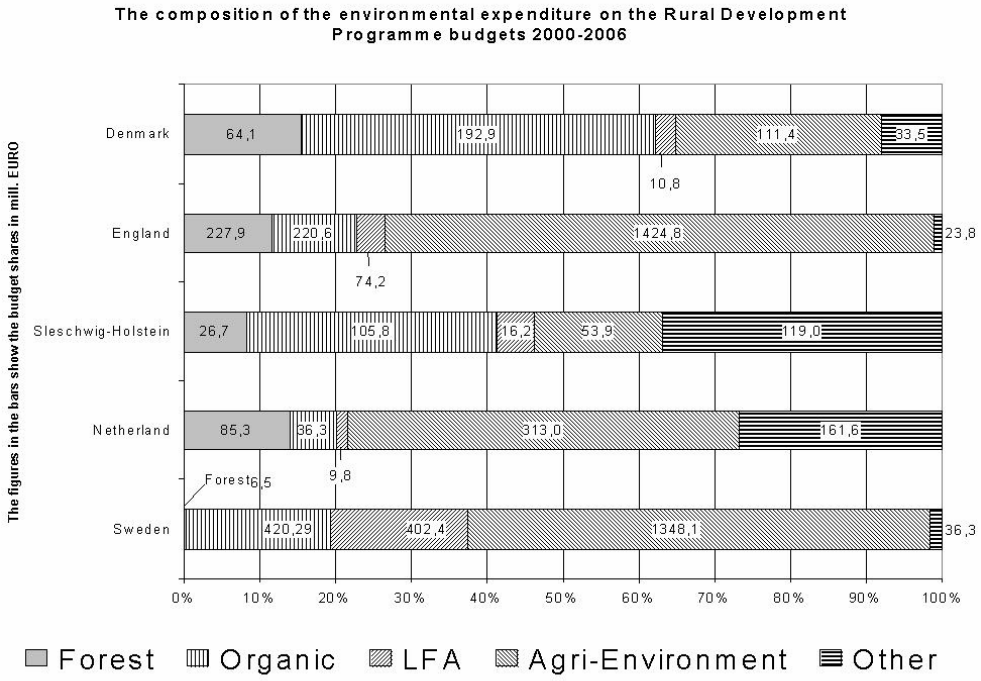
Figure 4. The budgets of the Rural Development Programmes in Sweden, Schleswig-Holstein, The Netherlands, England and Denmark shown as EURO pr. ha utilised agricultural area (UAA). The budget amounts have been split in two categories: "Environmental issues" and "Other issues".



Source: Fødevareministeriet (2000), Jordbruksdepartementet (2000), LNV (2000), MAFF (2000), MLR (2000).

From a nature conservation and landscape point of view, all the environmental categories are of relevance, although the most interesting ones are the Forestry scheme and the AEPs. The latter is given high priorities in England, The Netherlands and Sweden and relatively lower priorities in Denmark and Schleswig-Holstein. In none of the five countries, the forestry scheme plays a dominating role - but relatively seen it is given the highest priority in Denmark and the Netherlands, whereas forestry, for obvious reasons does not play any role in the Swedish programme.

Figure 5. The composition of the environmental part of the Rural Development Programmes budgets. The different components of the "environmental budget" are shown in per cent of the budget for environmental issues (Figure 4) and in million EUROs.



Source: Fødevareministeriet (2000), Jordbruksdepartementet (2000), LNV (2000), MAFF (2000), MLR (2000), MUNF (1999).

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5. Conclusions: the environmental role of agricultural policy

Integration of nature conservation and landscape objectives into the CAP has been a priority issue since the 1980's and has gradually developed since then. Especially agri-environmental policies (AEP) have played a key role in the integration of

environmental concerns with about 20 percent of the agricultural area in EU under agreement by 1998.
The new Agenda 2000 reform has reinforced the environmental aspects of the CAP, first of all through the introduction of the new Rural Development Programme (RDP) containing the former afforestation programmes, the less favoured areas scheme, the organic farming scheme, the AEPs (together with more socio-economic oriented schemes) and through the new horizontal regulations such as environmental requirements and modulation regulations.
The concrete design of AEP's has varied considerable between the member states and so has the uptake. In some member states including the four member states England, Schleswig-Holstein, The Netherlands, and Sweden nature conservation and landscape management have had a relative high priority compared to other AEP objective such as protection surface waters and ground water resources. Education and training programmes have been given relatively high priority as part of the Swedish AEP. In addition, the 'environmental proportion' of the RDP including the relative weight given to nature conservation and landscape objectives varies considerable between member states, with the highest proportions in England and Sweden. It is shown how the Swedish budget measured by costs per hectare agricultural land is considerable higher that the budgets in England, Schleswig-Holstein, the Netherlands and Denmark.
In sum, the substantial integration of environmental concerns into the CAP has grown since 1980's and the next revision of the CAP will most likely result in further growth of the environmental dimension. However, the CAP is still mainly a socio-economic instrument and it is difficult to judge how great the positive 'environmental impact' of the new CAP will be within the current budget period compared to the impacts associated with the CAP's role in maintaining intensive and environmentally harmful farming throughout Europe.
Considering the transfer of jurisdiction and responsibility, that is organisational policy integration, competences have to varying degrees been moved from the environmental sector to the agricultural. Internally this has been evaluated as a positive development also by the environmental sectors.
Finally, the member states have had different experiences with the spatial integration of objective and targets in the agricultural sector with environmental ones. Of the four member states studied, most spatial integration has been found in the Netherlands which has approved a plan for a national ecological network which function as an overall framework for big land acquisitions programmes and AEP schemes. Also England and Schleswig-Holstein has some spatial integration of environmental and agricultural policies, whereas this is poorly developed in Sweden.

The process towards more policy integration will with out doubt continue. It is however important to realise that the driving forces behind this, so far has been external actors mostly situated within environmentally oriented bodies such as nature conservation association and the like. The agricultural sector has only to a very limited degree played an offensive role in this process. Policy integration will therefore also in the future be dependant on a strong 'environmental sector' in the society in general.

References

ADAS. (1997). *Environmental Monitering in the Suffolk River Valleys ESA 1988-1996*. ADAS Report to the Ministry of Agriculture, Fisheries & Food.

Andersen. (2001). *Vedvarende græsarealer - Landbruget og reguleringen*. Hørsholm: Center for Skov, Landskab og Planlægning (FSL). Ph.D.-afhandling.

Andersen, E., Primdahl, J., Oñate, J.J., Peco, Cummings, C. Aguirre, J., Schramek, J., and Knickel, K. (1999). Environmental effects of agri-environmental measures implemented under Reg. 2078/92. I: Schramek, J., Biehl, D., Buller, H., Wilson (eds.), *Implementation and Effectiveness of Agri-environmental schemes established under Regulation 2078/92. Project FAIR1 CT95-274, Final Consolidated Report*. Frankfurt: Institut für Landliche Strukturforschung, Johan Wolfgang Goethe-Universität.

Andersen, E., Rutherford, A. and Winter, M. (2000). The beef regime. I: Brouwer, F. and Lowe, P. (eds.), *CAP Regimes and the European Countryside: Prospects for integration between agriculture, regional and environmental policies*. Wallingford: CAB International.

BBL. (1989). *Relatienota, Bureau Beheer Landbouwgronden*. Bureau Beheer Landbouwgronden.

Bowler, I. (1992, ed.). *The Geography of Agriculture in Developed Market Economies*. Essex: Longman Scientific & Technical.

Buller, H. (2000). Regulation 2078: pattern of implementation. I: Buller, H., Wilson, G.A., and Höll, A. (2000, eds.), *Agri-envrionmental Policy in the European Union*, 219-253. Aldershot: Ashgate.

Buller, H., Wilson, G.A., and Höll, A. (2000, eds.). *Agri-envrionmental Policy in the European Union*. Aldershot: Ashgate.

Busck, A., Kristensen, L., Primdahl, J., Tom-Petersen, P. and Vejre, H. (2001). *Integration af natur- og landskabshensyn i landbrugspolitikken*. Frederiksberg: DSR Forlag.

Carlsen, H. and Hasund, K.P. (2000). Sweden: agri-environmental policy and the production of landscape qualities. I: Buller, H., Wilson, G.A. and Höll, A. (2000, eds.): *Agri-environmental Policy in the European Union*, 51-71. Hampshire: Ashgate.

Carson, R. (1962). *Silent Spring*. Boston: Houghton Mifflin Company.

CEC. (1985). *Perspectives for the Common Agricultural Policy, The green paper of the Commission, COM 85 (333)*. Luxembourg: Office for Official Publications of the European Communities.

CEC. (1986). *Agriculture and environment: Management agreements in four countries of the European Communities*. Luxembourg: Office for Official Publications of the European Communities.

CEC. (1993). *Towards sustainability - a European Community programme of policy and action in relation to the environment*. Luxembourg: Office for Official Publications of the European Communities.

CEC. (1999). *Agriculture, environment, rural development. Facts and Figures*. Luxembourg: Office for Official Publications of the European Communities.

Commoner, B. (1971). *The Closing Circle - Nature, Man and Technology*. New York: Alfred A. Knopf.

Countryside Agency. (2000). *The state of the countryside 2000*. Wetherby: Countryside Agency Publications.

DG VI. (1998) *State of Application of Regulation (EEC) no. 2078/92: Evaluation of Agri-Environment Programmes*. DGVI Commission Working Dokument VI/7655/98.

Dwyer. (2000). Report on the Implementation of Reg. 1257/1999 in the Member States. Prepared for a Seminar held in Brussels, 10 April 2000, and hosted by the British countryside agencies.

Eurostat. (1997). *Agriculture: Statistical yearbook 1997. Detailed Tables. Themes 5, Agriculture, forestry and fisheries*. European Commission.
Eurostat (1999). *Agriculture: Statistical yearbook 1999. Detailed Tables. Themes 5, Agriculture, forestry and fisheries*. European Commission.
Fødevareministeriet. (2000). *Det danske program for støtte til udvikling af landdistrikter i henhold til Rådets forordning (EF) nr. 1257/1999*. Ministeriet for Fødevarer, Landbrug og Fiskeri.
Grafen, A. and Schramek, J. (2000). Germany: complex agri-environmental policy in a federal system. I: Buller, H., Wilson, G.A., and Höll, A. (2000, Eds.): *Agri-envrionmental Policy in the European Union*, 119-143. Aldershot: Ashgate.
Green, B. (1996). *Countryside Conservation* (3rd edition). London: E & FN Spon.
Green B.H. (2000). Policy, planning and management initiatives in European cultural landscape conservation. I: klijn, J. and Vos, W. (2000, eds.), *From landscape ecology to landscape science*, 57-71. Dordrecht: Kluwer academic publishers.
Gilg, A.W. (1996). *Countryside Planning*. London: Routledge.
Hart, K. and Wilson, G.A. (2000). United Kingdom: From agri-environmental policy shaper to policy receiver. I: Buller, H., Wilson, G.A., and Höll, A. (2000, Eds.), *Agri-envrionmental Policy in the European Union*, 95-117. Aldershot: Ashgate.
Huylenbroeck and Whitby. M. (1999). *Countryside Stewardship: Farmers, Policies and Markets*. London: Pergamon.
Informatie- en Kennis Centrum Landbouw. (1998). *De beoordeling van een bestuurlijk experiment met zelfsturing door milieucoöperaties*. Informatie- en KennisCentrum Landbouw 1998.
Jordbruksdepartementet. (2000). *Miljö- och landsbygdprogram för Sverige år 2000-2006*. Stokholm: Regeringskansliets Grafiska Service.
Jordbruksverket. (2000). *Attitydunderökning om miljöutbildning för lantbrukare (2000:8)*. Jönköping.
Jordbruksverket. (2001). *Stöd för miljövänligt jordbruk 2001. Eu-information*. Stokholm: Tryckhus 2.
Lammers og Zadelhoof. (1996). The Dutch national ecological network. I: Nowicki, P., Bennett, G., Middleton, D., Rientjes, S. og Wolters, R. (eds.), Perspectives on ecological networks, European Centre for Nature Conservation, ECNC publications series in *Man and Nature, vol.I august 1996.*
LNV. (1990). *Nature policy plan of the Netherlands.*, The Hague: Ministry of Agriculture, Nature Management and Fisheries.
LNV. (1999). *Plattelandsontwikkelingsplan Nederland - ter invulling van Verordening (EG) Nr. 125771999 van der Raad, van 17 mai 1999*. Den Hauge: Ministerie van Landbouw, Natuurbeheer en Visserij.
LNV. (2000). *Plattelands Ontwikkelings Programma Nederland 2000-2006 – samenvatning*. Den Hauge: Ministerie van Landbouw, Natuurbeheer en Visserij.
MAFF. (2000). *England Rural Development Plan 2000-2006*. Ministry of Agriculture, Fisheries and Food.
Meadows, D. H., Meadows, B.L., Randers, J. og Behrens, W.W. (1972). Grænser for Vækst. *En rapport til Romklubbens projekt vedrørende menneskehedens truede situation*. Gyldendal.
MLR. (2000). *Zukunft auf dem Land - Programmplanungsdokument für die entwiklung des ländlichen raumes ausserhalb ziel 1 in Schleswig-Holstien (Deutchland) 2000 bis 2006*. Ministerium für ländliche Räume, Landesplanung, Landwirtschaft und Turismus des Landes Schleswig-Holstein.
MUNF. (1999). *Landschaftsprogramm Schleswig-Holstein 1999*. Ministerium für Umvelt, Natur und Forsten des Landes Schleswig-Holstein.

Official Journal. (1992). *Official Journal of the European Communities*, L-series. no. 206, 22.7.1992. 7 ff.

Olwig, K. (1984). *Nature's Ideological Landscape*. London: George Allen and Unwin.

Petersen, J.-E. and Shaw, K. (2000). Overview of Cross Compliance Measures in EU Member States. I: Petersen, J.-E. and Shaw, K. (Eds.), Environmental standarts in Agriculture, pp XLIV-XLX. *Proceedings of a Pan-European Conference on Meeting of Environmental standards under Agenda 2000*. London: Institute for European Environmental Policies.

Potter, C. (1988). Environmentally sensitive areas in England and Wales. An experiment in countryside management. *Land Use Policy, July 1988*, 301-312.

Potter, C. (1998). *Against the Grain. Agri-environmental Reform in the United States and the European Union*. Wallingford: CAB International.

Primdahl, J., Peco, B., Schramek, Andersen, A. and Oñate, J. (in press): *Environmental effecte and effects measurement of agri-environmental policies*. Manuscripe to be submitted to 'Agriculture, Ecosystems and the Environment'.

RIVM. (1997). Rijksinstituut voor Volksgezondheid en Milieu, Informatie- en KennisCentrum Natuurbeheer, DLO-Instituut voor Bos- en Natuuronderzoek, DLO-Landbouw-economisch Instituut, DLO-Starring Centrum 1997: *Natuurverkenning 97*, Alphen aan den Rijn: Samsom H.D. Tjeenk Willink bv.

RIVM. (2000). Rijksinstituut voor Volksgezondheid en Milieu. Research Instituut voor de Groene Ruimte og Landbouw-Economisch Instituut (LEI) 2000: *Natuurbalans 2000*. Alphen aan den Rijn: Samsom H.D. Tjeenk Willink bv.

Rydin, Y. (1993). *The British Planning System*. London: Macmillan Press

Rønningen, K. (1995). *Reformed Agricultural Policies and the Landscape Conservation and Management Scheme in Sweden*. Trondheim.

Rønningen, K. (1998). *Agricultural policies and countryside management. A comparative study*. Trondheim: Department of Geography, Norwegian University of Science and Techonology. Dr. Polit thesis.

Scheele, M. (1996). The Agri-environmental Measures in the Context of the CAP Reform. I: Whitby, M. (ed.), *The European Environment and CAP Reform. Policies and Prospects for Conservation*. Wallingford: CAB International.

Stanners, D. and Bourdeau, P. (1995, eds.). *Europe's Environment. The Dobris Assessment*. Copenhagen: European Environment Agency.

Stiftung Naturschutz Schleswig-Holstein. (1998). Stiftung Naturschutz Schleswig-Holstein 1978-1998.

Sørensen, C.H. (2000): Er sektorintegration mulig. I: Holten-Andersen et al. (2000), 162-173.

Vos, W. and Meekes, H. (1999). Trends in European cultural landscape development:perspectives for a sustainable future. *Landscape and Urban Planning 46*, 3-14.

Van de Ven, G.P. (1996, ed.). *Man-made lowlands: history of water management and land reclamation in the Netherlands*, 3rd edition. Uitgeverij Matrijs.

Wascher, D.W. (2000, ed.). Agri-Environmental Indicators for sustainable agriculture in Europe. European Centre for Nature Conservation. ECNC. *Publication Technical report series*. Tilburg.

Wilson, G.A., Buller, H. and Höll, A. (2000). Conclusions: agri-envrionmental policy beyond Regulation 2078. I: Buller, H., Wilson, G.A., and Höll, A. (2000, eds.). *Agri-envrionmental Policy in the European Union*, 255-260. Aldershot: Ashgate.

Whitby, M. (1996, ed.). *The European Environment and CAP Reform. Policies and Prospects for Conservation*. Wallingford: CAB International.

www.maff.uk (1999). http://www.maff.gov.uk/environ/envsch/Agnum.htm Informations from the Ministry of Agriculture, Fisheries and Foods homepage. Quoated on the 30th of August 2000, last updated 18.05.99.

Ziesemer, F. (1990). The German Extensive Farmland Programme: Schleswig-Holstein. *Landscape and Urban Planning 18 (1990),* 241-245.

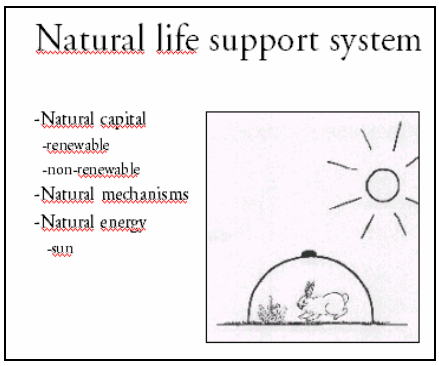
It is a common notion that love makes you blind. Standing here at one of the grand old Danish Folkhighschools I find it appropriate to quote the thinker behind these unique institutions, Grundtvig, although it is almost impossible to do so in a foreign language. He wrote in one of his popular songs the opposite of the common notion: You can not be wise on any matter if you do not cherish it. That position was one of his crucial keys to religion, education, and political economy.

Following Grundtvig's position I will underline, that it is not my intention to present state of the art in general but to give a brief outline of paradigms that I cherish.

The paradigms I have in mind imply a certain view upon rural areas: They are not to be preserved as museums for nostalgia, not to be given "artificial respiration" through subsidies to agriculture and other rural activities nor in other ways be "saved" by means of good will from urban population and well-meaning politicians. It is quite the opposite: rural areas should be seen as the key to gain sustainability in post-industrial societies. Thus, it is rather the rural areas to "save" the urban.

To state this conclusion it is necessary to sketch the underlying interdisciplinary approach that tentatively can be labelled as the political economy and ecology of ruralisation. The point of departure is the challenge to post-industrial society to gain sustainability and the scientific platform is based on natural as well as social sciences and concern interaction between three allocative systems: the ecological, the economic, and the political.

1.Sketch of the conceptual platform



Sustainability is clearly related to the basic principles of ecology. Food and gas are the basic cyclical elements of ecology while energy provided by means of sunshine make the system work, illustrated in the figure with the rabbit and lettuce under an airtight dish cover; alone they would die, brought together they form a living system. The elements and relations in that system

constitute the foundation of understanding and assessing sustainability. Resting for a moment by the simple picture of ecology, there are no problems of sustainability when the species are left alone in their ecological cycles and evolution. That is so, because the basic mechanisms of nature then are exclusively in power. In that case the ecosystems will ensure that basic mechanisms will function and that the totals of living organisms automatically are balanced out to ensure that no organism extend the limited capabilities of the system regardless whether the perspective is local or

global. This system can be labelled as a natural life support system.
In relation to natural life support systems sustainability presume two crucial points. One, actions that involve hazardous damage to the basic cyclical mechanisms must be avoided. Two, balance between the number of organisms – i.e., number of rabbits and amount of lettuce – must be ensured. So, we have to consider both function and capacity.

In nature food is nothing but biological input and the system is outbalanced by its own means. Problems do arise when one of the species (i.e., mankind) evolves and applicate skills (i.e., technology) to offset or modify the function, or to go beyond the bounds of the systems' carrying capacity for instance due to overuse of resources. When so, mankind incurs responsibility in relation to *sine qua non* for fellow men in time and space.

When human beings have entered the picture, it is also necessary to consider sustainability and natural life support systems from a social point of view and then ask: Does present social organisation support or counteract damage according to function and balance according to capacity?

Thus, from a social point of view…

- Does present social organisation (institutions and structures) support or counteract damage according to function and balance according to carrying capacity?

Related to the latter questions complex difficulties emerge as food in modern world is not only a biological input but a commodity too. Then food supplementary is a source of revenue to farmers, industries, distributors, scientists, bureaucrats, etc., and then also become an element in an economic system. The actors mentioned are gathered in social institutions and are parts of social structures in which goods are produced and social experience and knowledge are produced and reproduced. These complex structures and institutions can support or counteract sustainability. From a social scientific point of view structures and institutions in which technology is adapted and evolved are then important analytical concepts when sustainability is studied.

Technology
Now that I have turned my focus to human production, I will continue making a couple of statements about technology.

It is a basic function of any society to provide and ensure means by which the members can comply their reproductive

needs. That fact imply productive activities; technology then becomes a crucial affair from a social point of view and a sphere by which a society might be characterised.

'Technology' is in everyday comprehension most often interpreted as technical devices and matters. However, this is an inadequate limitation of the conceptual meaning where crucial social dimensions are cut off. In the Greek origin the concept consist of two parts, *techne* and *logos*. *Techne* is art and craft while *logos* is knowledge.

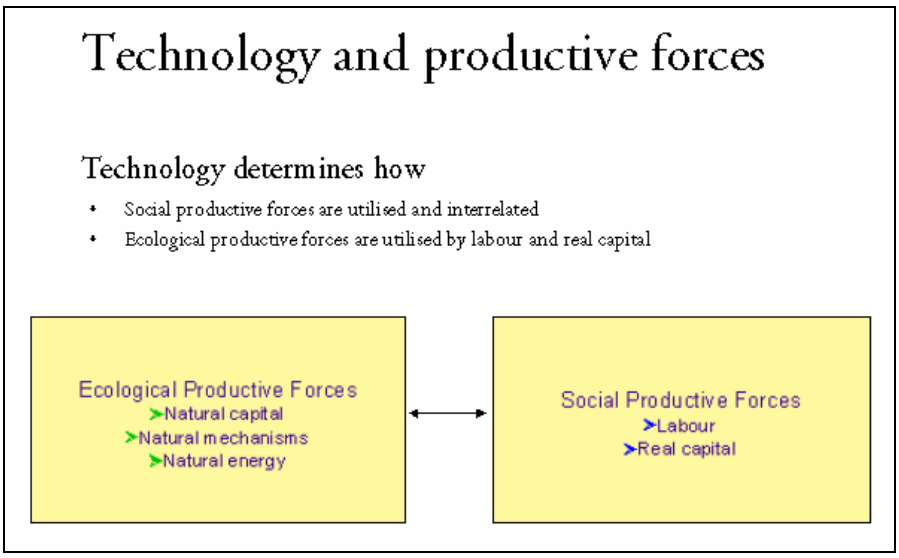
Combining *techne* and *logos* we face productive and reproductive activities, the tools, the labour with certain skills and knowledge, and the way in which the activities are organised. Tools are technical devices as machinery, hand tools, buildings, etc., - i.e. equipment that in economics is labelled as real capital. The labour is not only the physical power of human beings but particularly their skills and knowledge provided by their individual and social experiences and by institutions that provide research and development. Skills and knowledge pertain to the ways in which the tools effectively are used in correspondence with material and labour. Organisation of the activities, however, pertain to the social framings in which the productive activities are carried out besides the relations between

the elements included in the productive activities.

Putting this into an actual approach seen from a social point of view imply the necessity to understand technology as consisting of three elements:

- Technical devices,
- skills/knowledge, and
- social organisation.

So, technology is related to technical matters considered in the social context; the latter being the social framings in which techniques and tools are applied and organised. In this sense technology is dealing with social organisation of productive activities and the inclusion of nature in these. In this sphere it is also determined whether the productive and reproductive activities are sustainable. That is so because it is in social organisation the interplay between human activities and natural life support systems is determined. To underline that point, I will go just one step further in my investigation of technology.



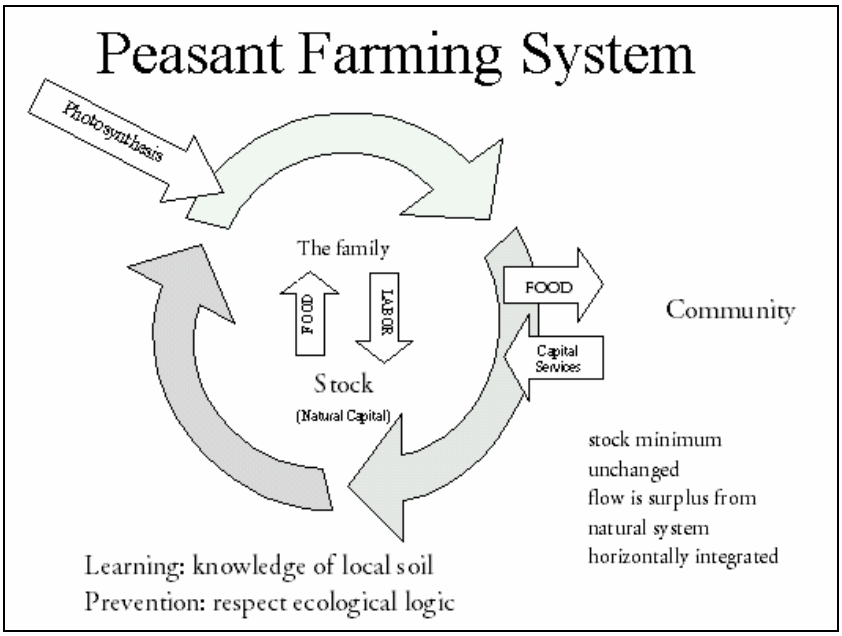
The material structures in which the productive activities must take place consist of two main parts: those made by nature and those moderated by man. Both are necessary conditions to carry out social production; for that reason social production must be based on two kinds of productive forces i.e., the ecological and the social. The ecological productive forces cover natural capital and natural mechanisms that in unity provides the fundamental basis for human life – so ecological productive forces are the forces embedded in natural life support systems.

The social productive forces – embedded in societies – cover the human performance by means of labour and real capital. It is important to underline that the working capacities involve a physical dimension (the labour of hands) and a mental dimension (the labour of minds) – for instance the ability to co-operate and learn, cognisance, etc. The latter dimension could also be labelled as human resources. Among the two productive forces, the ecological is claimed to take precedence over the social due to the obvious fact that the ecological forces can

exist (i.e., produce and be reproduced) independent of the social forces while the opposite situation is impossible. The ability of the social productive forces to produce and reproduce is fatally depending upon the ecological forces regarding both natural capital and natural mechanisms. The human reproduction as individual and as specie is for instance only possibly by means of biological mechanisms; simultaneously construction of real capital is only possible by means of natural resources converted by means of human labour. As individuals, society, and specie we therefore bear a fatal interest in – and responsibility for – maintaining the natural capital and avoiding damaging intervention in natural mechanisms when we carry out productive and reproductive activities. Just to make sure, I have to add that although the social productive forces rest upon the ecological, we of course have to be careful and bear forethought in our use of social productive forces too.

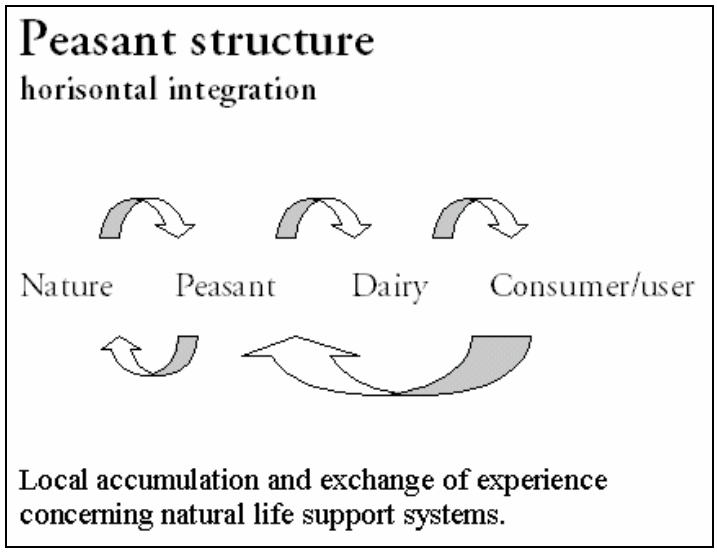
4. Agriculture and the environs – a historical illustration

From the comments above follow that technology (and then human interplay and exchange with natural life support systems) both affect and depend upon social environs. I will try to illustrate this interdependence by means of a brief historical illustration of agriculture.



The peasant production system went through changes when conversion into livestock production took place in several countries around year 1900.
However, the applied technology was still founded so that the farm constituted an ecological unit (including livestock and grain) and that unit was part of a local and transparent cycle. This system implied a high degree of farm self supply in relation to energy and raw material. It implied a certain consciousness too. The transparent reliance

and dependence upon natural life support systems did provide the foundation for a cyclical common notion of nature as well as of society. This notion was often explicitly stated as a comprehension concerning property rights of future generations: the soil should at least be passed on to the next generation as fertile as received from the past. Basis for this comprehension was experience and knowledge; if the farmer managed his livestock or soil contrary to the biological logic of ecological cycles he would experience negative productive reactions from livestock and soil. These negative reactions would further result in negative economic performance and then economic pressure on the family. Shortage of material opportunities could off course force the families to act short-sighted and then to ignore long term considerations. However, without romanticising the past, one can conclude that farming technology then was ecological; and a functional integrity between labour (often the farmer and his family) and the local natural life support system was maintained.

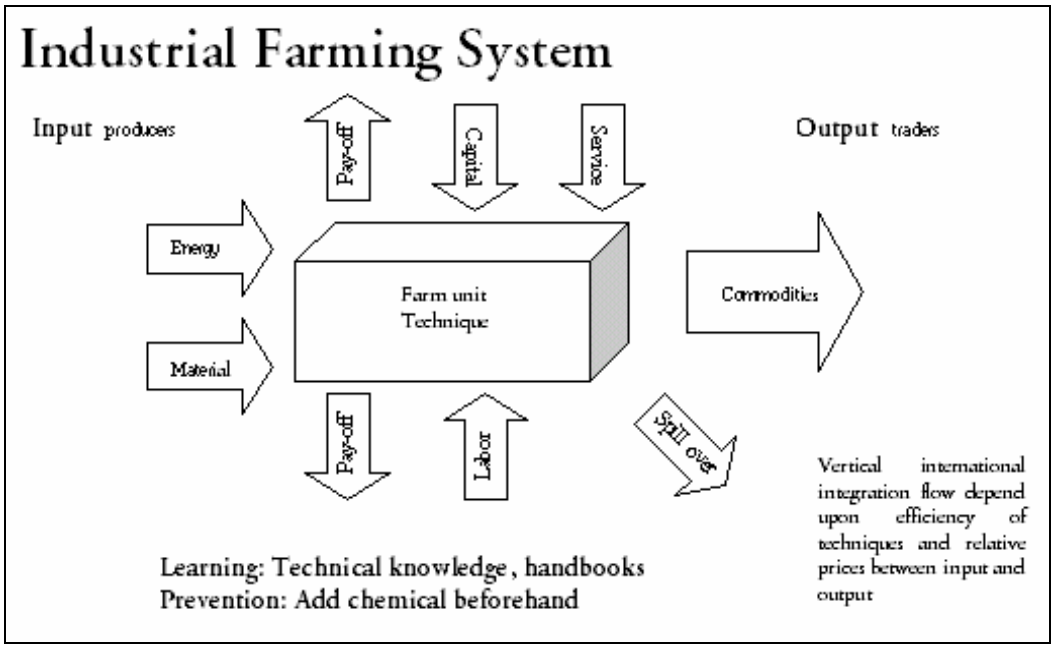


The surplus from the ecological cycle -- produced by means of photosynthesis, labour and natural capital (primarily soil) -- could be exchanged with the external economy. However, this exchange took for a major part place at local level implying a relatively close relationship between producer and consumer -- in other words the social cycle too was transparent and rather horizontal. This implied that the consumer personally could experience the ecological cycles, while the farmer simultaneously could face the consumer and receive reactions from the latter concerning the food supplied. This user-producer relationship was basis for a mutual understanding and for directly sharing of the responsibilities attached. Similarly the farmer could in general experience how the potential spill over would affect the environs and how input to his farm was provided.

Industrialisation of Farming

After world war II industrialisation of farming was speeded up which in turn

implied a rather rapid technological transformation. However, the scientific basis was for a great part already established in the mid 19th century primarily attributed to the German chemist, Justus von Liebig (1803-1873) (Liebig 1840). He laid down the theoretical foundation for applying chemicals in agriculture stating that the plants should only be supplied with water-soluble nutrients produced in an artificial/industrial way. In his alternative statement Liebig simultaneously and explicitly rejected the common conception of that time which stated that efficiency of the living microbes in soil was the key to adequate and efficient farming. By means of Liebigs' alternative approach the dynamic comprehension of natural life support systems -- as farming was understood hitherto -- could be substituted by a more clinical and industrial notion of an input-output production system. This system was to a high degree designed as decoupled from local natural life support systems and potentially also decoupled from local community.



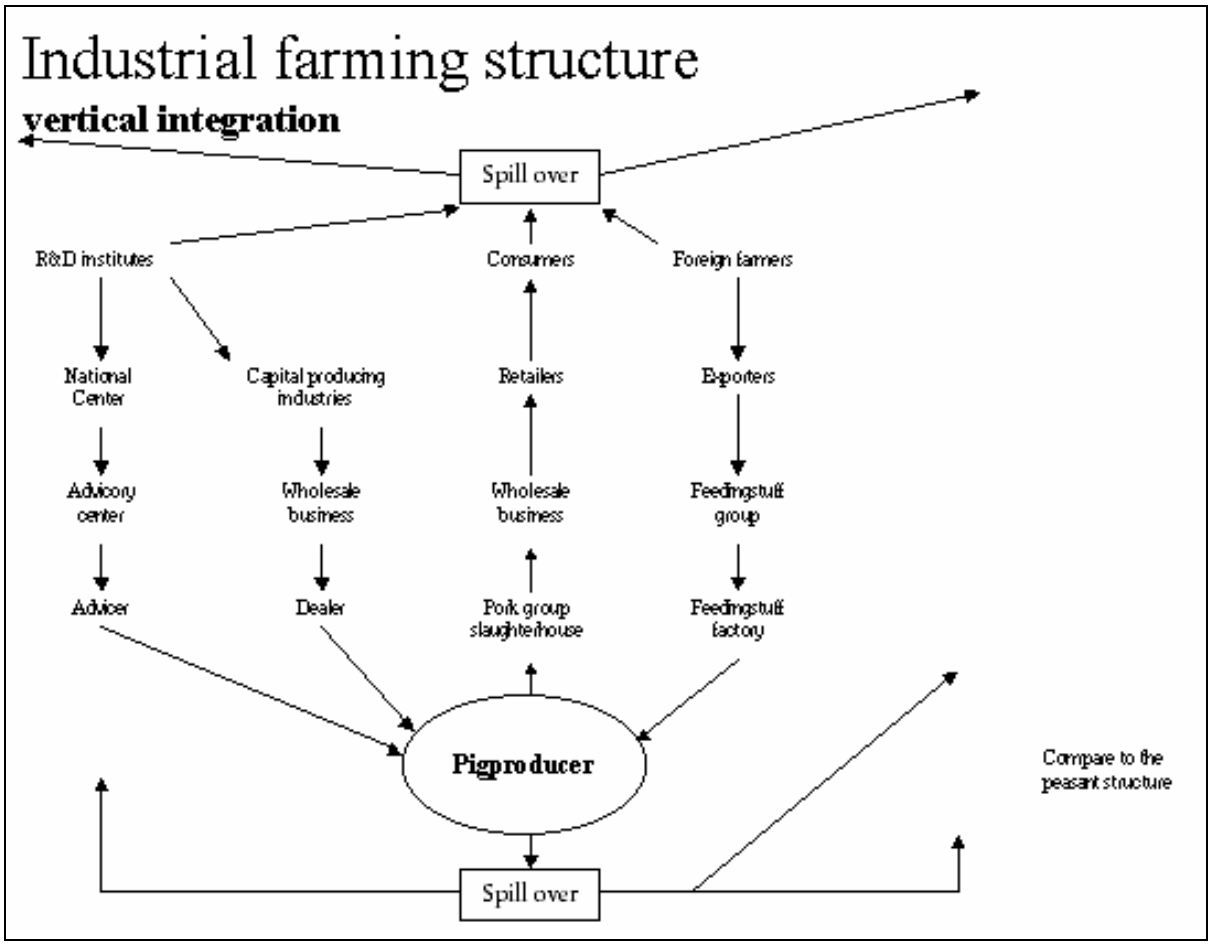
In the mid 20th century the theoretical basis as well as an affiliated notion of decoupled relations between man and natural life support systems had thus already been offered for about 100 years. So the agricultural innovation in the mid 20th century did not reflect a new scientific but rather a new social invention. The structural and institutional framework of agriculture became transformed to enable implementation of this alternative technology.

Introducing industrial technology in farming involved a distinct break with the up to then practised relation between man and natural life support systems besides a similar break with attached institutions. The peasant was transformed into a specialised producer organising his production relatively detached from the ecological cycles looking upon soil as dead material. Direct interrelation and

interaction with natural capital and biological mechanisms were to a still wider degree substituted by technical approaches enabling an endless reiteration of similar processes on similar objects. This reiteration on similar objects implied a need to adjust the objects -- fields and animals -- to similarity. Simultaneously the main part of the necessary inputs was reached outside the local ecological cycle and then outside the local natural life support system; for instance energy and industrial raw material. Besides, the application of various chemical inputs, such as pesticides and antibiotics, implied that biological indications of mistreat were missed. Indications such as rotation crop and livestock diseases were no longer interpreted as symptoms of the farmer's inadequate knowledge and experience but as inevitable parts of production. According to the new approach such symptoms should just be cured through appliance of systematic -- most often chemical -- treatment. Finally, the detachment involved a new demarcation between crop and livestock production by which manure latent was interpreted as troublesome waste and not -- as hitherto -- as a valuable and integrated element in an efficient symbiosis between livestock and soil.

Thus, the cyclic ecological relation between man and nature was substituted by a linear were agriculture to a certain extent became detached from living biology and interpreted and organised as an iterative production process; input in one end and output in the other. Nature then became an outdistanced object and the functional integrity between man and nature tended to disappear. The conversion also implied new fields of experience whereafter human learning about agriculture and natural life support systems changed. Where the peasant of the past experienced that action adverse to basic ecology (knowledge about fundamental principles of cycles in nature) would give a negative pay off, the modern farmer experienced that action adverse to industrial logic would give a negative pay off -- for instance if he avoided pesticides. Certainly, not because nature or logic of its fundamental mechanisms was transformed but because the social institutions and structures around agriculture were so.

Supplementary the industrialisation caused a decoupling from the local level, whereafter inputs were provided from industries around the world and the farmer lost the breath of view of the interrelated connections his farm became part of. Thus he lost insight in the production of his inputs and the following dependence on natural life support systems in various parts of the world. Farmers' horizontal integration was then substituted by vertical, international integration where the individual farmer became a tiny part in an international system hard or impossible to take in. This internationalisation also implied that farmers tended to be separated from consumers who became spread all over the world and then became rather invisible and the user-producer relationship tended to disappear. Similarly spill over -- for instance pesticides -- from farming seemingly disappeared out in nowhere whether these occurred at the farm providing food to the processing enterprises or at the farms in other parts of the world producing produce as input to the former.



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3. New paradigms involving ruralisation as key to gain sustainability

Over the past decades an increasing awareness has been dawning in the so-called developed world that sustainable development is necessary to alleviate local, national and global problems afflicting the natural life support systems. However, a more comprehensive and fundamental modification of behaviour towards sustainability has yet to be attained. This is the case although most of us presumably know - and many of us obviously know - that a good deal of our actions are not sustainable. But with the current institutional framework and the social structures within which we act, we can only hardly do otherwise. Of course as an individual I can modify parts of my daily actions and routines; I can even opt out and move to an uninhabited island and live my life in harmony with nature - perhaps even bring along a couple of similarly disposed friends. But none of these options fundamentally affect technology because the latter involves *social* organisation and then is a social matter only to be transformed by means of social decisions and collective actions.

Necessary allocative systems

System	Allocate	Rationality
Natural life support systems	Matter among natural elements	Ecology
Economy	Exchange value among citizens	Supply and demand
Political	Social framings, reallocate exchange value	Governance

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Thus, a new institutional and structural design of post industrial society is asserted as an urgent task. To gain such sustainability, respect for the ecological forces of production is a prerequisite. On the other hand it is also necessary to recognise that the purpose of societies' productive efforts is to meet human needs *and* in fulfilling that task, the social forces of production is a prerequisite too. These two productive forces are attached to different allocation systems. Within natural life support systems ecological mechanisms are in power and they concern allocation and circulation of matter in the environment of which human beings are a part. Due to technology and the ensuing production, humanity has introduced its own supplementary allocation system (economy within politically-established framings) concerning society's allocation and circulation of exchange value between citizens. Both ecology and economy are realities necessary for human production and reproduction. So, we cannot abolish ecology nor economy. Conversely we can change the institutional and structural framings for the economy and so politically determine society's trajectory by means of the third system: The political system that is also an allocative system - as stated in the famous definition proposed by Easton (the political system is an authoritative allocation system). I can add that already Adam Smith pointed out that the economic system must be coincided by a political system.

To sum up, the *general* social task is to deal with three different systems and three different sets of rationalities and be able to keep proper balance between them. In the industrial epoch that point was missed when social institutions and structures were developed as if human production and reproduction only rely on the economic system. As the World-Commission put it, present generations act as if they are the last human beings on this earth and that is why we face several problems according to function and capacity of NLSS. Thus the *specific* task for post-industrial societies is to gain that balance between the necessary allocative systems and their different sets of rationalities.

In this connection rural areas are (and will always be) the space where the natural and social allocative systems meet and most obviously interrelate and interchange. Thus, these areas hold the key to abolish the current mismatch between the systems. Not so, that mismatch are not present there for the moment being but in rural areas there exist an obvious potential to recouple ecology and economy which - of course - imply necessary decisions and actions from the political system too.

How do we do it then? I will claim that no one - for the moment being - have a final recipe. Thus, the necessary knowledge and experience must be produced. We can use inspiration from the past - for instance acknowledge lessons from the peasant system as introduced above. But we can not turn the clock backwards and return to previous trajectories.

The proper and adequate solution is to carry out social experiments to produce the necessary knowledge and experience concerning institutional and structural design of sustainable technology in post-industrial societies. In this connection it must again be remembered that technology both consist of technique and social organisation. We do not necessarily have to wait for new inventions and innovations on the technical level. Evolving organisation of society - which is the other dimension of technology - can advance more sustainable utilisation of natural life support systems and a proper balance between the allocative systems.

The new paradigms stress

- The need to balance allocative systems
- Social evolution as a result of interplay between conditions and choice between options
- Policy and politics are crucial for collective action
- Innovative capabilities of grass-roots; especially their capability to develop democratic and error-friendly technologies
- Empowerment

Some experiments aiming at the knowledge and experience called for above are already carried out by grassroots-pioneers. Simultaneously, paradigms are evolving to support, guide, and explain rural urban co-development, sustainable technology, and institutional and structural design of society.

The paradigms bring attention to the interaction between the ecological and the social system, as I have briefly tried to sketch. They claim that social evolution is the result of interplay between natural and social conditions on one side and choice between optional decisions and actions on the other. Thus given preconditions can be altered trough time. The stress put on optional decisions and actions make policy and politics a crucial social field for decisions (or non-decisions) and actions. In this field it is for instance decided what types of decisions should be made by the market (and then left to economic mechanisms as demand and supply) and which types by political institutions (and then left to governance).

The paradigms also stress respect for representative government but not only as a matter of voting. To ensure adequate balance between the allocative systems it is necessary to ensure common empowerment to adequate collective action. In this connection the paradigms acknowledge that it is often grassroots-pioneers more than scientists in white coats and professional decision-makers that have have brougth forward error-friendly, prosperous and sustainable inventions and innovations to ensure balance between the three allocation systems.

On this common basis current experiments and theoretical reflections can be divided in two, interrelated types:

- Ruralisation of urban areas
- Revitalisation of rural areas

Experiments and reflections

	First step	Aim
Ruralisation of urban areas	Limited self-supply, recirculation of nutrients, renewable energy	Recouple urban setting with NLSS
Revitalisation of rural areas	Local user-producer systems, Ecological Expermental Areas	Sustainable post-industrial trajectory

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The first type is characterised by taking urban areas as the starting point and it cover experiments and theoretical reflections aiming at solutions to make urban areas more sustainable. The experiments primarily concern more limited step-by-step solutions; for instance housing associations that introduce gardening in common areas or in land rented from farmers in outskirts. Simoultaniously they introduce recirculation of nutrients, renewable energy, etc. Literally and figuratively these experiments imply greening of urban areas and efforts to recouple human settling with natural life support systems. The more radical and long term theoretical reflections point out that further and more fundamental ruralisation of towns is necessary. The suggestion is that quarters gradually are moved to new rural-urban areas in outskirts to ensure a more effective linkage between human activity and natural life support systems.

The second type, revitalisation, is characterised by taking rural areas as the starting point. The advocaters point out, like the advocaters of the first type, that rural areas constitute the most obvious linkage between natural life support systems and human activity. Supplementary they also stress that rural areas have a clear social organisation and a clear interplay between institutional and structural framings. Besides, they add that several rural areas contain deliberative competence and traditions for collective actions on a bottum-up basis. Although some kind of ruralisation is seen as a necessary prerequisite to gain sustainability it is not sufficient. Rural areas can not under present conditions be characterised by a sustainable coupling between ecological and social systems. So the more short sighted experiments aim to re-establish local user-producer relations especially concerning foods, recirculation of nutrients, production and distribution of renewable energy etc.

The more radical reflections and experiments concern Ecological Experimental Areas (EEA's) that are suggested as means to carry out more holistic experiments on a 1:1 scale. EEA's are geographically specified areas in which communities with belonging countryside can conduct experiments concerning the means by which not only delimited sub sectors but an entirely sustainable society can evolve. It is pointed out that the EEA's must be founded in *existing* communities because the

aim is to explore how present society can evolve institutions and structures supporting sustainable technology as an entire and consistent system able to produce and reproduce. Further, basis in existing communities imply experiments concerning both the process and the substance. The *process* because the findings will indicate how to evolve society from present stage to sustainable stage. The *substance* because the findings will indicate how to design social framings that enables a sustainable interplay between the three allocative systems.

Finally, let me conclude.

The sketched paradigms call for comprehensive modifications of behaviour. That imply fundamental changes in design of social structures and institutions including re-establishment of rural-urban co-development founded on a conscious recognition of function and capacity of natural life support systems. Regard for natural life support systems must be couched in the basis for the social rationale just as is the case with democracy and human rights in our part of the world. By the way, who would for instance seriously calculate whether the monetary benefits in current prices will exceed the monetary costs if we abandon freedom of speech? Ladies and gentlemen, this is a crucial point: It does not make sense to asses the outcome of one system (i.e. NLSS) by means of the rationality of another system (i.e. economy). We have to cope with several different rationalities in several different but interrelated systems, each being necessary but not sufficient prerequisites. Together they form the existential prerequisites for us as human beings. This is the challenge to the rural areas in the 21'th century.

Roddy Macminn
Frank W. Rennie

Measureing the Sustainability of a Rural Community, a Case Study from Barvas, The Isle of Lewis, Scotland

1. What do we mean by "sustainable development"?

This paper is an attempt to refine appropriate indicators of sustainable rural development at the level of individual geographical communities. An immediate problem with this is in defining the scope of the subject matter and agreeing workable definitions of the three key concepts, “sustainability”, “development”, and “community”. Early development theories and agendas were dominated entirely by motivation of the economic argument, and while this belief persists (particularly among the New Right) the agenda has fortunately long ago widened out to include a recognition of the value of social development activities, including health, education, housing, and cultural activities. In this paper we have adopted a working definition of sustainability, which encompasses the environmental, socio-cultural, economic, and equity aspects of rural life.

The search for "sustainability" in development initiatives has become a mantra, which is repeated, in a wide variety of contexts, and for very different reasons. While there are ample definitions of "sustainable development" (Carley and Christie 1992; Hardi and Zdan, 1977; Shepherd, 1998; Robertson, 1999) and a plethora of indicators for specific situations, (Farrell and Hart, 1998; UNESDA, 1998; Hart, 1999, 2000; IISD, 2000; MAFF, 2000; OECD, 2000) there has been no consensus on the practical application of these indicators to the complex systems, which we are considering

Part of the problem lies in the question of scale, as it is clear that the relevant indicators for monitoring global changes are frequently not appropriate for measuring regional, local, or individual behaviour. The second difficulty is in the selection of accessible and measurable indicators that are appropriate to the context of the study. A third difficulty is agreement on a relevant time frame. We will deal with each of these points in turn.

On the question of scale, though action plans on the large scale (nation state) are becoming available (e.g. Buitenkamp, et. al., 1993) we have chosen to focus on the level of the local community. While even this distinction is not uncontested (Rennie, 1994; Cartwright, 2000) there is a growing body of conceptual (Bryden, 1994) and practical (Hart, 1999; 2000) literature which puts the emphasis on the community level. More specifically, we have concentrated upon community boundaries which have an ecological integrity (Rennie, 1991, and this volume) preliminary defined by the local watershed of the human rural community. In practice there may be more than one identifiable human community within the ecological boundary, and both the cultural economic communities are almost certain to have significant extensions outwith the local area.

This has an effect upon the selection of measurable indicators, and on functional tranferability. A large number of indicators, which purport to measure sustainable development, are in fact, strictly speaking, quality of life measurements (MacGillivray

et. al., 1998; Walter and Wilkerson, 1998; Hart, 2000). Others are measurements of returns on natural capital, e.g. fish landings, timber extraction, or quarrying, which may vary widely in importance between localities. (Newby, 1999; Stirling, 1999; MAFF, 2000; OECD, 2000). This is not to say that quality of life indicators cannot be contributors to local sustainability, simply that they are not synonymous. Some social and political situations can be envisaged in which 'sustainable' communities perpetuate social inequalities and disadvantages due power structures and local hegemony (Allen et. al., 1991)

On the final scoping point of time scale, there are two important considerations. Not only does the consideration of sustainability need to reflect the integration of environmental, social, and economic values, but also an understanding of the cycles and timescale for these disciplines. This has been described (Holling, 2000) as panarchy, and defined as the structure in which systems of nature and of humans are interlinked in evolving, adaptive systems which, apparently paradoxically, support rural change and stability simultaneously. These different cycles and timescales mean that we need to consider a wide range of effect from volatile, daily changes in money markets, to organisational annual or five-year plans, to the changes during a generation or human life, to the longer biological and geological cycles of growth, decay, and renewal.

There is a second consideration with regard to time frames, in that the pursuit of sustainability has become an ideological objective, which a clear requirement for human planning, planning and intervention. The system of indicator-based measurement which we propose, therefore, has an application in assisting communities to audit their own communities, take action to improve their situation, and reflect upon the changes. The time scale, which we use to measure sustainable development, will therefore change with the context to which we intend to apply the results. Both of these time components can be major factors in the success or failure of locally based development initiatives. (Hawker et. al., 1989; Rennie et. al., 1990).

There is a clear difference between the terms "sustained", "sustainable", and "sustaining" - and more importantly, they cannot be used with impunity to imply the same context. Implicit in the concept of 'sustaining' communities is the recognition of an action agenda for development activities, which of course raises further questions, in particular "Whose agenda is it?" and "Who benefits from such an agenda?" This has also be a relevant issue in our work, and the answer we prefer for both questions is "the local community."

To sustain a development activity is to support it, usually for a lengthy period of time, in order to retain the lasting benefits of the development effort. An implication of 'sustainable' initiatives, however, is that they have an internal dynamic which, if not actually self-sustaining, have hopes to approach this status at some point in the future. This may never be the case for many rural communities with their inherent structural difficulties.

The reality is that " Sustainable development and management of global and regional resources is not an ecological problem, nor an economic one, nor a social one. It is a combination of all three. And yet actions to integrate all three typically have short-changed one or more." (Holling, 2000). This is magnified in the local analysis of rural areas, and one of us (Rennie, 1993; 1994) has argued to include environmental development, social and cultural development, and economic development as fundamental planks of any integrated theory to define sustainable rural futures. To this we would now add the development of equity (social, economic, political) and we

shall explore these relationships below. In reality there is likely to be a substantial inter-action between these four general strands of sustainable indicators, both positive (complementary and/or reinforcing) and negative (conflicting and/or competing) as changes to one strand may have compound effects on the others.

2. The Importance of Appropriate Indicators

An indicator is essentially a tool that helps a person to understand their current situation that they are in, the direction in which they are heading, and/or the distance from their desired destination.

> *"An indicator provides information which helps to monitor an activity or a system to gauge the seriousness of a problem or to measure progress towards a goal. There is nothing mythical about indicators – we all develop and use various personal indicators in our everyday lives. For example, we use indicators like weight, blood pressure and pulse rate to tell us something about our health and fitness." (Reid 1998, p.25)*

There is a long tradition within Western European countries, of using indicators to measure economic development and performance. Through the quantification of the employment level and the retail price index for example, it is possible to present economic trends in an easily comprehensible manner. The indicators themselves do not necessarily present the complex processes and relationships that create a value, and do not necessarily reflect any diversity within the study area, but they are used to provide a reasonable benchmark of the variable.

Indicators of sustainability are different from traditional indicators of economic development and progress. Traditional indicators (such as the employment level) measure variations in values as if they were entirely independent of the rest of society. For sustainability indicators to be accurate, they must reflect the reality that the four main legs of sustainability (economic, social, environmental and equity) are inexorably bound to each other in a complex series of relationships (the holistic approach).

When designing indicators, the purpose must be explicit. Tunstall (1992) summarises the main functions of indicators as such;

- To assess conditions and trends,
- To make comparisons with different places and different periods of time,
- To assess progress towards or departure from goals and targets
- To provide an early warning
- To anticipate future trends and conditions.

3. Issues to Consider in the Development of SDIs

3.1. The Interpretation of "Sustainability"

While the concept of sustainable development is almost universally accepted as a worthy goal, precise definitions of what constitutes sustainable often vary and are dependant on the author's viewpoint and interpretation. The ambiguity within the concept of sustainable development has been used by different individuals, groups and countries to effectively argue their own particular case, often in direct opposition to each other. O'Riordan (1989) The construction of SDIs is dependant on the

interpretation of sustainable development, and therefore it is vital that as clear a definition of sustainability as possible be provided along with the indicator set, to allow for this subjectivity.

> *"What is a good or bad measure tends to vary with one's Weltanschauung or worldview, including such factors as level of education, cultural background, economic status, political affiliation, gender, and so on. Selection criteria are guidelines that one creatively applies to establish a preference for the "best" indicators that fit the needs and circumstances of a given region, institution, and at the same time enhance adaptive planning capacities for sustainable development." (IISD 2000)*

3.2. External (expert) vs. Internal (stakeholder) SDI Identification

A key issue in the development of SDIs is determining who should be responsible for identifying the indicators. Rigby, Howlett & Woodhouse (2000) isolate two schools of thought on the matter. There are those identified by 'external' experts such as project researchers and policy makers, while there are those identified 'internally' by stakeholders within the community. The different perspectives and expertise held by these two groups have the potential to lead to the development of very different sets of SDIs, both of which may be as valid as each other.

Even where there is an agreement on the issues that need to addressed (such as the need to maintain high quality drinking water) a different viewpoint and different experience can lead to very different criteria being used to measure and resolve the matter.

Many local authorities in the UK have opted for (internal) community and stakeholder consultation as their preferred tool for the identification of sustainability indicators (e.g. Strathclyde Regional Council 1995, Fife Council 1997). This methodology has the bonus of helping to raise awareness of sustainable issues in everyday life and it can also provide a real sense of involvement within the community, with public participation in their own development. This could be key, as ultimately it will be through individual recognition and action on sustainable development issues that will determine any progress toward a more sustainable society (LGMB 1995). In addition extensive and well-organised consultation with stakeholders in the community should produce a good representation of local issues and concerns.

Employing this methodology for the identification and selection of SDI sets does however have its drawbacks. Mitchell *et al.* (1995) argue that indicator sets selected in this way are characterised by a poor or absent understanding of the theory behind sustainable development, and therefore lack coherence and usefulness. With individual communities, local authorities and agencies developing their own individual indicator sets based on local issues, comparison between different geographical locations will be either very difficult or impossible. This could be offset by the adoption of a standard set of themes that make up a sustainable community. With the application of such criteria, it would not be unreasonable to think that eventually a common set of indicators would develop (certainly in similar cultural and political regions) enabling some degree of comparison.

3.3. Issues of Scale

In trying to identify sustainable development indicator sets, consideration has to be given to the geographical scale of the area to be analysed. Indicators of sustainability may evolve from work carried out on different geographical scales, SDIs have evolved in the past from different levels such as that of the farm, the corporation, the community, the water catchment, the district, the region, the nation and the globe. Although measuring sustainability is the common focus in the development of indicator sets, the level of application (and their individual circumstances and priorities) will mean that different indicators will be required. The measurement of ozone depletion for example may be an effective SDI for the measurement of atmospheric pollution on a global level, but it may prove to be an entirely meaningless exercise when trying to assess the sustainability of an individual localised community. Similarly measuring the soil nutrient level may be a good indicator for the likely crop production at an individual farm, but it may prove impracticable at the regional or national level to measure the nutrient content of the whole area's soil. An alternative or broader indicator would be required in order to assess soil fertility at a national level.

Rigby, Howlett & Woodhouse (2000) suggest that it becomes more difficult to identify causal relationships, desirable outcomes and make confident decisions based on the indicator results as you move up the levels of scale towards the global. The logical conclusion of this suggestion is that by focusing on measurement at as small a scale as possible will make it easier to understand the processes at work, and their likely implications. However, Gomez *et al.* (1996) argue that it is impossible to incorporate social indicators when working at an individual farm level, and favours application at the community level. Ideally, however indicators will be developed at many different levels to compliment each other, and provide an overall (and complete) picture of sustainability.

3.4. Data Quality Issues

Finally the quality of an indicator set will ultimately depend on the type of data that is employed. The data used to provide results must first be determined to be:

- Relevant: does the data measure what it is supposed to reflect?
- Accurate: has the data been measured with a defensible methodology?
- Available: can the data be readily accessed or easily measured?
- Accessible: is the data understandable to the public
- Sensitive: will variations over time be picked up by the data?
- Affordable: is the cost of procuring the data prohibitive?

4. Developing the Framework

4.1. Aims of the Study

- Provide background to sustainability and its measurement in the context of rural Highland communities.
- Provide an initial list of indicators for use in measuring sustainable development at the community level within the Highlands and Islands.
- Provide a framework for calculating and interpreting indicator results
- Ensure that the Indicator set is flexible, understandable and easy to apply.
- Ensure that results from different communities are comparable with each other

4.2. Identifying the Issues

One of the first priorities when seeking to compile an indicator set was to determine the relevant issues that effect rural community life in the Highlands and Islands. By reviewing the related literature and discussing the significant issues with community representatives (by conducting semi-structured interviews) it was possible to identify the key issues currently facing rural communities today which may be effected by land ownership and land use.

Table 1. Key Issues for Rural Communities

Economic
Employment (availability, quality, seasonality), income (poverty), local economic health, local economic change, development opportunities, perceived rural economic disadvantage, cost of living, volunteerism and subsidies.
Social
Housing (availability, condition, occupancy), perceived quality of life, population structure, migration, education levels, culture and heritage.
Environmental
Environmental quality (water, noise, land, air), land use, biodiversity (habitat & species), environmental protection designations, waste management, and grazing management (primarily deer & sheep), community action.
Equity
Access to services (access to key services, health care, transport, emergency services), leisure and recreation availability, isolation/participation, community 'togetherness', access to land.

By taking and adapting these issues, it was possible to derive indicators that were felt to best reflect the concerns and aspirations of rural communities throughout the Highlands and Islands. Amalgamating the responses from within the community with the background knowledge and expertise gained from an extensive literature review, represents a compromise between the external versus internal developer dilemma mentioned above. The set of indicators proposed are meant to be completely flexible, and act as a catalyst as well as a baseline with which communities and other interested parties can work with. It is envisaged that different communities and organisations will be able to analyse the original SDI set to adapt, revise and develop the set for their own use. What is important is the framework for the development of SDIs rather than the specific examples of the indicators that have been identified for this project.

4.3. The Indicator Framework

It is not the purpose of this paper to provide a detailed list of all the different indicators that were identified in developing the methodology for the measurement of the sustainability of the Barvas and Brue community, the details of which will be provided in later publications. In order to show the methodology behind the idea however, it is important to provide some understanding of the process involved.
Firstly it was decided that the indicator set should reflect the holistic nature of the concept of sustainable development, taking as its foundation the four legs of sustainability (environmental, economic, social and equity).

To be consistent with the holistic character of sustainability, it was decided that each of the four 'legs' of sustainable development would be represented by a subset of indicators. These subsets must have the same amount of indicators in each of them, in order to reflect the equal importance given to each of the legs.

An initial subset of ten indicators were chosen for each of the legs, the number being chosen to best reflect the different issues that come under each leg, whilst not making the list so long it becomes too complex and therefore unwieldy. One of the principle aims of developing and employing the indicator set is for it to be clear enough for communities to comprehend easily. Reid (1998) suggests that too many indicators are actually counter-productive to improving understanding and involvement within a community.

By employing different strategies it is possible to provide a mark between one and ten for each of the indicator results. This means that in a subset of 10 indicators sustainability can be measured on a scale of ten to a hundred, while the overall sustainability can be calculated on a scale of thirty to three hundred, with high numbers representing a higher degree of sustainability.

A secondary goal of the study is also to provide a simple, unambiguous graphical display to make comparisons between data sets.

4.4. Examples of Indicators

In order to provide an idea of the types of indicators that have been used, the identification process involved in selecting them and the methods by which results are derived, an example from each subset has been provided with an accompanying description.

4.4.1. Economic Indicator: Cost of Living (Compared to National Average Price of Basic Food Basket)

By utilising the Rural Scotland Price Survey Report (Mackay & MacLeod, 2001) which analyses the variations in cost of a 'standard' food basket throughout Scotland, and applying the same methodology to the community's local shop, it is possible to compare the cost of day to day living with the national average. One of the key issues identified above as being of importance in rural communities is the cost of living and a perceived rural disadvantage. By analysing the cost of a 'standard' food basket it is possible to determine whether a community is economically disadvantaged. The survey conducted by MacKay and MacLeod (2001) shows a 27% variance in prices, hence the scale below was chosen to allow the indicator to reflect this, and possible wider variance.

Cost of Food Basket	≤ NA	NA +5%	NA +10 %	NA +15 %	NA +20 %	NA +25 %	NA +30 %	NA + 35 %	NA +40 %	NA +45 %
Sustainability Score	10	9	8	7	6	5	4	3	2	1

4.4.2. Social Indicator: Perceived Quality of Life

While quality of life is a vague and elusive concept, by conducting interviews with a community it is possible to get results relating to a feeling of well being, fulfilment or satisfaction resulting from factors in the local environment. The qualitative notion can be quantified by applying a sliding scale, as illustrated below and asking interviewees to chose the number that best reflects their impression.

Perceived Quality of Life	Very High	→	→	→	to	→	→	→	→	Very Low
Sustainability Score	10	9	8	7	6	5	4	3	2	1

4.4.3. Environmental Indicator: Biodiversity of Nesting Birds

The variety of habitat for bird species is regarded as a useful indicator for both the quality and range in biodiversity of the local environment (O'Connor and Shrubb, 1990). We have combined data from the national Atlas of Breeding Birds (Sharrock 1980) with local survey data from Scottish Natural Heritage (SNH) and the Royal Society for the Protection of Birds (RSPB), together with local interviews. Using the collected data, we have calculated an estimated total number of nesting bird species (not individuals) over the past 5 years for the entire ecological unit covered by the study area. This total number of species is then expressed as a percentage of the total national number of nesting bird species over the same time span. Obviously there are limitations regarding local population fluctuations, and problems that a restricted range of habitat may reduce species variety without implying a loss of quality or sustainability of those habitats, but we believe that that this indicator provides a useful measure when used in combination with other environmental indicators.

Percentage %	100 to 91	90 to 81	80 to 71	70 to 61	60 to 51	50 to 41	40 to 31	30 to 21	20 to 11	10 to 0
Sustainability Score	10	9	8	7	6	5	4	3	2	1

4.4.4. Equity Indicator: Access to Public Transport

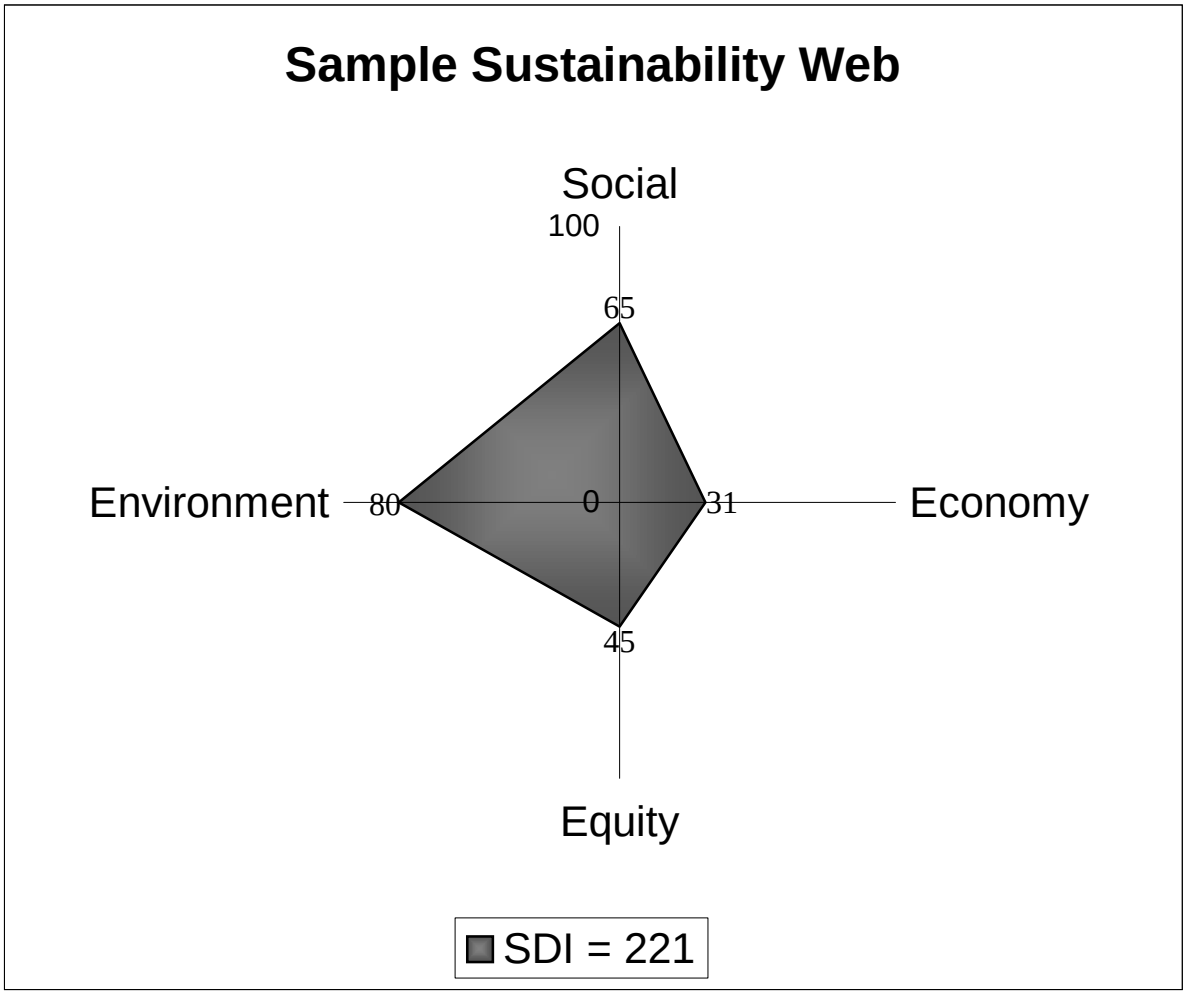
Communities need good access to key local services, from post offices to medical care. In particular the more vulnerable groups in society (e.g. the poor, the ill and the elderly) require access to public transport, especially when put into a rural context, where services are likely to be further away from their homes. With increasing traffic volumes and emissions, there is now a legal requirement on Local Authorities to reduce traffic volumes by improving access to public transport. Increased use of public transport, instead of individual private vehicles produces less emissions and congestion and can be viewed as being more sustainable.

Access to Public Transport	**Excellent**		→	→	**to**	→	→	→	*Appalling*	
Sustainability Score	10	9	8	7	6	5	4	3	2	1

4.5.Presenting Indicator results

By constructing a 'sustainability web' based on the four legs of sustainable development, it is possible to graphically illustrate the relative sustainability of different communities (as well as temporal changes in relative sustainability). A sample web is depicted below, its format allows the reader to easily interpret and understand the weaknesses and strengths within a community's development profile.

Figure 1. Sample Sustainability Web



For example the above web clearly tells the reader that the sample community has a high environmental index (80), a reasonably high social index (65) an average equity index (45) and a relatively low economic index (31). This suggests that in order to improve the sustainability of the community, attention should be concentrated on improving economic and equity conditions without adversely effecting social or environmental conditions. By comparing charts in the future (e.g. in 2002 or 2005) it will be possible for the community to judge what progress is being made towards local sustainability.

The information provided also gives an overall SDI (Sustainable Development Index) value of the sum of the 4 individual indices (i.e. SDI = 221 for the year 2001).

5. The Value of Indicators

The development of indicator sets and their application throughout the Highlands and Islands has the potential to be of huge benefit to communities throughout the region. It is possible to envisage both direct effects to the community but also indirect benefits also.

5.1. Potential Advantages of SDI programme in Highlands and Islands

- Advancing local knowledge of, and interest in sustainable rural development and its surrounding issues.
- Providing an easily interpretable and comparable analysis of the community's 'health' in a developmental context.
- Creating the benchmarks which enable members of the community come together to work towards targeted goals, increasing social cohesion.
- Raising awareness in the community that they are stakeholders in the common good, and have a part to play, increasing democracy and encouraging participation.
- The creation, modification, or implementation of governmental or policy programmes in response to indicator feedback
- The possible incorporation of indicators into the planning process (public or private).
- The ability for communities/government to allocate resources to meet needs, on the basis of the indicator results.
- Enabling the community to plan for and measure progress towards greater sustainability in local development.
- Changes in individual behaviour (e.g. waste disposal and resource use).

5.2. Potential Limitations of SDI programme in Highlands and Islands

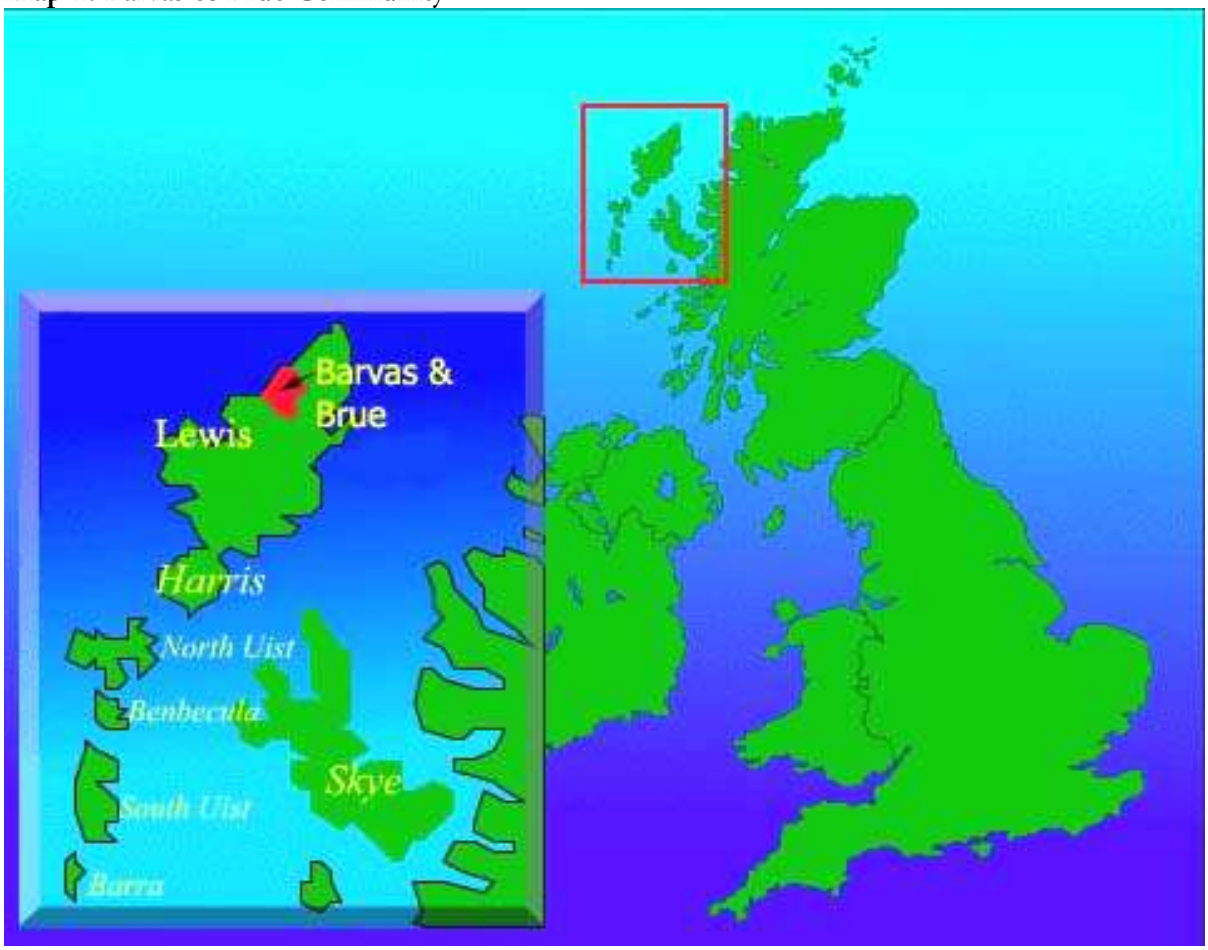
- The selection of individual indicators will be contested, with different people having different priorities.
- The scale by which the indicator is measured will be similarly open to interpretation

- The methodology requires that the community become involved, which means spending time and resources (its value is greatly reduced without community participation)
- Comparison requires that their be consistency of key definitions (sustainable development, community etc.)
- Due to the issues identified the indicator set will not translate well to different cultures, scales or environments (e.g. Indian, global or urban) although the framework could still be applied.

6. The Selection of Barvas & Brue Community as a Case Study

In order to enhance the design and relevance of the SDI framework, a case study was selected to test the methodology. For this purpose the community of Barvas and Brue, which is situated on the west coast of the Isle of Lewis, in Scotland's Outer Hebrides, was selected.

Map 1. Barvas & Brue Community



The rural community of Barvas and Brue has many characteristics that recommended itself as an ideal case study site.

- Barvas and Brue is fairly typical of a crofting community, and is reflective of many issues which can be found over the north and west of Scotland.
- The physical, geographical, ecological, ownership and political boundaries are contained within a similar area and are easily identifiable
- A substantial body of work has already been carried out on the local community with a community appraisal being carried out in 1997 and on-going land-management and integrated decision-making projects in place. The study will be able to make use of these factors and will compliment previous work when complete.
- The community is large enough to support its own petrol station, church(es), post office, community hall, community council etc. allowing greater scope for the test study than a smaller community could offer.

6.1. Community Characteristics

The community has a total population of 481 persons, of which 24% are aged under 18 years of age and 17% are aged over 64 years of age, and considerable out-migration, with 8% of the population leaving the area over the last 5 years (from time of publication). The population is housed in 172 separate households of which 45% are crofts (all figures derived from Barvas Community Association, 1997).

Unemployment in Barvas and Brue currently sits at 4%, with public service and skilled trades being the two main employment categories. As with many crofting townships there is still a significant amount of people working in agriculture in addition to their primary jobs (23%). (all figures derived from Barvas Community Association, 1997).

Most of the area's 14,000 hectares (out with a few small plots) are owned by Barvas Estates Ltd., a private company that acts as landlord to the crofters of the two townships (Wightman, 1996).

By identifying key informants within the community (e.g. the Chairman of the Community Council, the Landowner's agent and the Scottish Crofter's Union representative) and utilising other local information sources such as the community appraisal, Scottish Natural Heritage (SNH), and the Royal Society for the Protection of Birds (RSPB) it is possible to provide values for each of the indicators, thus producing a detailed sustainability web.

7. Conclusions

In deriving a sustainable development index several key criteria have emerged as being of great importance. Firstly it is critical to clarify the geographical scale on which the indicator set has to operate. Indicators applicable to the community level, will likely be unrelated to other scales, even if the issues are the same, the differences in scale will normally require a different technique for measurement. Of equal value is the need to clarify on which time scale the indicators are working on, whether they provide a

benchmark from which future progress can be measured, or alternatively measure the progress made over the last few years.

In selecting the community boundaries for application of the SDI set, it is important to consider the various types of boundary that exist. The ecological/geographical boundary is perhaps one of the most important, because the environmental system as a whole must be dealt with, not in piecemeal fashion. Other boundaries should reflect these watersheds, islands and the like, for the purposes of measuring sustainability.

The actual indicators themselves and the scale on which they are measured should undergo a process of constant revision. It is also essential that the indicators should be accessible - not only should the data be reliable and available, but they should measure tangibles that can be readily seen and understood by members of the community. For example measuring the ozone content will provide some idea of air pollution, but analysis of such an indicator over time would tell a community nothing about its own sustainability, if it was considered appropriate air pollution would have to be measured some other way.

The indicator set developed for the Barvas and Brue community is not the last word in the measurement of sustainability, but rather a hopeful first step towards achieving a useful tool that will enable communities and other interested parties (such as local authority planning departments) to make informed decisions on current policy and future objectives. It will also allow them to measure progress towards achieving a more sustainable future.

References

Allen, P. L. and Sachs, C. E. (1991). The social side of sustainability: Class, gender and race. *Science as Culture vol. 2 part 4 No. 13*, 569-90.

Barvas Community Association. (1997). *Barvas and Brue Community Appraisal: Results, 1997*. Barvas Community Association. (Private Circulation).

Bryden, J. M. (Ed.) (1994). *Towards Sustainable Rural Communities*: The Guelph Seminar Series. Canada: University of Guelph. ISBN 0-88955-390-4

Buitenkamp, M., Venner, H., and Wams, T. (Eds.). (1993). *Action Plan Sustainable Netherlands*. Amsterdam 1992: Pub. Vereniging Milieudefensie (Friends of the Earth Netherlands) (English Translation 1993).

Carley, M. and Christie, I. (1992). *Managing sustainable development*. London: Earthscan. ISBN 1-85383-129-8.

Cartwright, L. E. (2000). Selecting Local Sustainable Development Indicators: Does consensus exist in their choice and purpose? *Planning and Practice Research. Feb.-May 2000, Vol. 15 Issue ½, 65-79*.

Farrell, A. and Hart, M. (1998). What does sustainability really mean? The search for useful indicators. *Environment*, *Nov. 1998, Vol. 40 Issue 9,* 4-16.

Fife Council (1997). *Sustainability Indicators for Fife: Improving the Quality of Life and the Quality of the Environment in Fife* (2nd Ed.). Glenrothes: Fife Council.

Gomez, A. A. Swete-Kelly, D.E. Syers, J.K. & Coughlan, K.J. (1996). Measuring Sustainability of Agricultural Systems at the Farm Level. I: Doran, J.W. & Jones, A.J. (eds), Methods for

Assessing Soil Quality. *Soil Science Society of America (SSSA) Special Publication No. 49*, 401 – 409.

Hardi, P. and Zdan, T. J., (1997). *Assessing Sustainable Development: Principles in Practice*. Winnipeg, Canada: International Institute for Sustainable Development. ISBN 1-895536-07-3.
http://iisd1.iisd.ca/pdf/bellagio.pdf (Accessed February 22, 2001)

Hart, M. (1999). Guide to Sustainable Community Indicators (2nd Ed.). I: *Sustainable Measures*. Andover, USA.

Hart, M., 2000, *Sustainable Measures*.
http://www.sustainablemeasures.com/ (accessed March 16, 2001)

Hawker, C. and MacKinnon, N. with Bryden, J., Johnstone, M., and Parkes, A. (1989). *Factors in the design of Community based rural development initiatives in Europe. Some lessons from European experience of locally based development interventions aimed at stimulating economic regeneration in peripheral rural areas*. The Arkleton Trust (Research) and the Scottish Development Agency.

HIPP (Highlands & Islands Partnership Programme) (2000). *Highlands & Islands Special Transitional Programme 2000 – 2006*. Draft copy.

Holling, C. S. (2000), Theories for Sustainable Futures. *Conservation Ecology 4(2): 7*.
http://www.consecol.org/Journal/vol4/iss2/art7/index.html(Accessed August 16, 2001)

IISD (International Institute for Sustainable Development) (2000). *Measurement and Indicators for SD*.
http://iisd.ca/measure/faqcriteria.htm (Accessed on 14. June 2001).

LGMB (Local Government Management Board). (1995). *The Sustainability Indicators Research Project*; Consultants Report of the Pilot Phase. London: LGMB Publications.

MacGillivray, A., Weston, C., and Unsworth, C. (1998). *Communities Count! A step by step guide to community sustainable indicators for people working in community development.* New Economics Foundation.
http://www.neweconomics.org/ (Accessed March 14, 2001).

MacKay , G.A. & MacLeod, Y. (2001). *Rural Scotland Price Survey: Winter 2000-2001 Report*. MacKay Consultants report for Highlands and Islands Enterprise.

MAFF (Ministry of Agriculture Fisheries and Food). (2000). *Towards Sustainable Agriculture: A Pilot set of indicators*. MAFF Publications.
http://www.maff.gov.uk/farm/sustain/pilotind.pdf (Accessed February 12, 2001)

Mitchell, G., May, A.D. & McDonald, A.T. (1995). PICABUE: A Methodological Framework for the Development of Indicators of Sustainable Development. *International Journal of Sustainable Development and World Ecology Vol. 2*, 104 -123.

Moseley, M. J. (1996). Baseline studies for local rural development programmes: Towards a methodology. *Planning & Practice & Research, Feb. 1996, Vol. 11 Issue 1,* 19-37.

Newby, L. (1999). Sustainable Local Economic Development: A new agenda for action? *Local Environment vol. 4 issue 1*, 67-72.

O'Riordan, T. (1989). The Challenge for Environmentalism. I: Peet, R. & Thrift, N. (eds.), *New Models in Geography, Vol. 1*. London: Unwin Hyman.

O'Connor, R. J. and Shrubb, M. (1990). *Farming and birds*. Cambridge University Press. ISBN 0-521-38973-9

OECD (Organisation for Economic Co-operation and Development). (2000). *Agri-environmental indicators*.
http://www.oecd.org/agr/env/indicators.htm (Accessed March 15, 2001)

Reid, D. (1998). *Tools for Change: A Practical Guide to Community Indicators of Sustainability*. Part 1: Background Information. Edinburgh: Sustainability Indicators Partnership Scotland.

Rennie, F. W. (1991). Environmental objectives in land use practices. Paper to the *Second European Forum on Birds and Pastoralism, Isle of Man, 26-30 October 1990.*

Rennie, F. W. (1993). *An Introduction to rural development*. Acair: Stornoway for Lews Castle College and Sabhal Mor Ostaig.

Rennie, F. W. (1994). Sustaining rural communities. I: *Proceedings of the International Conference on "Issues Affecting Rural Communities*". Townsville, Queensland, Australia: Rural Education Research and Development Centre, James Cook University. ISBN 0-86443-524-X

Rennie, F. W., Bryden, J. M. and Johnstone, M. (1990). *Supporting and animating community-based rural development in Europe - some lessons for Scotland*. (Report of a seminar held in Scotland from 23 to 26 October 1989). The Arkleton.

Rigby, D. Howlett, D. & Woodhouse, P. (2000). A Review of Indicators of agricultural and Rural Livelihood Sustainability, Working Paper 1. *Department for International Development Research Project No. R7076CA*. http://les.man.ac.uk/ses/research/CAFRE/indicators/wp1.pdf (Accessed on 11 June 2001).

Robertson, J., (1999). The New Economics of Sustainable Development: A briefing for policy makers. I: *Forward Studies Series of the Office for Official Publications of the European Communities and Kogan Page*. ISBN 0-7494-3093-1

Sharrock, J.T.R. (ed.) (1976). *The Atlas of Breeding Birds in Britain and Ireland*. Tring: British Trust for Ornithology.

Shepherd, A. (1998). *Sustainable Rural Development*. London: MacMillan Press. ISBN 0-333-66485-X

Singleton, P., Holbrook, J., Sargent, B. & Mackey, E.C. (2000). *Potential Environmental Indicators for Scotland*. Edinburgh: Scottish Natural Heritage Review.

Smout, T.C. (1991). The Highlands and the Roots of Green Consciousness 1750-1990. *Proc. British Academy 76*, 237-63.

Stirling, A. (1999). The appraisal of sustainability: Some problems and possible responses. *Local Environment June 1999 Vol. 4 Issue 2,* 111-36.

Strathclyde Regional Council. (1995). *Strathclyde Sustainability Indicators*.

Tunstall, D. (1992). Developing Environmental Indicators: Definitions, Framework and Issues. (Draft Paper) from the workshop on Global Environmental Indicators, December 7th-8th, 1992. World Resources Institute, Washington DC. Summarised in *Gallopin (1997).*

UNDESA (United Nations Department of Economic and Social Affairs. (1998). *Measuring changes in consumption and production patterns*. gopher://gopher.un.org/00/esc/cn17/1997-98/patterns/mccpp5-9%09%09%2B (Accessed on 31 August 2001).

Verhelst, T. G. (1990). *No life without roots: Culture and development*. Zed Books. ISBN 0-86232-849-7

Vitek, W. and Jackson, W. (Eds.) (1996). *Rooted in the Land: Essays on Community and place*. Yale University Press. ISBN 0-300-06961-8

Walter, G. R. and Wilkerson, O. (1998). Community Sustainable Auditing. *J. of Environmental Planning & Management, nov. 1998 vol. 41 Issue 6,* 673-93.

Wightman, A. (1996). *Who Owns Scotland?* Edinburgh: Canongate Books.

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Entrepreneurial Identity among the Rural Small Business Owner-Managers in Finland

Along the general change towards an entrepreneurial model of economics also the field of rural entrepreneurship in Finland is getting more diverse. For example, there is also a wide group of industrial pluriactive (see Eikeland 1999) farmers who have started another enterprise besides farming (TIKE 2001). These portfolio entrepreneurs functioning on various lines of industry form a new growing sector in rural small business (see also Carter 1998).

Entrepreneurial identity offers one perspective to approach the ongoing change in rural business sectors. Since the overall change is towards entrepreneurship, it seems relevant to ask: are the actors in the field comfortable with the position or role of entrepreneur and how do their self-definitions fit in this role. Entrepreneurial identity refers to persons view or experience of him or herself as an entrepreneur. Are there differences in this experience between business sectors or lines of industry? How are the differences related to economic and social elements in the contexts of entrepreneurial activity?

To answer these questions a research project funded by the Ministry of Agriculture and Forestry was started by the authors in the beginning of year 2001. A national survey data (n 1238) has been generated. In this paper we concentrate on measuring the entrepreneurial identity and presenting some preliminary findings.

Entrepreneurial Identity

Identity is a complex concept, which is used in different ways in different theoretical discourses. A common understanding is that identity refers to answering the question "Who am I?" (Augoustinos & Walker 1995, 97-99; Wager 1996; Liebkind 1998, 106) One basic question in the study of identity concerns the dimensions of viewing the self. Self can be defined or characterised by multiple criteria (Deuax 1992). For example, the distinction between personal and social identity illustrates the possibility of defining oneself by using criteria emphasising individual as such (AI am a happy person@) as well as criteria relating individual to social categories (AI am a student@). As Augoustinos and Walker (1995, 98) note, this distinction is somewhat arbitrary, since also individual characterizations imply categorization, and social comparison. Anyway, there are at least these two levels available for viewing and defining the self, and further, a possibility of combining personal and social dimensions (AI am a happy student@).

From this general starting point we approach the question of entrepreneurial identity by putting emphasis on the attribute `entrepreneurial`, and concentrate on criteria that are relevant in discussing this category. Entrepreneur is one of those social and cultural categories, which can be used in identity construction. The self can be viewed in relation to this category, both by making social characterizations on the level of the category as a whole (AI am an entrepreneur@) and by making more

personal characterizations within this category (AI am a successful entrepreneur@). However, the matter becomes more complicated when we recognize that the nature of this category is by no means self-evident and that the relevance of dimensions for making comparisons within the category depends on the way that this category is being understood. For example, according to one theory, entrepreneur is an innovating and dynamic actor in the field of market economy. If the category is understood in this way, it would be a tautology to say AI am an innovative entrepreneur@. On the other hand, if entrepreneur is understood to refer to owner-managers of small business firms in general, innovativeness could be considered as a relevant dimension for characterizing self as a particular kind of an entrepreneur.

One starting point in our presentation is a distinction between wide and narrow definition for entrepreneur. By former we refer to understanding entrepreneur as a category that consists of actors engaged in owning and managing an economic enterprise. Ownership and active participation in the management of the firm are seen as sufficient criteria for actor membership in this category. According to this understanding, small business owner-managers, farmers, and in general all those actors that are institutionally - for example by authorities keeping official registers - considered as owners and managers of firm, are entrepreneurs.

In the narrow definition entrepreneur is understood above all as an aspect of the role performed by those actors that are entrepreneurs according to the wide definition (Barth 1963). For instance in the study of entrepreneurship a set of criteria has been suggested to distinguish entrepreneur from small business owner-managers in general (Carland et al. 1984; Vesala 1996). These kinds of criteria can be interpreted as expectations or demands for the role of entrepreneur, or in other words as criteria for a proper entrepreneur. Innovativeness is one example of these criteria.

However, the narrow definition can be approached from different perspectives, emphasising different aspects of the role. For example, some farmers in Finland claim themselves to be entrepreneurs while others hesitate to use this kind of self-categorization. They recognize the idea of a proper entrepreneur, who is something more - or something else - than an owner and manager of a firm as such. In their arguments about this matter they refer to actors values and goals as a basis for self-categorization. They justify their views by using economic profit- seeking and personal autonomy as central criteria for entrepreneur (Vesala & Rantanen 1999). This kind of argumentation can be connected to cultural discourses of market economy and economic individualism where entrepreneurship is understood as a prototype of active and dynamic pursuit for economic benefits undertaken by an autonomous individual actor (see Stanford & Curran 1976, 101-102).

All in all, a person may be considered to be an entrepreneur in the wide sense of the word, but not necessarily in a sense of a proper entrepreneur. As the case of farmers illustrate, also actors in the field recognize this type of distinction, and are using it as one central dimension for viewing self. It seems reasonable to consider the categorization of the self as an entrepreneur - and expressing a wish to be so categorized - as one important indication of entrepreneurial identity. Commitment to the values and goals set by economic individualism serve as a second kind of indication of entrepreneurial identity. The more explicitly an actor supports these values, the more clearly he or she is though to fit in the role of entrepreneur. On the other hand, it is quite possible that an actor engaged in owning and managing a firm

views him/herself with reservations towards these values. Profit-seeking and at least relative autonomy are of course fundamental in owning and managing a firm but they can still be committed to with varying emphasis.

In the study of entrepreneurship the values of economic individualism have been taken more or less self-evident in approaching the role of entrepreneur. The focus has been more on specifying the demands or expectations, which emerge from the perspective of efficient and successful functioning of the business enterprise. From this perspective at least two kinds of criteria for a proper entrepreneur can be recognized in the literature dealing with entrepreneurial studies. One set of criteria are concerned with strategic orientation and the other set with psychological orientation.

Concerning the strategic orientation three criteria are prominent. Risk-taking is one. A proper entrepreneur is supposed not only to take economic risk, but also to earn his profit by bearing the state of uncertainty caused by the possibility of the failure in his pursuit. Another criteria is growth orientation, i.e. the aim of maximizing the profit by expanding one's business activities and growing the firm. A proper entrepreneur is not supposed to satisfy with earning his own living, he is supposed to aim for growth. Third criteria is innovativeness, i.e. searching, developing and trying new products, markets, methods and so on. Behind all of these criteria there is an expectation that a proper entrepreneur is engaged in active, dynamic and competitive economic striving, in a continuing pursuit of opportunity (Stanford & Curran 1976; Stevenson & Jarillo 1991; Vesala 1996).

It is not a cultural anomaly if somebody claims to be an entrepreneur but not being strategically oriented towards risk-taking, growth and innovating, even though the claim might raise controversy whether it is about a proper entrepreneur. Accepting a wide definition of entrepreneur the claim is quite understandable. However, from the perspective of entrepreneurial studies these strategic orientations serve as criteria for a proper entrepreneur. Anyway, they can be considered as dimensions on which one can make distinctions within the category of entrepreneur.

Concerning the psychological orientation several criteria could be used (see Brockhaus & Horwitz 1986; Stevenson & Jarillo 1991). Putting emphasis on the demand for the active striving and the success in it, three criteria can be mentioned.
Personal control is the central idea in the concept of locus of control, coming from Julian Rotter's social learning theory. Applied to the study of entrepreneurship this theory asserts that belief in internal control is characteristic of entrepreneurs. Essential in the psychological orientation proposed by this concept is entrepreneur's belief in his chances to personally affect or control the conditions and the outcomes of his/her pursuit.

Borrowing from the social learning theory by Albert Bandura, also the concept of self-efficacy has been suggested to be relevant in describing the role of entrepreneur. Self-efficacy refers to person's belief in his capability of performing those actions and activities that needed for achieving the desired outcomes and goals (Boyd & Vozikis 1994). In addition to personal control and self-efficacy also optimism can be considered in social learning terms as an essential element in the psychological orientation connected with the role of entrepreneur. Belief in ones success is a psychological requirement for persistence in pursuit in general, and it has also been included in descriptions of entrepreneurial motivation.

Psychological orientation described as personal control, self-efficacy, and optimism is concerned with how a proper entrepreneur should experience himself as an actor

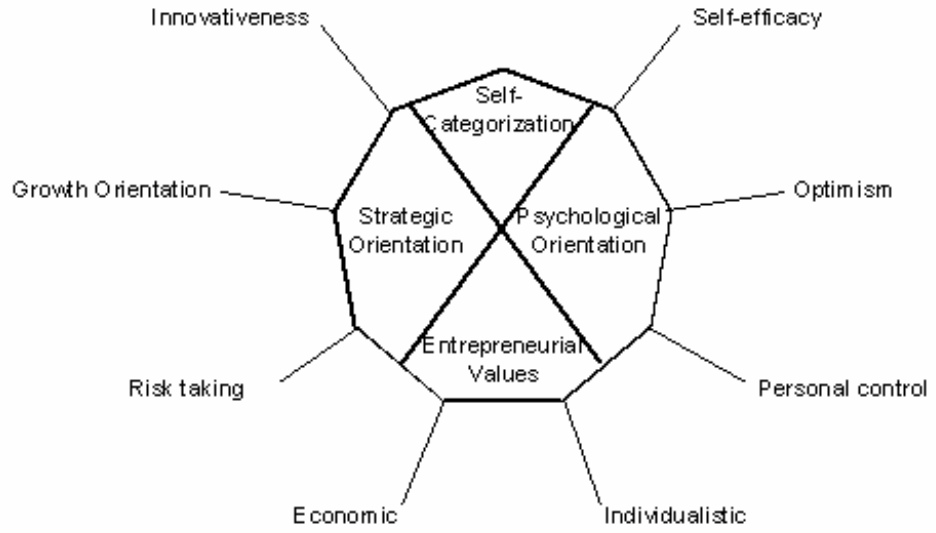
engaged in a pursuit of economic opportunities. Risk-taking, growth-orientation and innovativeness, on the other hand, are expectations concerning the way .a proper entrepreneur should be strategically oriented in his business activities. Both of these orientations can be considered as dimensions on which self can be viewed as an entrepreneur, and as indications for entrepreneurial identity.

The criteria we have presented above do not cover all of those strategic and psychological elements that have been connected with entrepreneurship in the research literature. Neither have we discussed the controversial aspects in interpreting these criteria. However, we believe that they represent the core of the theoretical discussions concerning the nature of entrepreneurial role. Another question is, whether actors in the field recognize these criteria as dimensions for making distinction between small business owner-managers in general and a proper entrepreneur in cultural understandings or. Anyway, it seems reasonable to believe that the actors in the field do recognize these as relevant criteria for viewing and characterizing oneself as an entrepreneur.

Further, from the perspective of the study of entrepreneurship the criteria for a proper entrepreneur represent also, more or less, ways to approximate an ideal entrepreneur in terms of economic progress and ideology of competitive individualistic market economy. As far as this ideal is accepted and socially valued, the criteria for a proper entrepreneur serve also as criteria for evaluating entrepreneurial identity on the dimension of positive and negative, a proper entrepreneur being on the positive end of the dimension. From the perspective of psychological identity theories this evaluating dimension is evident in the psychological orientation of personal control, self-efficacy and optimism, which is compatible for example with the idea of positive self-esteem, emphasised in many social psychological identity theories as one important element in viewing self (Breakwell 1992; Liebkind 1998). All in all, regardless of the question of entrepreneur being a culturally value laden category in itself, it is possible to interpret all the criteria mentioned above - including self-categorization and values - also as indicators for entrepreneurial identity on a dimension of weak or strong identity, with the assumption that strong entrepreneurial identity refers to viewing self in such a way that fits well in the role of a proper entrepreneur.

In figure 1, a model for measuring the entrepreneurial identity is presented. The model consists of four dimensions: self-categorization, strategic orientation, psychological orientation, and values. The strategic orientation is further divided into innovativeness, growth-orientation, and risk-taking. The psychological orientation is further divided into self-efficacy, optimism and personal control. The values are divided into economic and individualistic values.

Figure 1. Entrepreneurial Identity Model



Data

The subjects of the study were rural small-business owner-managers in Finland. A nationwide mail inquiry data was based on random samples from three populations each representing a broad cross-section of industries. A sample of non-agriculture rural entrepreneurs (n=590) from trade, industry and service sectors was based on the Business Register of the Statistics Finland. A sample of industrial pluriactive farmers (n=2200) consists of farmers who manage an enterprise besides farming. The sample was constructed from eleven different industries, 200 subjects in each industry. The eleven industries were tourism, food processing, handicraft, wood processing, energy production, machine contracting, fur farming, production of metal ware, health services, transportation, and retail trade in farm products. In addition, there is a sample of farmers functioning merely in primary production (n= 600), which was divided into grain, milk, and meat producers, 200 subjects each. The sample of industrial pluriactive farmers and the sample of farmers were based on the Farm Register from the Information Centre of the Ministry of Agriculture and Forestry.

To minimize the problem of sampling error and to increase accuracy, a large sample of respondents was sought. The total number of surveys mailed was 3390 with a total of 1238 valid responses received, for a 37% response rate. From the total sample of 1238 valid responses, 196 were non-agricultural rural entrepreneurs (response rate 33%), 799 pluriactive farmers (response rate 36%) and 243 farmers (response rate 41%). The data was collected on March-June 2001.

The data is delimited to small-scale enterprises with maximum of 20 personnel and sales more than FIM 49,000. The enterprises included were started at least two years before sampling. The rural area was defined by population density less than 50 persons/km² within a certain zip code.

Questionnaire covered biographical data on sex, age, marital status and level of

education. In total, data were collected on 210 variables that characterize the entrepreneur and the firm.

In total, over 82% of all respondents were male and 86% had a spouse. The mean age of all respondents was 46 (std.=9.4). The entrepreneurs were also older (mean of age=48) than the pluriactive farmers (mean=45) and farmers (mean=47). The entrepreneurs were higher educated than the other groups.

Measures for Identity Subscales

In the following we will describe the subscales that were formed to measure the dimensions of entrepreneurial identity presented in the model (see figure 1).

Self-categorization was measured with a three-item scale consisting of the following questions: "How apt is it in your case to think at the moment: I am an entrepreneur", "How did it feel in the beginning of your career to think: I will be an entrepreneur" and "How desirable would it be for You to think in the future: I am an entrepreneur". A five-point Likert-type scale was used for responses. A sum-variable was formed with Cronbach's alpha coefficient .65 (n=1124).

The subscales of strategic and psychological orientation were each measured with a four-item statement scale. All items had a 5-point scale for responses ranging from "Strongly disagree" to "Strongly agree".

Self-efficacy was measured with four statements. "My skills are quite sufficient for working as an entrepreneur", "I am more competent than an average entrepreneur", "My character is not of entrepreneurial type", and "My personal characteristics suit well for entrepreneurship." A sum-variable was formed with Cronbach's alpha .71.

Optimism was measured with four statements: "I will succeed as an entrepreneur", "Not even major setbacks can make me give up my entrepreneurship", "I believe that my success in the future will outrun entrepreneurs on average", and "My success as an entrepreneur is uncertain". The Cronbach's alpha for the sum-variable was .67.

Personal control was measured with four statements: "I am able to affect the success of my firm through decisions concerning products and through production", "My personal chances to influence the successfulness of my business are practically rather low", "I am able to affect the success of my firm through marketing and customer connections", and "To a great extent I can personally control the success of my firm" The Cronbach's alpha for the sum-variable was .76.

Risk-taking was measured with four statements: "I am more cautious with risk-taking compared to other entrepreneurs that I know.", "I do not avoid taking risks", "I take risks only when compelled to do so", and "I do not believe in success without risk-taking." The Cronbach's alpha for the sum-variable formed was .69.

Growth-orientation was measured with four statements: "Increasing the turnover of my firm is a self-evident goal for me", "Compared to other entrepreneurs whom I know, I am more reluctant in expanding my business", "I prefer not to hire employees in my firm" and "I am trying to expand my business activities", The Cronbach's alpha for the sum-variable was .67

Innovativeness was measured with four statements: "In aim at constant renewal in

my business activities", "I enjoy developing new products and marketing ideas", "If needed I will make even major changes in my business", and "I prefer to keep doing things the way I am familiar with". The Cronbach's alpha for the sum-variable was .64.

In the questionnaire a list of values or principles were presented with a request to consider their importance in respondents' own business activity. A four-point scale ranging from "Not meaningful" to "Extremely meaningful" was used. (In addition, there was a response option: "Can't say", but these responses were discarded from the analysis.) The list included two items measuring individualistic values expressed as: "Autonomy in one's work" and "One's own economic independency" and three items measuring economic values "Maximization of profit", "Earning better standard of living for one's family and oneself", and "The profitability of one's business". The Cronbach's alpha for the sum-variable of the individualistic values was .61 and for the economic values .73. Removing items did not remarkably enhance the reliability of any of these sum-variables.

The Correlations between the Subscales

Descriptive statistics and intercorrelations (Spearman) among subscales of entrepreneurial identity based on the data are displayed in table 1. All the subscales were transformed to range from 0 to 100. Intercorrelations between identity subscales showed consistent positive relationship. All subscales, except that of individualistic values, had significant correlations with each other.

Table 1. Descriptive statistics and intercorrelations among the subscales of the Entrepreneurial Identity.

Variable	N	Mean	SD	Alpha	1	2	3	4	5	6	7	8
1.self-categorization	1124	75,39	20,78	.65								
2.self-efficacy	1073	67,59	17,38	.71	.450**							
3.optimism	1072	63,78	17,94	.67	.421**	.633**						
4.personal control	1073	71,49	21,24	.76	.352**	.372**	.513**					
5.risk taking	1074	48,43	20,94	.69	.293**	.291**	.313**	.266**				
6.growth orientation	1078	56,65	21,85	.67	.325**	.365**	.399**	.294**	.453**			
7.innovativeness	1072	57,56	19,07	.64	.313**	.355**	.448**	.435**	.462**	.480**		
8.economic	1083	64,56	21,66	.73	.208**	.362**	.263**	.208**	.144**	.282**	.176**	
9.individualistic	1051	71,50	21,35	.61	.155**	.256**	.195**	.163**	.003	.039	.061	.339**

Examination of the subscale distributions revealed that they were not normal. For example, sub-scale for self-categorization was negatively skewed, indicating that majority

of respondents do consider themselves as entrepreneurs. This is understandable because they all are owner-managers of a firm or a farm. Further analyses on the level of the subscales are conducted with the Mann-Whitney U test, which is a nonparametric test for independent measures.

Psychological and Strategic Orientation and Overall Identity Measure

In order to get a concise measure of the identity the subscales formed were combined according to the Entrepreneurial Identity Model presented in figure 1. The items of self-efficacy, optimism and personal control were combined to form a sum variable for Psychological Orientation. The responses of "Strongly disagree" and "Partly disagree" were combined based on the small frequencies within. The system-missing values were replaced by sample group's mean for incomplete responses. The Cronbach's alpha for the 12-item sum variable was .85.

In order to get a measure for Strategic Orientation the items of risk-taking, growth-orientation and innovativeness were combined. The system-missing values were replaced by sample group's mean for incomplete responses. A 12-item sum variable was formed with Cronbach's alpha .81.

To create an overall measure of entrepreneurial identity all items of the nine subscales were combined, 32 items altogether. The reliability of the overall measure was .89 (Cronbach's alpha). Removing items did not enhance the reliability.

Descriptive statistics and intercorrelations (Pearson) among the sum variables are displayed in Table 2. All three sum variables resemble the normal distribution. The significances of the Kolmogorov Smirnov tests are seen in Table 2.

Table 2. Descriptive statistics, Kolmogorov Smirnov tests, and intercorrelations for identity orientations and the overall identity measure.

Variable	N	Mean	Std.	P	1	2
1. psychological orientation	1118	58,00	18,00	.052		
2. strategical orientation	1118	54,24	16,28	.062	.525***	
3. overall identity	1103	64,50	12,24	.260	.856***	.845***

Comparisons between Non-agricultural Entrepreneurs, Farmers and Pluriactive Farmers.

To test the discriminant validity of the instrument, the scores on psychological and strategic orientations and the overall identity measure were compared between the farmers and the non-agricultural entrepreneurs. According to the research literature there are differences in entrepreneurial characteristics between farmers and owner-managers on

other lines of business (Sachs 1976; Routamaa - Vesalainen 1992; Alasuutari 1996; Kallio 1997; Vesala - Rantanen 1999). On the base of this generalization one would expect that the non-agricultural entrepreneurs reach higher values than farmers on the two orientations and on the overall identity measure. A series of t-tests were conducted. Mean scores for the two groups and the results from the t-tests are shown in Table 3.

Table 3. Comparison between non-agricultural entrepreneurs and farmers.

Variable	Mean (n)		t	df	p
	Entrepreneurs	Farmers			
Psychological orientation	63,89 (195)	48,43 (237)	8,651	430	.000
Strategical orientation	56,59 (195)	48,36 (237)	5,131	430	.000
Overall identity	67,42 (192)	58,34 (232)	7,557	422	.000

As we can see from Table 3, on the psychological and strategic orientations the mean scores for non-agricultural entrepreneurs were higher than the scores for farmers and mean differences were highly significant. In addition, non-agricultural entrepreneurs had significantly higher levels of overall identity than farmers, as expected.

To take our primary research group under examination, we compared the pluriactive farmers to the non-agricultural entrepreneurs on the two identity orientations and on the overall identity measure. The results of t-tests are shown in table 4.

Table 4. Comparison between entrepreneurs and pluriactive farmers.

Variable	Mean (n)		t	df	p
	Entrepreneurs	Pluriactive			
Psychological orientation	63,89 (195)	59,64 (686)	2.933	879	.003
Strategical orientation	56,59 (195)	55,61 (686)	.772	879	.440
Overall identity	67,42 (192)	65,78 (679)	1.739	869	.082

According to table 4, mean scores for non-agricultural entrepreneurs were higher than for pluriactive farmers on each variable. However, only on psychological orientation the difference was statistically significant (p=.003).

Further, we compared the groups of pluriactive farmers with the group of farmers. The results are shown in Table 5. As we can see, the pluriactive farmers scored higher on the two orientations as well as on the Overall Identity Measure. Taken together, these results suggest that pluriactive farmers come closer to non-agricultural entrepreneurs than farmers on their entrepreneurial identity.

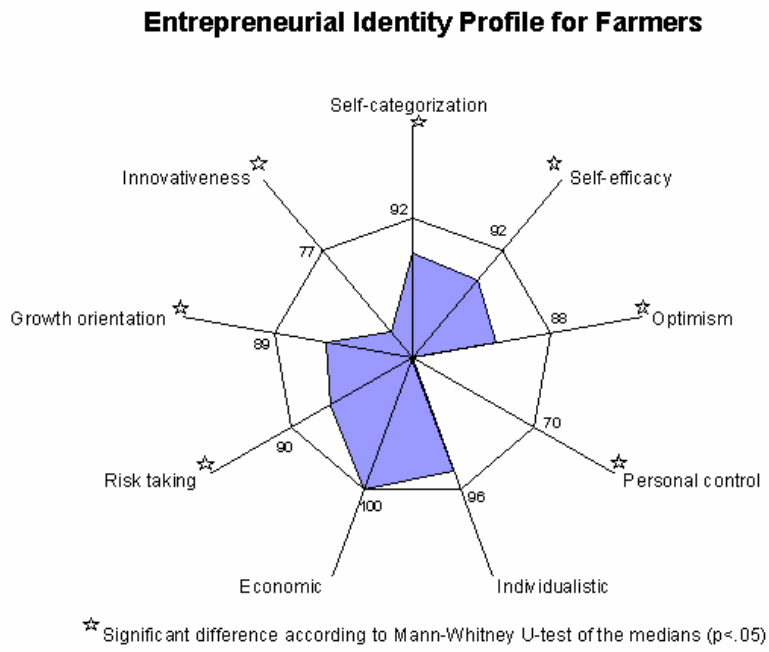
Table 5. Comparison between pluriactive farmers and primary production farmers

Variable	Mean (n)		t	df	p
	Pluriactive	Farmers			
Psychological orientation	59,64 (686)	48,43 (237)	8.234	921	.000
Strategical orientation	55,61 (686)	48,36 (237)	6.000	921	.000
Overall identity	65,78 (679)	58,34 (232)	8.242	909	.000

Entrepreneurial Identity Profile

To illustrate the group differences in identity subscales the Entrepreneurial Identity Profile was developed. It is based on the comparison between two groups, of which another group works as a norm group, which is the sample of the non-agricultural entrepreneurs. The mean scores of the non-agricultural entrepreneurs in each identity subscale are standardized to 100 and the mean scores for the group of comparison are in proportion to them. For example, the score 95 in optimism means that the group mean is five per cent lower than the group mean for the entrepreneurs. The angular circle in the Identity Profile represents the score of 100 i.e. the group mean for the entrepreneurs (see Figure 2).

Figure 2. The Entrepreneurial Identity Profile for Farmers.

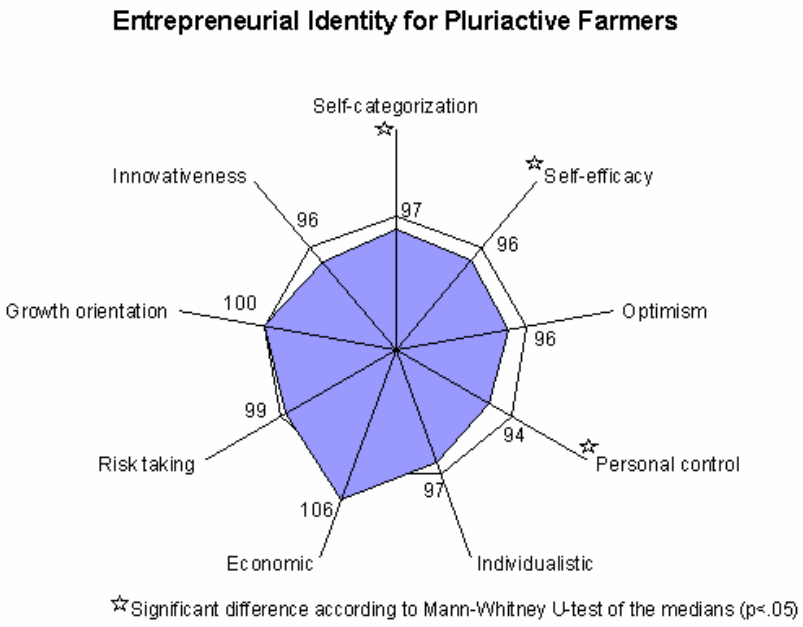


To test the significances of the mean differences a series of Mann-Whitney U nonparametric tests were conducted. In the figure a star next to a subscale marks a statistically significant difference between the groups (p<.05).

As we can see from Figure 2, the farmers are not so willing to categorize themselves as entrepreneurs – there is a statistically significant difference compared to the non-agricultural entrepreneurs in self-categorization. Regarding to the control dimension of the entrepreneurial identity, the non-agricultural entrepreneurs got higher scores on each subscale. The biggest difference is in the personal control subscale (Z=-10.5, p=.000). On the strategic dimension the biggest difference between the groups is in the innovativeness subscale (Z=-7.2, p=.000). The non-agricultural entrepreneurs view themselves clearly more innovative than the farmers. The differences between the groups are also highly significant in self-efficacy (Z=-3.5, p=.000) and in optimism (Z=-4.4, p=.000), the non-agricultural entrepreneurs having a higher score on both subscales.

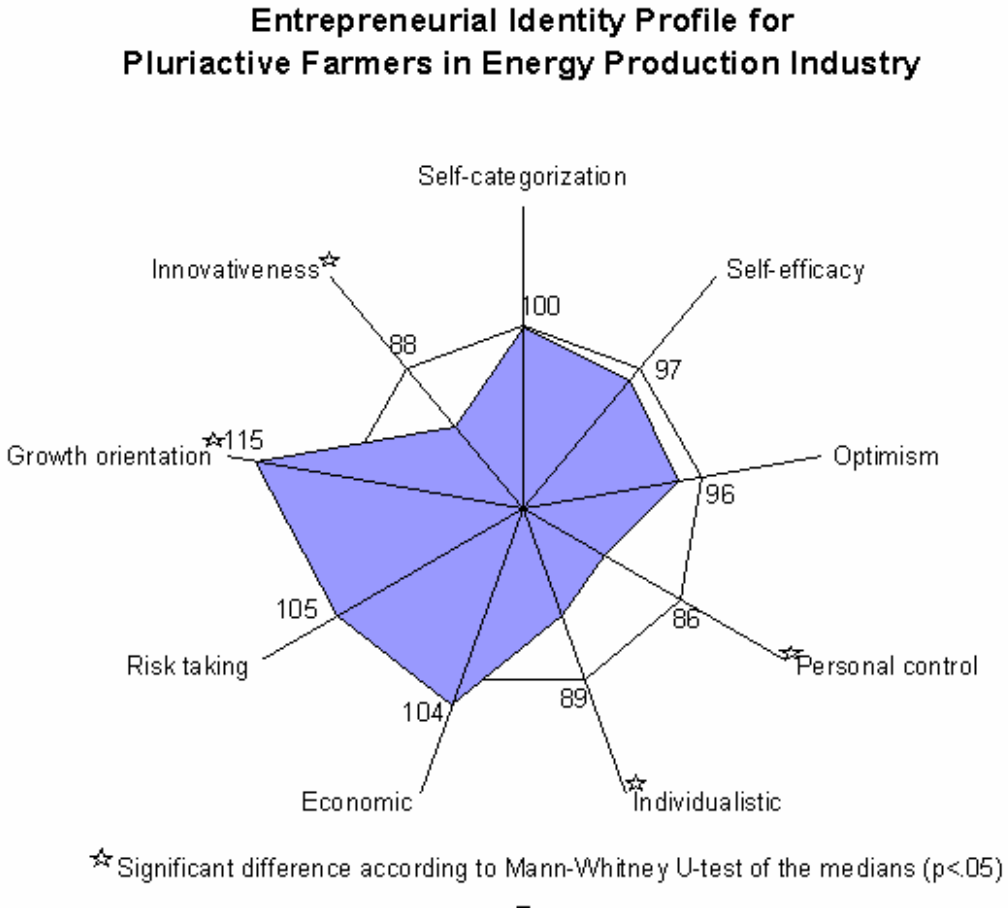
Further, we took the group of pluriactive farmers (n=799) and compared them to the non-agricultural entrepreneurs on the identity subscales. On the whole, the identity profile for the pluriactive farmers was almost identical to the one for the non-agricultural entrepreneurs. From this perspective, they are clearly on their way from farmers to entrepreneurs. There were statistically significant differences in self-categorization, self-efficacy, and personal control. According to figure 3, the weaknesses of the pluriactives' identity are in psychological orientation: in self-efficacy (Z=-2.0, p=.048) and in personal control (Z=-3.5, p=.000). In other words, they do not believe in their capabilities to perform as an entrepreneur, neither in their chances to affect the outcomes of their business activities, as strongly as the non-agricultural entrepreneurs do.

Figure 3. Entrepreneurial Identity Profile for pluriactive farmers.



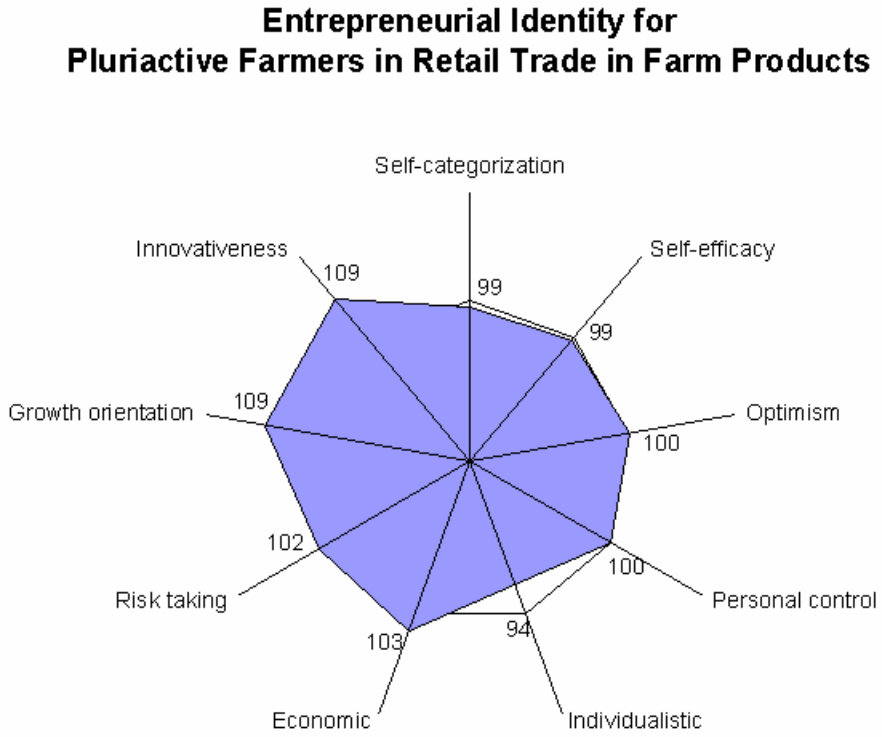
The sample of the pluriactive farmers consisted of eleven subgroups from different industries. In this paper we take two industries as examples of the variety of entrepreneurial identity among the pluriactive farmers. The first subgroup of the pluriactive farmers under examination consisted of farmers who manage an enterprise connected to energy producing, for example peat production. The Entrepreneurial Identity Profile for the group is shown in Figure 5. The energy producers showed the lowest score on personal control, where the difference to the non-agricultural entrepreneurs was highly significant (Z=-4.6, p=.000). On the strategic orientation, the groups differed statistically in growth orientation (Z=-2.3, p=.021) and in innovativeness (Z=-2.7, p=.007), the pluriactive farmers showing a higher score on former and the non-agricultural entrepreneurs on the latter. In addition, according to Mann-Whitney U test the non-agricultural entrepreneurs showed a significantly higher score on individualistic values (Z=-2.4, p=.017). These differences were observable on the level of subscales, even though on the overall identity measure there was no statistically significant difference between these groups.

Figure 4. Entrepreneurial Identity Profile for pluriactive farmers in energy production industry (n=50)



The Entrepreneurial Identity Profile for pluriactive farmers in the industry of "retail trade in farm products" is shown in figure 4. It gives an impression of a relative strong entrepreneurial identity. There are no major deviations from the profile of the non-agricultural entrepreneurs, and if there are, they are to the pluriactives' credit. The biggest differences are on innovativeness and on growth orientation, in which the pluriactive farmers have higher scores than the non-agricultural entrepreneurs. Nevertheless, there are no significant differences compared to the non-agricultural entrepreneurs, neither in the subscales nor in the overall identity measure. All in all, the data suggests that this group of pluriactive farmers have a relative strong entrepreneurial identity.

Figure 5. Entrepreneurial Identity Profile for pluriactive farmers / retail trade in farm products (n=51)



Conclusion

In this paper we have introduced an instrument to measure entrepreneurial identity and presented some preliminary empirical findings from our data. There seemed to be a consistent difference in entrepreneurial identity between farmers and non-agricultural entrepreneurs, farmers' identity being weaker. On the other hand,

industrial pluriactive farmers seemed to have stronger entrepreneurial identity than farmers, even though not reaching the level of non-agricultural entrepreneurs. Taken together, these results suggest that the measures developed are valid in making discrimination within owner-managers of small business enterprises in rural areas. In the future we will concentrate on the entrepreneurial identity in the different industries of the pluriactive farmers and on the differences found between the industries. Further we will try to find out the factors explaining the variation in the entrepreneurial identity.

References

Alasuutari, P. (1996). *Toinen tasavalta. Suomi 1956-1994*. Helsinki: Vastapaino.

Augoustinos, M. & Walker, I. (1995). *Social Cognition: An Integrated Introduction*. London: Sage Publications.

Brockhaus, R. H., Horwitz, P. S. (1986). The Psychology of The Entrepreneur. I: Sexton, D. L., Smilor R. W (eds.), *The Art and Science of Entrepreneurship*, 25-48. Cambridge.

Kallio, V. (1997) Suomalaisen viljelijäväestön henkinen ilmapiiri, *Publications 53*. Mikkeli: Mikkeli Institute for Rural Research and Training / University of Helsinki.

Routamaa, V. & Vesalainen, J. (1992). Farmers and the Entrepreneurial Potential. *Discussion papers 151*. Vaasa: Proceedings of the University of Vaasa.

Sachs, R. E. G. (1973). The Farmer. An Entrepreneurial Personality? A Socio-Psychological Analysis of Decision-Making with Special Regard to the Economic Behaviour of Farmers. *Sociologia Ruralis, XIII (2)*, 194-214.

Tajfel, H. (1981). *Human Groups and Social Categories*. Cambridge: Cambridge University Press.

TIKE 2001. Maatalouslaskenta 2000. Muu yritystoiminta maatiloilla. *TIKE 2001:4*. Helsinki.

Vesala, K. M., Rantanen, T. (1999). *Pelkkä puhe ei riitä*. Helsinki: Viljelijän yrittäjäidentiteetin rakentumisen sosiaalipsykologisia ehtoja. Yliopistopaino.

Wärneryd, K. E. (1988). The Psychology of Innovative Entrepreneurship. I: van Raaij, W. F., van Veldhoven, G. M. Wärneryd, K. E. (ed.), *Handbook of Economic Psychology*. Dordrecht: Kluwer Academic Publishers.

Clifford Guest

Back to the Future. From Food Production in Irish Agriculture to a return to the Production of Food, Fibre and Fuel

Introduction

Prior to the modernisation of Irish agriculture, Irish rural areas were involved in the provision of three key products: food, fibre and fuel. The production of food for human consumption then as now was perhaps the key priority. However, production of fibre and fuel was also an important function. Growing flax for "Irish linen" was carried out in northern parts of the country while the value of wool for clothing was considerably more important than it is today. The production of fuel too had its place and included wood and peat for domestic heating while crops such as oats and hay fed draft horses which in turn delivered real "horsepower".

The proposal in this paper is that, as the 20th century progressed, the provision of food became the predominant focus of Irish agriculture while the production of fibre and fuel was largely forgotten. With so much change currently taking place at EU level in the form of CAP reform and at Irish level in the trend for fewer full-time farmers and more part time farmers, the time for a change in thinking about what farms produce may be now. Within this context, an interesting development is the talk of "multifunctional agriculture" involving three key characteristics. First, the production of food, feed and fibre (including industrial use of agricultural products), second, preservation of the rural environment and third, contributing to the vitality of rural areas and a balanced territorial development.

New options for land use and the development of new rural enterprises have been shown to exist in the whole area of renewable energy. Ireland has considerable potential in the area but as yet most of this potential is unrealised and only 2% of Irish energy comes from renewable sources. Irish climate and soils are generally suitable for crops such as short rotation coppice Willow for energy production and Miscanthus and Poplar for fibre. Ireland also has one of the best wind environments in Europe but has a low installed capacity to take advantage of this potential. Anaerobic digestion has much potential considering the amount of animal waste available from livestock farms. The emergence of farmers as the main developers of new forestry plantations in Ireland gives potential for them to get involved in wood production for fuel, especially from first thinnings and also to provide fibre for panel board manufacture. This leads to the proposal that within the Irish context there is a major opportunity for farmers to participate in a paradigm shift where they can again be involved in more than just food production - they once again can participate in the production of fuel and fibre within the context of "multifunctional agriculture".

Irish Agriculture

Agriculture has been and still is the most important single industry in the economy in the Republic of Ireland (Lafferty et al., 1999). While its importance has declined substantially the agri-food sector generates about one-third of the Republic's net foreign

earnings and employs one out of every eight people in the workforce. While recent change has seen a shift to larger full time commercial farms and an increase in the number of part time farmers, a less obvious shift in what Irish farmers actually produce has also taken place over time. Farmers dominant focus for production is usually food for human consumption but the importance of producing both fibre and fuel were of far greater significance in the 19th and early 20th Centuries.

Flax was separately identified as an agricultural crop in the enumerations from 1847 to 1959. While it was predominantly grown in Northern Ireland, in 1864 approximately 38,000 hectares of flax was grown for the production of linen in what is now the Republic of Ireland. In that year a further 120,000 hectares was grown in the six counties of the north. Apart from some expansion around the first and second world wars flax production declined continually until the early 1950s when it ceased to be a commercial crop (Central Statistics Office, 1997).

While farmer-produced fibre in the form of flax is no longer a commercial crop, Irish farmers still produce large quantities of wool from sheep. Sheep numbers in Ireland have seen an increase over the last 100 years within the context of intermittent expansions and contractions in the national flock. In 1997 sheep and lambs accounted for 5.9% of the value of gross agricultural output. However the financial value of wool today as a farm produced commodity is not as great as it was. Shirley (2001) has described the situation as follows:

"Wool, that once great fibre has fallen on hard times. A product that even 20 years ago could pay the farm fertiliser bill, now does not even carry the cost of shearing."

The price being offered for wool in the late seventies and early eighties ranged between 50-75p/pound, this has dropped to an average of 18p/pound in the year 2000 (Crosby, 2001). So while significant quantities of wool are being produced in rural areas, traditional market outlets for this fibre have proved to be unattractive for the last number of years.

Farmers' involvement in supplying fuel in Ireland still continues today in the form of a limited involvement in the sale of wood fuel and peat. However before the advent of the internal combustion engine, farmers were also in the business of producing fuel in the form of oats and hay for horses. Horse drawn transport was a vital component for commercial and private use in urban and rural areas. An indication of the importance of indirectly providing fuel through feeding horses oats is reflected in the fact that in 1852 a total of 672,000 hectares of oats was grown. This is a very substantial area when it is considered that the current total land area in the Republic of Ireland is 6.9 million hectares, of which almost 5 million hectares is used for agriculture and forestry purposes (Department of AF&RD, 2001). The area of oats planted has declined steadily since then with some increases experienced during the two World Wars. Planting in the last ten years has stabilised at around 20,000 hectares.

Change and Development in Irish Agriculture

As farmers in Ireland focused practically all their attention on the production of food, other functions for agriculture were either forgotten or ignored. In what has been described as the "productivist phase" (Ilberry et al., 1997) agricultural development from the 1950s to the mid-1980s were characterised by the modernisation of

farming structures and infrastructures, assorted technological developments and the expansion of commodity output. This expansion took place in a policy regime dominated by high price supports for many of the commodities produced. From the middle of the 1980s another phase was entered, described as a "post-productivist transition". This phase has been characterised by stabilising or reducing farm output, reducing supports for farm productivity and giving greater recognition to part-time farming. It encourages the integration of agriculture with broader rural economic, social and environmental objectives (Lafferty et al., 1999). It is within the context of the need to stabilise and reduce farm output that the Common Agricultural Policy (CAP) was reformed under Agriculture Commissioner MacSharry in the early 1990s (Matthews 2000).

The broadening of how agriculture is now viewed in Europe was achieved in part by the European Council in 1997 when the notion of the European Model of Agriculture (EMA) was adopted in Luxembourg. The EMA proposes that European agriculture delivers much more than food commodities but also public goods and that it functions in such a way as to have the potential to preserve and protect the rural landscape and the environment and to sustain rural areas (Van Depoele, 2000). These notions influenced the broader changes brought about by the Agenda 2000 reforms and have lead to the idea of "Multifunctional Agriculture".

It is argued that there are three main functions of European agriculture which are to a large extent interlinked and that they provide a range of marketable and non marketable outputs of interest to society. These functions are:

A) producing food, feed, and fibre (including industrial use of agricultural products);
B) preserving the rural environment and landscape;
C) contributing to the viability of rural areas and a balanced territorial development

The core element is to strike a balance between economic, social and environmental values.

The reasons for proposing the notion of "Multifunctional Agriculture" are both internal and external. There is an acknowledgement that environmental protection requirements must be incorporated into the CAP and that the demand for public goods provided by agriculture is also likely to increase. The other motivating force is the pressure for change from external influences such as the upcoming World Trade Organisation negotiations, the Kyoto Protocol and the move towards European enlargement. What is clear is that the function of farmers and what they produce is undergoing substantial change. It is within this context that Irish farmers can look in more depth at new opportunities to provide fuel and fibre as part of their product mix.

Irish Agriculture - New Opportunities

Ireland currently relies almost totally on imported coal, oil and natural gas for its energy. These fossil fuels are non-renewable and supplies will eventually dwindle, becoming too expensive or too environmentally damaging to retrieve or use (Kellett, 2001). The supply of energy coming from renewable sources in Ireland is only 2% with the largest contribution coming from the burning of wood at wood processing plants and in open fires in the residential sector. The second largest contribution is from hydroelectricity, then electricity from wind farms and landfill gas

plants (Healion, 2001). While our current supply of energy from sustainable sources is very low, Ireland's potential to harness renewable energy is significant. Allied to this potential is an improving policy framework at both EU and at national level. The European Union White Paper on renewable energy has set the ambitious target of increasing the contribution of renewable energy sources to the energy supply of the EU from 6% to 12% by the year 2010. The aim of the strategy and action plan is to realise the environmental, economic and social benefits that renewable energy development can provide (Bailey, 1999) . Irish energy policy is largely being driven by the challenge to realise targets set under the Kyoto Protocol, and our over-reliance on imported fuel (see figures 1&2).

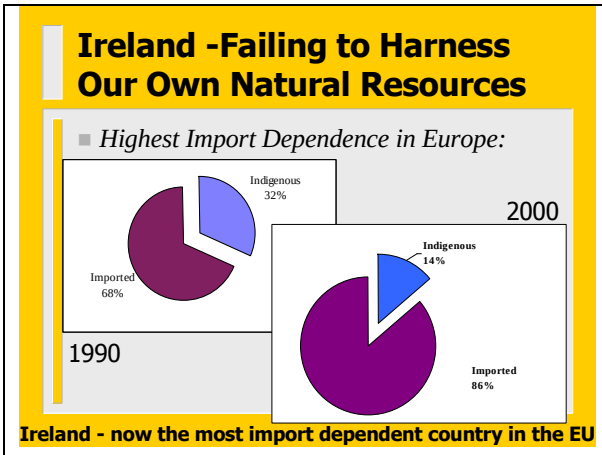


Figure 1*

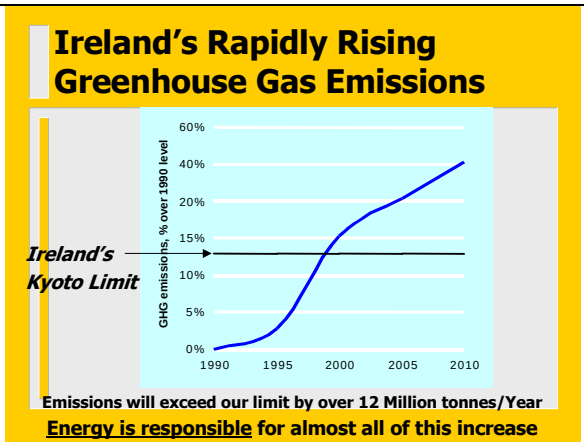


Figure 2*

*Reproduced by kind permission of the Renewable Energy Information Office, Cork.

For many of the technologies involved in renewable energy farmers and rural land owners are often those best placed to take advantage of these new opportunities. One such opportunity is the production of fuel from energy crops. Over four million hectares of agricultural land in Ireland, or 62% of the land area, are suitable for some form of energy crop production (Bulfin et al., 1995). The most appropriate species for perennial energy crops in Ireland are willow and poplar managed as short rotation forestry. Short rotation coppice willow has been investigated as an alternative renewable energy source since the early 1970s in Northern Ireland. Initial interest was in response to insecurity of energy supply and massive increases in the price of oil brought about by the crises in the Middle East at that time. Dawson (no date) notes that;

"Interest (in coppice) has been sustained, even though in real term the price of oil has dropped, through the potential role coppice willow has to play in the development of agriculture and the

utilisation of land no longer required for food production in the European Union."

Coppice willow is important in counties such as Sweden where there is approximately 17,000 hectares and is growing in importance in the UK where a new 10 MWe biomass power plant has been opened in Yorkshire. To fuel this plant a minimum of 1,500 hectares of willow coppice is being established to meet 60% of the plant's supply, the balance coming from forest residues. The coppice willow is being grown within a radius of 60 km of the power plant on arable set-aside land (Pitcher, 2000). This is an excellent example of farmers once again supplying fuel and selling into the energy market. The potential is there for Irish agriculture to take advantage of this opportunity if the right policy and incentives are found. In fact it is policy and "pump-priming" which are needed for many of the other renewable energy technologies as well if they are to realise anything like their true potential. A case in point is the slow development of the Irish wind sector.

Ireland has one of the best wind environments in Europe but one of the lowest installed capacities. The Irish government has given support to the industry through a series of competitive tendering rounds which has seen capacity built to approximately 120MWe. This support is set to continue and the target to 2005 is to have an installed capacity of 600MWe and by the year 2010 to have an installed capacity of 1800MWe (Kellett, 2001). It is interesting to note however that in the last two years farmers have started to play a much more active part in this development. A farmers wind co-operative called "Meithal Na Gaoithe" was established in April 2000 whose aim is "to promote the development of wind and other alternative energies in ways that will allow existing conventional farmers, community groups and other similar groups to retain the prime financial and social benefits of the growth". Another example of farmers diversifying from what is mainstream agriculture but what could be argued is a return to a commodity which was once familiar.

Another approach to generating on-farm energy is the application of anaerobic digestion technology. Denmark and Germany have been leading the way in their approach to an integrated on-farm solution to income diversification and farm nutrient management. As Ireland's agriculture is predominately pasture based with approximately 90% of available agricultural land in grass (Department of AF&RD, 2001) the level of animal waste which has the potential to be converted into energy in the form of biogas is considerable. There are only three farmscale anaerobic digestion plants at the moment in Ireland but as with the other renewable energy options there is a significant growth in interest from the farming community.
Poplar as previously mentioned is a tree highly suitable to be grown on a short rotation basis. As well as a good potential timber for fuel, it also provides excellent fibre material which can be used for the production of products such as oriented stand board wood panels. Miscanthus is another crop which has good potential for fibre production in Ireland.

Another source of fibre for wood panel products, which is growing in significance is first thinnings from farm forestry. Ireland is one of the least forested countries in Europe with the forested area currently standing at approximately 9% in comparison to the EU average of 31%). In 1996 The Irish government published a strategic plan which set to double the forested area to 17% by the year 2030 (Sunday Tribune, 2000). Farmers are being targeted as the main group to deliver on this increase as prices for forestry land has increased to a level to make state afforestation less feasible. Planting of trees by farmers now accounts for about 80% of afforestation and there is a generous scheme

of grants and premia to encourage their involvement. Thinnings and timber not destined for the roundwood market are most likely to be used for either fibre or fuel.

The input farmers can make to modern energy needs is not restricted to the heat and electricity sector, there are opportunities to supply fuel to the transport sector as well . In countries such as Brazil and the United States there is considerable experience of producing ethanol for transport fuel. Indeed at the World Conference and Exhibition on Biomass for Energy and Industry in Spain in June 2000, biomass-based fuels for transport received a lot of attention in view of rapidly increasing vehicle numbers. There was a concept put forward of "green" crude oil: produced by pyrolysis or other processes from plant materials, refined, and then distributed through existing distribution channels used for fossil diesel and petrol. Experience with biogas as a vehicle fuel was also reported (Healion 2001). To date there is no liquid bio-fuel industry in Ireland but considerable research has been carried out by "Teagasc" the Irish Agriculture and Food Research Authority. This included a successful pilot project which produced rape methyl ester (RME) as a replacement fuel for diesel engines and successfully demonstrated the fuel by running a bus, two mini-buses, a pleasure cruiser, an articulated truck and several light transport vehicles over 100,000km on the fuel (Rice 1995). While the economics of such production are currently weak, new work using recovered oils and other materials such as tallow allied with less stringent excise levies may allow economic production of biodiesel as a farm produced fuel in the future.

Conclusion

Rural areas in Europe are undergoing significant change and fundamental to this change is the changing nature of agriculture itself. A significant shift or new paradigm is needed and is being realised. Van Depoele (2000) has noted that;

> "*farmers can increasingly be regarded as 'rural entrepreneurs', who produce a whole range of goods in addition to agricultural commodities, provide services, including the environment, and necessarily combine a range of skills in the technical, financial and commercial fields"*

Among the agricultural commodities which Irish farmers are well placed to provide are various forms of renewable energy and farm based fibres. Their development offers significant opportunities for Irish agriculture. How these new opportunities can be realised raises interesting questions and challenges. Involving communities and co-operative groups has shown considerable results in other countries and community led developments in the renewable energy field in Ireland are already underway. The Tipperary Institute sees considerable potential for rural development in this approach and has been involved in four EU ALTENER projects to date, running from 1996-2001. These projects have involved knowledge transfer from expert partners, and programmes of active dissemination. Partners have included the Department of Short Rotation Forestry at the Swedish University of Agricultural Sciences and the Bioenergy Department of the University of Southern Denmark.

Acknowledgements

Mr. Michael McBennett (Current President of the Irish Bioenergy Association) raised the idea of Irish farmers returning to the production of "food, fibre and fuel". While Mr. Kevin Healion brought the idea to my attention. Thanks also to Kevin Healion for assistance during the preparation of this paper.

References

Bailey, R. (1999). The European Commission White Paper on Renewable Sources of Energy: An Opportunity for Communities in Ireland. I: Guest, C., Healion, K. & Hoyne, S. (Ed.), *Community-Based Development of Bioenergy: Survey and Workshop*. Dublin: COFORD.

Bulfin, M. Kent, T. Radford, T. and Cullinane, E., (1995). Formulation of Woodfuel Energy Crop Supply Strategies. The National Development Plan for Wood Biomass with Electricity Production as the Benchmark End-use. *EU Altener Programme. Contract no. XVII/4.1030/A94-124*. Cited in Rice, B. Bulfin, M. Kent, T. Frohlich, A, Lenehan, J., *Energy from Biomass* (1997). Dublin: Teagasc.

Central Statistics Office (1997). *Farming since the Famine – Irish Farm Statistics 1847-1996*. Dublin: Stationary Office.

Crosby, F. (2001). The High's and Low's of Wool. *Irish Farmers Journal*. http://www.farmersjournal.ie/001/0519/sheep/index.html. (Accessed 2 September)

Dawson, M. (No date). *Short Rotation Coppice – A Realistic Source of Renewable Energy.* Loughgall, Co. Armagh: Northern Ireland Horticulture and Plant Breeding Station.

Department of Agriculture Food and Rural Development. (2001). *Role of Agriculture and the Food Industry in the Irish Economy, 1999/2000.* http://www.irlgov.ie/daff/Publicat/Factsheet (Accessed 30 August 2001).

Healion, K. (2001). Bye-Bye, Irish Energy Pie. I: Douthwaite, R. & Jopling, J. (Ed.), *Feasta Review - Number 1*. Dublin: Feasta.

Ilberry, B. Chiotti, Q. and Rickard, T. (1997). *Agricultural Restructuring and Sustainability*, New York: CAB International. Cited in Lafferty, S., Commins, P., Walsh, J. (1999), *Irish Agriculture in Transition – A Census Atlas of Agriculture in the Republic of Ireland.* Dublin: Teagasc..

Kellett, P. (2001). Renewable Energy – The 21st Century Energy Business. Presentation at the relaunch of the *National Renewable Energy Information Service, Cork, Ireland.*

Lafferty, S., Commins, P., Walsh, J. (1999). *Irish Agriculture in Transition – A Census Atlas of Agriculture in the Republic of Ireland.* Dublin: Teagasc..

Matthews, A. (2000). Agriculture, Food Safety and Rural Development I: O'Hagen., J. (Ed.), *The Economy of Ireland – Policy and Performance of a European Region.* Dublin: Gill and Macmillan.

Meitheal Na Gaoithe. (2000). *Frequently Asked Questions*, An information piece for the Association's launch in April 2000. Tullamore, Ireland.

Pitcher, K. (2000). Turning Willow into Megawatts – The ARBRE Project. I: Milford, P., *Renewable Energy World, Volume 3, Number 6, United Kingdom.*

Rice, B. (1995). *Promotion of the Use of Vegetable Oil as a Diesel Engine Fuel Extender/Replacement in Ireland.* Final Report. Altener Contract No. XV11/4 1030/93-12. European

Commission. Cited in Rice, B. Bulfin, M. Kent, T. Frohlich, A, Lenehan, *J. Energy from Biomass (1997).* Dublin: Teagasc.

Shirley, J. (2001). Building Insulation – An Alternative use for Wool. *Irish Farmers Journal*. http://www.farmersjournal.ie/2000/0930/sheep/features.html. (Accessed 2. September 2001).

Sunday Tribune (2000). *Putting Down Roots, Commercial feature, 13 February 2000* . Dublin.

Van Depoele, l. (2000). The European Model of Agriculture – Rhetoric or Reality ? Implications for Rural Areas I: Pitts. E. (Ed.), *Proceedings Agri-Food Economics Conference 2000 – Investment and Perspectives*. Dublin: Teagasc.

Leena Rantamâki Lahtinen

Finnish Pluractive Farms – the Common But Unknown Rural Enterprises.

Introduction

Agriculture and forestry have traditionally been one the most important sources of income in Finnish rural areas. Few decades ago farms were quite diversified in agriculture, each farm had dairy, pigs, poultry, crop production etc. Specialisation has taken its place in Finnish agriculture since 1960's, although most farms are pluriactive in the sense that they have forestry activities as well. Now days most farms do have one the most important line of production, e.g. dairy or crop-production, and then have supporting activities for that activity, like growing fodder for animals. Earlier also national agricultural politics was in favour of specialisation, e.g. in the terms that different production quotas and agricultural subsidies were targeted more to the full-time farmers, while many pluriactive farms were categorised as "part-time" farms.

The number of farms has decreased in Finland and at the same time the number of the people that agriculture employs has fallen. On the other hand, the productivity of agriculture has grown and the farms are bigger than they used to. Earlier Finnish studies (e.g. Pyykkönen 1996) have shown that specialisation increases as farm grows. One could assume that remaining farms were highly specialised to agriculture, but due to results of census 2000 there is interesting phenomenon: a relatively large portion of Finnish farms is pluriactive in the sense that they have diversified their activities to outside of agriculture.

Generally pluriactivity has been seen as one way to get new jobs and enterprises to the rural areas and also provide more resources (e.g. land) to those farms that will specialise in to agriculture. Finnish pluriactive farms are quite unknown firms. Even the basic statistical facts of on-farm diversification – such as the number of the pluriactive farms or where they are located to– have not been available earlier. This has made it very difficult to do representative studies, because it has been impossible to make "correct" samples, since there is no farm population. Phenomenon's effects to the rural areas have also been difficult to measure due to this lack of information. Now, after the census 2000 we have the complete picture of the diversification and we can also make research that can be results that can be representative.

The subject of this paper is to describe the phenomenon in Finland and discuss how it is going to affect to Finnish agriculture and the rural areas. The goal is to evaluate its' effects on rural areas is to find out what kinds of farms have diversified their activities to non-farming lines of business, on what kind of activities they have diversified on and the discuss the question of where they are heading to.

Theoretical background

During the past decades specialisation a re-focusing has been studied a lot in economics and in agricultural economics. From the firms perspective advantages of specialisation are considerable; due toe neo-classical economic theory specialised firms are more

efficient and can easier achieve economics of scale. On the other hand, as Penrose (1995, 9. 105) states

> *"It may be true for many (if not most) lines of production that productivity and costs would ceteris paribus tend to be lower in the more specialised than in more diversified firms, and that in favourable periods profits on investment would tend to be higher. The proposition cannot be adequately tested, …. Even if the proposition were valid, however, it has but limited relevance for the determination of the most profitable use of its resources by an individual private-enterprise firm under conditions of change… it is largely because the changing nature of the productive opportunity of the firm continually presents new opportunities for new investment of which is profitable for the firm to take advantage while at the same time maintaining, and even expanding, those lines of production to which it has already extensively committed its resources ".*

Diversification is one way for small firm to reduce firms' risk being too dependent for one product, gain growth and also confirm the income of the owner-manager of the firm. Firms can also diversify in an effort to adapt customers' needs, to use spare resources, to change its direction and obtain synergies from products, markets or technology (Reed and Lufman 1986 ref. by Carter 1998). Firms that diversify are different, and also the problems which owners/managers -or farmers- are trying to solve by diversifying are different. For instance where individual firm growth is restricted as a result of sectoral reasons, multiple business ownership has been identified as a mechanism for achieving growth through the development a portfolio of businesses (Donkels et all 1987, Kolvereid and Bullvag 1992 ref. by Carter 1998). On the other hand, pluriactivity can diversify *entrepreneur's* resources too much and therefore be unprofitable for the enterprise. One of the biggest risks in diversifying is that firm diversifies beyond the optimal level, that is it becomes over-diversified (Markides 1995 p. 103).

Not only the reasons WHY farmers diversify, but also the ways HOW farms diversify vary. Carter (1998) divides pluriactive farms into three categories: 1) farm-centred diversification activities (e.g. agricultural contracting), 2) additional business ownership (on-farm and off-farm) and 3) external businesses located on farms. Finnish pluriactive farms can be divided into similar categories, although very little is known about the farms that lie in category 3 and hence they are excluded from this study. Carter (1998) views additional businesses as process of continuum. It raises very interesting question whether pluriactive farms are going to continue as diversified or are they on the process whereas they re-focus on their non-agricultural business.

Data and methods

The data was as a part of agricultural census 2000. The questionnaire was sent to all Finnish farms (total sample of 80 000 farms). The questionnaire contained questions on what type of activities farms had, how many people these activities employ, what was the economic meaning of the activity (sales and share on family's income) and were non-agricultural activities subject on law of agricultural tax. The answering to agricultural census is obligatory to the Finnish farmers, hence response rate was very high (99%). This data was analysed by non-parametric methods and later it will be used for econometric modelling to predict future.

The census data was then deepened by large postal questionnaire. Sample of 2100 pluriactive farms were picked up from the population of the pluriactive farms found in census. Samples were made out of the 11 different lines of business. Sample of 600 non-pluriactive farms was picked from the data collected in census and sample of 590 rural firms without farm background was picked for the rural business register for the comparative study. Response rate varied between groups from 37 % to 50 %. Data will be analysed by using multivariate data analysis. This data was collected with co-operation with Mikkeli Institute for Rural Research and Training and the Department of social psychology, which both are the units of the University of Helsinki. Some preliminary results of the survey will be presented on this paper, but mainly the paper is based on the results of the census.

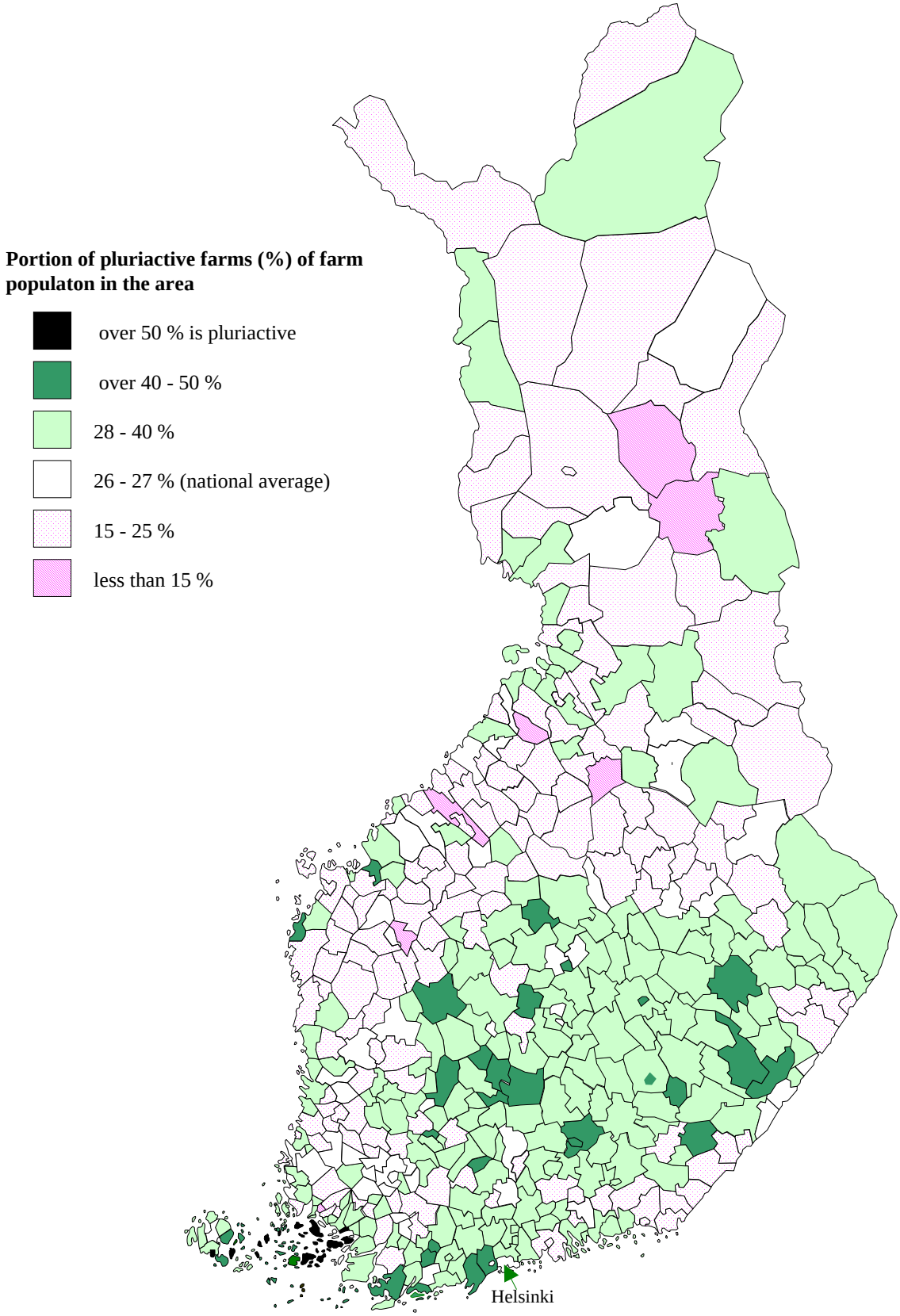
Results

The description of the phenomenon in Finland.

The results of the census show that pluriactivity is quite common in Finland, 21 800 (27 %) farms have diversified and had non-agricultural activities. On the other hand, almost 69 % of these activities were closely linked to agriculture; farmers used same machinery, labour or buildings to their non-agricultural enterprise as for agriculture and at least one member of the farm family or one owner of farm in companies were working on that enterprise. One-third of the diversified activities had been registered as a separate business from agriculture.

The number of the pluriactive farms is the largest in the area South-western-Finland and in Etelä-Pohjanmaa, those are the areas where also number of the farms is the highest. On the other hand, when one looks the portion of pluriactive farms of the farm population is highest in the archipelago of Ahvenanmaa and South-western and Southern-Finland (nearby larger cities) and in regions of Häme, Pirkanmaa and Etelä-Savo. In those regions portion of pluriactive farms can be as high as over 60 %. The portion of pluriactive farms is smallest in the "best" and the "worst" farming areas – in South-western Finland and in Etelä-Pohjanmaa and Lapland (the figure 1).

Figure 1. The portion of pluriactive farms of the areas' farm population.



The most common line of business was machinery contracting (agricultural contracting, forestry contracting, snow plowing etc.), 41 % farms were in that business. Other typical lines of businesses were agri-tourism, wood processing and small-scale food processing (table 1). Many of firms were highly diversified, 44 % of the pluriactive farms had more than one non-agricultural activity.

Table 1. Non-agricultural activities in Finnish farms 2000.

	Number of the farms	**Activity is connected with agriculture* (%) pluriactive farms**
Manufacturing		
Food-processing	1065	84 %
Wood processing	1349	77 %
Processing of the other farm products (like wool and flax)	134	83 %
Handicraft	274	59 %
Energy production	959	74 %
Manufacture of fabricated metal products	625	65 %
Miscellaneous manufacturing	380	65 %
Trade		
Wholesale and retail trade of the products, that are produced on the farm	475	79 %
Other wholesale and retail trade	581	63 %
Services		
Tourism, accommodation and other leisure activities	2272	76 %
Machinery contracting	8880	85 %
Health and social work (private)	263	56 %
Transport (taxi, truck)	1055	49 %
Miscellaneous services	2549	62 %
Primary production (other than agriculture and forestry)		
Aqua culture (production on fishes, crayfish etc. On the holding)	112	60 %
Fur farming	632	60 %
Other	233	

* Farmer uses same machinery, labour or buildings to their non-agricultural enterprise as for agriculture and at least one member of the farm family or one owner of farming company works on the enterprise.

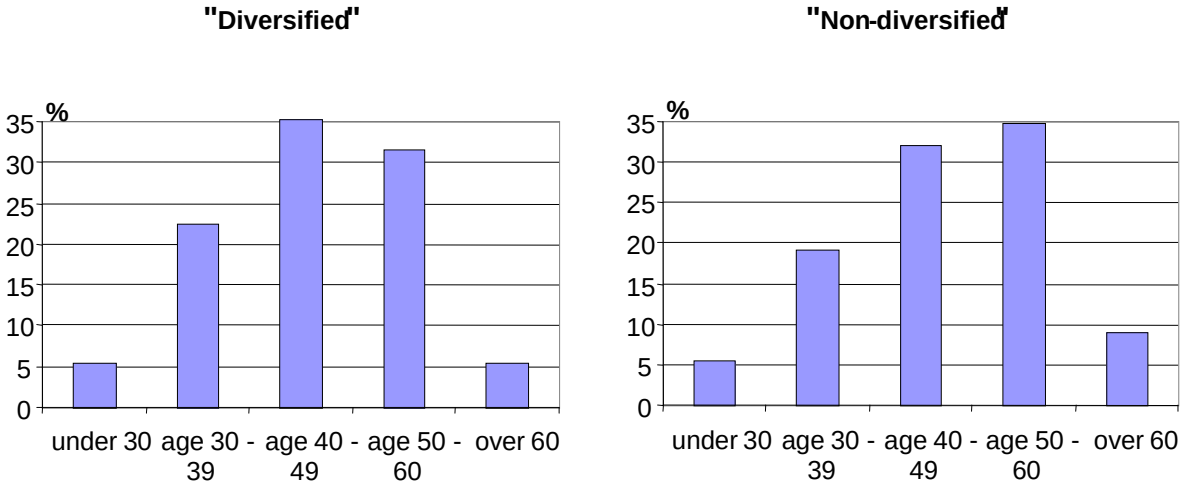
Size of the non-agricultural activity is often quite small. Pluriactive farms' non-agricultural activities employed approximately 16 000 personnel (annual working units) in 2000, so on average farm's non-agricultural activity employed 0.73 persons/year. Farmers themselves are doing over a half (54 %) of the work, an average farmer worked 4.7 months/ year and spouse 1.7 months/ year in their non-agricultural activity. 6,500 other family members work non-agricultural firms, an average they work less than one month in the enterprise. Non-agricultural activities employed 11 300 hired workers whose work was often seasonal; all together they work 3,000 annual working units/year, hence average hired worker worked 1.7 months.

Turnover of the non-agricultural activities was often quite small. In 42 % of the farms turnover of the diversification activity was less than 8,409 . On 6 % of the farms annual turnover was more than 168,188 . The meaning of the diversification activity to family's income varies. 46 % of the pluriactive farms got less than 25 % and 10 % of the farms got more than 75 % of their income from their non-agricultural entrepreneurial activity.

Farmers and agriculture in pluriactive farms

Farmers that have diversified are younger than the others are. Average age for active (age 20 – 65) "non-diversified" farmers was 47 years and median 48 years. "Diversified" farmers' average age was 45 years and median was 46 years. The age difference is significant by Mann-Whitney U –test (p = 0.000). These two groups had also different age-profile as shown in figure 2.

Figure 2. Age profile of the "diversified" and "non-diversified" farmers.



In diversified farms most common lines of production were crop- and dairy production. These are also in general the most common lines of production in Finland. When number of the pluriactive farms is compared to total number of the farms in specific lines of production, the diversifying was most common in those farms that crow special or horticultural plants as shown in table 2.

Table 2. The number of diversified farms spit by line of production in agriculture.

Line of production	Number of pluriactive farms	The portion (%) of pluriactive farms
Cereals	8365	30
Dairy	4311	*19*
Special crops	1580	36
Other bovines	1537	29
Other production	1365	33
Other crop production	1233	27
Hogs	1055	24
Horticulture	821	35
Equine	667	32
Poultry	360	29
Sheep and goats	270	30

Quite obviously the line of agricultural production affects the industry of non-agricultural activity. For instance it was typical for dairy farms to have a machinery contracting and for horticultural farm to sell the products, that are produced on the farm straight to the customers.

In most lines of production diversified farms are larger than "non-diversified" farms (tested by Mann-Whitney U-test), hog farms are the only exception. Diversified farms' average farming area was 32 hectares (median 24 hectares) hectares and non-diversified farms' average farming area was 26 hectares (median 20 hectares). Diversified farms' average forestry area was 53 hectares (median 36 hectares) and non-diversified farms' average forestry area was 46 hectares (median 31 hectares).

Some preliminary results of the deeper questionnaire

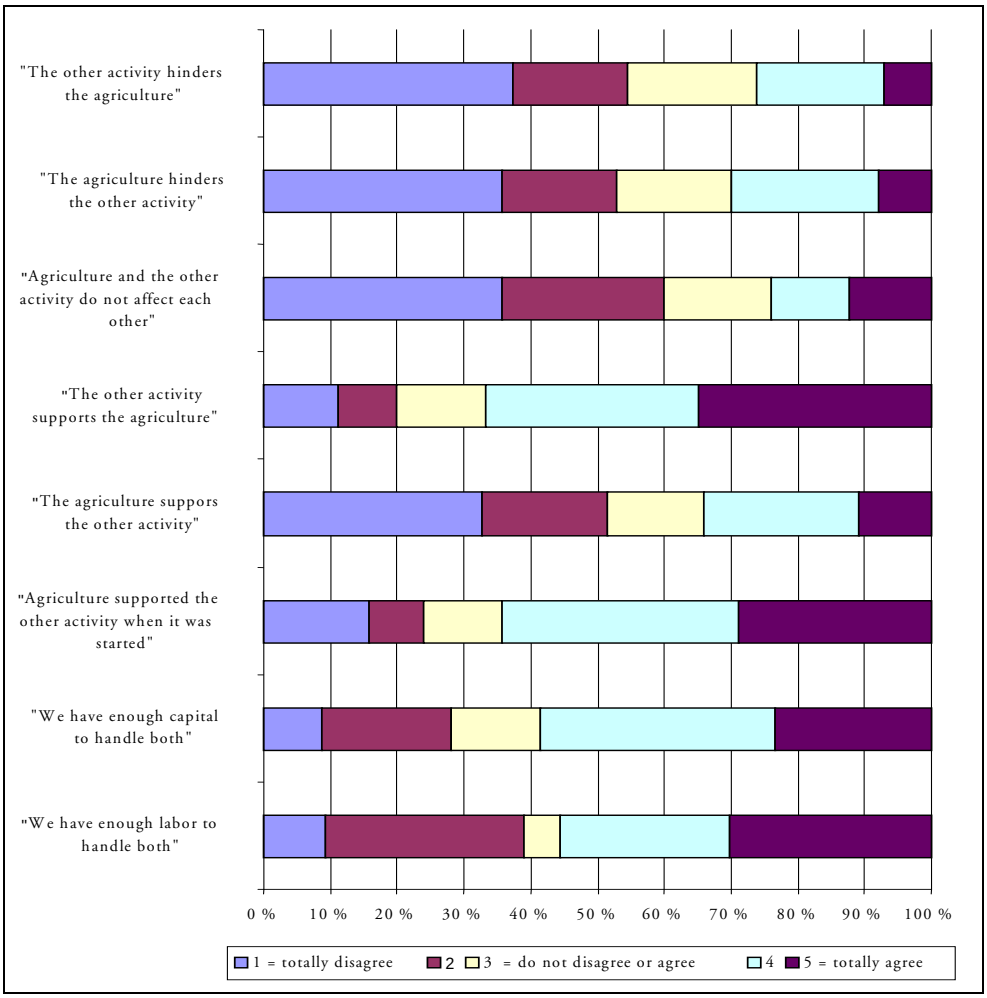
Earlier studies have pointed out that starting non-agricultural activities is often connected to the time that is the time in farm's history when big decisions are made: on succession. The preliminary results of the second data supported this hypothesis; 65 % of the respondents (N = 433) of the deeper survey have founded their non-agricultural enterprise themselves. 76 % of them had founded their enterprise after they took over the farm ownership. 39 % of the respondents founded their enterprise within (before of after) 5 years of succession on their farm. 24 % of the respondents had

succeeded their non-agricultural family business as well as farming. 57 % of them took over the both – the farm and the other activity - at the exactly the same year. The main reasons to start a non-agricultural activity were the need to higher income and will for working as independent entrepreneur.

The portion of income that has came from non-agricultural activity has increased and the respondents predicted that in would also increase in the future. On the other hand, the share of agricultural income has fallen and by respondents opinion will fall as well in the future. On average 43 % of family's income came from non-agricultural activity and 52 % from agriculture in 1997. Respondents predicted that on average their family would get 51 % of their income from non-agricultural activity and 40 % from agriculture in 2003.

Respondents evaluated the relationship between agriculture and other activity. As shown in figure 3 relationship is quite complicated. Agriculture and the other activity affect to each other. 67 % of the respondents evaluated that the other activity *supports* agriculture, but only 34 % though that agriculture supports that other activity. On the other hand, 64 % of the respondents evaluated that agriculture supported other activity by the time it was started.

Figure 3. The relationship between agriculture and the non-agricultural activity.



The question of what will happen in pluriactive farms in the future is important to rural areas. Most of the respondents (72 %) predict that they will continue their business as pluriactive farm in next few years. As shown in the table 3 for those that will not continue as pluriactive it is more likely to quit non-agricultural activity and continue farming. Only 4 % of the respondents predict that they will quit farming and continue their non-agricultural activity.

Table 3. Pluriactive farms' future plans in next few years (N = 598).

		Continues the agriculture	
		Yes	**No**
Continues the non-agricultural activity	Yes	428	23
	No	121	26

Discussion and conclusions

Pluriactivity affects to Finnish agriculture and rural areas in many ways. First of all, the phenomenon is quite common in Finland. Pluriactive farms do bring money and different work opportunities to rural areas all over the country. On the other hand, there are some "clusters" of pluriactive farms in Finland. Consequently it seems like farms have diversified in those areas whereas firm growth through agriculture is somehow restricted, but on the other hand markets and the customers are near enough. Diversification is strategic tool used more often by relatively young farmers.

Agriculture and non-agricultural activities are often linked with each other. Majority of the non-agricultural activities could be classified as farm-centred activities. The most common lines of business is machinery contracting, which can often be done by existing farming machinery. Agriculture and the non-agricultural activity do affect to each other many ways. Often agriculture supports the other activity at start but later it goes other way around. Farms may try to reduce the agricultural risks by diversifying. Since many Finnish pluriactive farms are very diversified (they have agriculture, forestry and 3 – 4 other activities) there is clearly risk for over-diversifying.

There has been a lot of discussion (e.g. Kinsella et al. 2000) whether diversification is "the way out of agriculture" or are diversified farms going to stay diversified. Due to preliminary results of both data sets used in this study, it seems like both ways will exist in Finland, but many of the pluriactive farms are going stay diversified in the future. One reason for is that their non-agricultural activity is closely linked to agriculture. It also seems like farmers that have diversified, are operating quite seriously in agriculture regarding to their farm size. Due to the results of the survey there appears to be third larger group; farms that have diversified but are going to re-focus back on agriculture. Hopefully, later as the study goes on, we'll be able to find out on what kind of farms are going to stay as diversified and which are the ones that re-focus on their non-agricultural activity or agriculture.

Finally, we would like to stress that neither one - the diversification or specialisation - is "the best solution" for problems that Finnish agriculture has. Specialisation and diversification are complementary to each other; farm that has chosen specialisation can focus for it's basic functions by using services of the diversified farmer, e.g. agricultural contracting. And vice versa; many of the customers and suppliers of the pluriactive farmer are the local specialised farmers.

References

Carter. S. (1998). Portofolio entrepreneurship in the farm sector: indigenous growth in rural areas? *Entrepreneurship and regional development, 10 (1998)*, 17-32.

Kinsella, J., Wilson, de Jong, F. & Renting, H. (2000). Pluriactivity as a livelihood strategy in Irish farm households and its role in rural development. *Sosilogia Ruralis. Vol 40, number 4 (oct 2000),* 481 – 496.

Markides, C. (1995). Diversification, restructuring and economic performance. *Strategic Management journal, Vol 16.(1995),* 101 –118.

Penrose, E. (1995). *The theory of the growth of the firm*. New York.

Pyykkönen, P. (1996). Maatalousyrityksen kasvuprosessi. (Abstract: The growth process of the farm –Empirical study on structural change in Finnish agriculture and farm growth). *Reports and discussion papers 141*. Helsinki: Pellervo Economic Research Institute.

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