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The resilience of small scale farming systems in Europe in the context of globalisation.

Farm resilience and the case of two alpine valleys in Austria

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Introduction

Many would agree that much of European agriculture is currently undergoing change at a level which is unprecedented in recent times (Edwards-Jones & McGregor, 1994). Market liberalisation and globalisation are two strong influences on farming systems. If we are to understand farmers, and their likely responses to a whole range of interventions they are currently subject to – from research, policy and markets –we must have a clearer understanding of the nature of the complex interactions between economic and social factors within the farming systems (Errington & Gasson, 1994).

This paper will discuss the usefulness of the ecological concept of resilience on farming systems and will further try to conceptualise the term ‘farm resilience’. The paper argues that resilience is a useful concept when describing and discussing European agriculture today. The special case of two alpine valleys in central Austria will be discussed to illustrate the theoretical considerations. More than to simply understand and work with the concept of resilience as it is presented within ecology and other natural sciences I thus aim to develop it into the agricultural sphere. This means that resilience has to be defined for social as well as for natural systems.

Why resilience and not sustainability which is a more commonly used term? First it has to be remarked that the two concepts are sometimes used in the same way. However, sustainability is a complex and contested concept. Since the Bruntland Commission put sustainable development on the map in the mid- to late 1980s, more than 100 different definitions of sustainability have been developed and published (Pretty, 1998). Difficulties with the concept of sustainability arise from its objectives, the level or scale to which it applies (species, ecosystems, social systems, the planet?), and its objective or subjective character (does it describe the objective conditions for something to be sustained, or desirable outcomes of widely agreed subjective goals?). To some it implies persistence and the capacity of something to continue for a long time. To others, it implies the ability to bounce back after unexpected difficulties (Pretty, 1995). In any discussion about sustainability, it is important to clarify what is being sustained, for how long, for whose benefit and at whose cost, over what area and measured by what criteria. Answering these question is difficult, as it means assessing and trading off values and beliefs (Pretty, 1997). Precise and absolute definitions of sustainability, and therefore of sustainable agriculture, are impossible (Pretty, 1998). Resilience, on the other hand, has a firm ground in systems ecology and can be defined from there. However, as we shall see, that is not fully unproblematic either.

The paper begins with a description of the situation of agriculture in Europe today and a discussion of the possible reasons and underlying theories. After that, the concept of resilience is introduced. This is followed by a brief discussion about farming systems ‘thinking’ and the concept farm resilience. The theoretical part is followed by a case study of strategies in order to cope with changes and ‘disturbances’ in modern agriculture of two alpine valleys in central Austria.

External pressures on European agriculture

The countryside is one of our most precious resources. It provides food, timber, wildlife and habitats, jobs, landscape, and opportunities for recreation. In most parts of Europe, these goods and services have been maintained by traditional farming systems (Pretty, 1998). Jules Pretty (1998) offers a vivid picture of the situation in European agriculture in his book 'The living land'. From his description it is clear that agriculture and rural communities in Europe suffer from stress and disturbances, internal as well as external.

The agricultural treadmill

In order to understand this development in the agricultural sector, the idea of the agricultural treadmill can be used. The theory of the agricultural treadmill describes a constant stress for farms as a whole, but at the individual farm it can express itself as an instant crisis and, possibly serious, disturbance. The mechanism in the agricultural treadmill (Cochrane, 1958 in Rölöing & Jiggins, 1998) is as follows: The large number of (relative to the size of the total market) small farms ensures that no individual farmer can affect prices. They therefore all face the same price for a given commodity. The early adopters of an innovation, which increases productivity and/or reduces costs, capture windfall profits because their increased output does not affect the market. However, others soon see the relative advantage and follow. Once the diffusion process takes off and large numbers of farmers adopt the cumulative effect of these individual decisions begins to exert a downward pressure on prices. Farmers who have not adopted must now do so in order to stay in the market place, but the investment now is no longer profitable. At the end of the curve, 'laggards' eventually drop off. In farming, innovation is a condition to stay in the market place. Hence Cochrane's notion of a treadmill (Rölöing & Jiggins, 1998). This has led to an increase in productivity in European agriculture, but also a rapid decrease in the number of farmers and increase of unsustainable types of farming prevalent in Europe today. The conventional model of agricultural development, of increasing farm size, increasing mechanisation and reducing labour input, is rarely challenged (Leaver, 1994). Further, there is a strong emphasis of research and development on input technologies for the resource-rich farmer. Very little research in Europe is directed at the problems of smaller farmers (Leaver, 1994). Intensification of farming systems is believed to be a major force excluding women while diversification often builds on women's skills and traditional activities (Gasson, 1994). 'Cochranes agricultural treadmill and its implication that productivity gains in primary production are passed on to processors, middlemen and consumers, provides a powerful economic theory to explain why even present day's highly capitalised, large scale and productive survivors of the shake-out during the last decades are still in a vulnerable position, especially if they are highly specialised and have no sources of off-farm income' (Rölöing & Jiggins, 1998). Combined with another strong force – the increasing globalisation of the world economy – farming systems become even more vulnerable.

Globalisation

The term globalisation refers to the growing integration of the world economy. Increasingly, local communities are interconnected through a global world order. The

activities of individuals, local communities and nations have become highly interdependent (Woodhill & Röling, 1998). According to Pretty (1998), there are two vital consequences for the food system. Farming is becoming more concentrated on exports, with developing countries encouraged to produce and sell high value crops and to purchase staples on the world market. At the same time, organisations concerned with food and input trading, manufactures and sales are getting larger in order to compete in the global market. They have to find ways to force down costs and capture greater shares of markets. This implies that the gradual globalisation of trade concentrates rather than opens up markets.

Ecological and social resilience

Ecological resilience

The point of departure when discussing resilience of agricultural systems is the definition of ecological resilience. This definition of resilience emphasises conditions in which disturbances (or perturbation) can flip a system from one equilibrium state to another. Resilience is the 'magnitude or scale of disturbance that can be absorbed before the system changes in structure by the change of variables and processes that control system behaviour' (Holling, 1986). Systems are seen to be complex, non-linear, multi-equilibrium and self-organising; they are permeated by uncertainty and discontinuities. Resilience in this context is a measure of robustness and buffering capacity of the system to changing conditions (Berkes and Folke, 1998). Ecological resilience is a measure of the amount of change or disruption that is required to transform a system from being maintained by one set of mutually reinforcing processes and structures to a different set of processes and structures (Peterson *et al*, 1998). Ecological resilience assumes that an ecosystem can exist in alternative self-organising or 'stable' states (Peterson *et al*, 1998). Reducing the variability of critical variables within ecosystems inevitably lead to reduced resilience and increased vulnerability (Holling, 1996). The definition of ecological resilience fits well with a dynamic view on nature. It helps us understand the natural system better. However, it is not enough if we wish to describe farming systems and their survival. A strong social component also has to be included.

Social resilience

In the social sphere, there is no commonly accepted definition of what social resilience might be. There is no single, universally accepted way of formulating the linkage between social and natural systems (Berkes and Folke, 1998). However, there is a big interest by ecologists in using resilience for social systems, as Levin (1998) states:

'One of the most interesting and potentially useful outcomes of recent collaboration between natural and social scientists concerned with the sustainability of jointly determined ecological-economic systems is the application of the ecological concept of resilience (Levin, 1998).'

Folke, Berkes and Colding (1998) suggest that the following are conducive for building resilience:

- Using management practices based on local ecological knowledge.
- Designing management systems that ‘flow with nature’.
- Developing local ecological knowledge for understanding cycles of natural and unpredictable events.
- Enhancing social mechanisms for building resilience.
- Promoting conditions for self-organisation and institutional learning.
- Rediscovering adaptive management. Adaptive management can be seen as a rediscovery of dynamic practices and institutions already existing in some traditional systems of knowledge and management, and some extent in contemporary local communities.
- Developing values consistent with resilient and sustainable social-ecological systems.

To conclude, social resilience needs to be described differently than resilience for natural systems. Human intention, cognition, purpose, goals, trust, equity and other phenomena typical for human systems have to be taken account of in a discussion on social resilience. A critical question then is how, and in what ways, ecological and social resilience can be connected and inter-linked in something that could be called farm resilience. It is clear that both social and natural factors play major parts on the farm. Farming systems and what a concept like farm resilience could offer in terms of understanding the farming system and its functions will be discussed in the next section.

Farming systems and Farm resilience - the absence of a definition

Farming systems

What is farming? Normally, farming is not a single activity and the only income-earning source for a farming household. Farming can be seen as a conscious and goal oriented process. ‘Farming emerges as a social construction – it is neither an environmental matter nor a production question, it is a societal issue’ (Portela, 1994). ‘Agriculture is a complex social process, not simply a complex, diverse and risky technical activity’ (Scoones & Thompson, 1994). ‘It is not sufficient to consider farmers as primary producers, businessmen or farm managers. They must also be regarded as managers of ecosystems’ (Röling, 1994). ‘Farmers continually interact with and adapt to their environment’ (Maxwell, 1984). ‘The farmer can be seen as an active strategist who problematises situations, processes information and brings together the elements necessary for operating the farm’ (Long & Villareal, 1994). A person who is engaged in farming is managing natural resources (crops and animals on the farm, ecological interactions with the environment) as well as social resources (relationships to other farmers, the rural community, researchers and extensionists). At the same time, the farmers are part of the farming system he or she manages, which in turn could be seen as a subsystem of a bigger rural community and ecological system.

‘Farming systems consist of resources (land, labour, capital), used in activities (crops, livestock, off-farm), which produce a flow of outputs (food, raw material, cash)’ (Maxwell, 1984). In addition to this, knowledge is a fundamental asset the farmer needs. The principal level of analysis in this paper, and in much of the farming system literature,

is the farming system. It is close at hand to focus then on the farming household. Although this is appropriate in some instances, it is not always the case. For example, a major problem area is the inadequate understanding and analysis of household differentiation, particularly with respect to gender (Gibbon, 1994). Within the household, different needs are present and individuals might work with or against each other. At the farm level, the individuals and the household interfaces with the farm (agro-ecosystem) (Röling, 1994). A balance and interconnection between the biophysical and social dimensions of farming is necessary (Woodhill & Röling, 1998), whatever focus one chooses to take. Using the language of systems thinking (Checkland, 1994), the farming activity can be thought of as both hard and soft systems, interconnected and nested. The soft part would be the social system of human interaction with other humans and with the environment, and the hard part would be what actually happens in the agro-ecosystem.

When exploring agriculture, the question is whether it is satisfactory to consider farming systems by themselves, as if they stood alone, or whether they are subsystems of much larger systems (Spedding, 1994). 'The problem is one of focus and scale. By only focusing on the micro level - the farming household and its individuals - the interpretation can fail to capture large-scale disturbances that set off new patterns of behaviour at the local level' (Ellis, 1998). Clearly, farming systems are part of something bigger. This brings the recognition that both the farm and the surrounding community are necessary units of analysis (Gibbon, 1994). Farmers are not the only users of the land and therefore it is necessary to take into account all other users or actors and their activities in the particular area (Benoit, 1994). Some of the key variables for the sustainable management of natural resources at the farm level can be controlled only by managing ecosystems at higher levels of aggregation (Röling, 1994). 'The need for co-managing of natural resources is both a technical and societal issue' (Pretty, 1998). Since this paper aims at developing the concept of farm resilience, the challenge is to develop a concept that deals with resilience on that particular level. Hence it is more appropriate to focus on the farming system level, keeping in mind that it is nested and connected with other systems on different levels.

Farm resilience

The definition of ecological resilience is useful but it needs considerable additions of concepts from the social sphere in order to function for farming systems. The critical features of resilient systems are: 'a hierarchy of feedback mechanisms; the maintenance of diversity; options for selection to act upon; and the coupling of stimulus and response in terms of space, time, and organisational scales' (Levin, 1998). For resilience in the social sphere trust, reciprocity, empowerment, institutions, human intention, connectedness and equity (among others) are concepts that need to be added. The level of analysis of the farming system is useful when developing a concept of resilience of the farm, where both ecological and social factors play equally important parts. Ecological and social resilience are nested and interdependent and need to be used and understood at the same time and at the same scale in order to be useful for farming systems.

Resilience is a useful concept when a system is under severe shock, stress or crisis. Stress is usually defined as a perturbation that threatens to upset the equilibrium of an organism or system. The resulting effect on the organism or system is referred to as strain (Deary, 1994). Ellis (1998) defines stress as a 'frequent, sometimes continuous, relatively small, predictable force having large cumulative effect.' The system itself can be in stress, or an individual component in the system, e.g. the farmer. 'A crisis, by definition, is a time of danger and great difficulty, a time for decisions' (Woodhill & Röling, 1998). Shock can be defined as a 'force that is relatively large, infrequent and unpredictable, and produces an immediate disturbance' (Conway, 1991).

To build resilience on the farm can be seen as a sort of risk management, a way 'to produce space for failures in the system' (Holling pers comm, 1999). It can be interpreted as a deliberate strategy to anticipate failures in individual income streams by maintaining a spread of activities. Coping, on the other hand, is the (involuntary) response to disaster of unanticipated failure in major sources of survival. 'The key point is that risk strategies imply forward planning to spread risk, while coping refers to the methods used by farming households to survive when confronted with unexpected livelihood failure' (Ellis, 1998). It should be added that in many environments, disasters and surprise is a normal part of the farm environment. Risk management and coping strategies are equally important. Coping strategies are crucial when resilience is being lost.

Another useful concept is that of vulnerability. It can be used for social, economical and natural systems alike. It is defined as 'a high degree of exposure to risks, shocks and stress' (Ellis, 1998). High external input systems in this sense are much more fragile than more traditional systems, especially with a medium to long term perspective (Calatrava, 1994). However, in today's Europe, it is the small farms that are under most pressure.

A further concept is adaptation. Livelihood adaptation can be defined as the continuous process of changes to livelihoods that either enhance existing security and wealth or try to reduce vulnerability and poverty. Marten (1988) describes adaptability as 'the enhancement of an agro-ecosystem's capacity to respond to disturbances in a way that keeps the agro-ecosystem functioning within acceptable limits for production'. Further, 'diversity of possible responses is a key to adaptability' (Marten, 1988). Adaptation may be positive or negative; positive if it is by choice, reversible, and increases security; negative if it is of necessity, irreversible, and fails to increase security. Negative adaptation can – but does not have to – result in more vulnerable livelihood systems over time (Ellis, 1998). The need for adaptation is almost always present since 'a good farming practice today can turn into a bad one tomorrow' (Portela, 1994). Pressures on, and challenges to, agriculturally-based livelihoods are 'intensifying and undermining the relevance of some earlier agricultural practices' (Bebbington, 1994). The key component of positive adaptation seems to be the ability to learn that humans have.

Diversity is a key factor contributing to resilience in both natural and human systems. Diversity can be seen as an indicator of resilience (Holling pers comm, 1999). 'Diversification strategies and off-farm employment are no longer simply means of risk

avoidance but are an integral part of farm business strategies' (Corcoran & Dent, 1994). 'Small farms normally have a greater on-farm diversity, which maintains both plant and animal biodiversity. They also tend to be more efficient users of energy, be better at preserving and enhancing landscape and wildlife, and have a better record with animal welfare' (Pretty, 1998). Small farms are often family farms (but there are naturally many big, industrial farms that belong to families). The family farm business has an advantage over other business forms is agriculture through its higher degree of flexibility. The family farm is able to draw on a wider range of survival strategies than the agribusiness counterpart. 'It is easier for a family farm to mutate into forms appropriate to an ever-changing social, economic and political environment' (Errington & Gasson, 1994).

Drawing on what has been said so far in this paper, I propose that resilience on the farm level – farm resilience – is the emergent property of three different strategies, which need to be traded-off. These are continuity, flexibility and adaptability. To be successful, each farm needs to have elements of all three strategies. In order to be able to operate a farm, a certain extent of continuity is needed. Even if the environment constantly changes, all changes are not in the form of big perturbations. Maxwell (1984) identifies four different kinds of change: normal variation, shocks, cycles and trends. Normal variation, cycles and trends can all to a certain extent help the farmer to learn about the farming system, in order to avoid larger crises. One of the functions of institutions is to confer continuity and they help shape the knowledge people develop. Diversity is an important factor in building resilience – ecological as well as social. Diversity keeps the flexibility of the system vivid, and sudden changes can be mastered without collapse. Flexibility in the social sphere can be described by nested institutions and exchanges between many and different people. 'Regular exchanges and reciprocity increase trust and confidence, and lubricate co-operation' (Pretty, 1998), and therefore builds resilience. 'Learning provides an alternative for crisis' (Röling & Jiggins, 1998). The ability to learn and adapt – adaptability – to changing conditions and new situations is crucial in a farming system. Adaptations are not necessarily for the better. I would argue, though, that an adaptation that is made under stress does not have to be bad, it can also enhance the system. Adaptive management is a way of dealing with natural resources proposed by Gunderson, Holling and Light (Gunderson *et al*, 1995). In theory it is easy: humans should manage natural resources in a way that benefits them, but that does not degrade the natural resource. In reality it is very hard. It is possible when human institutions are well functioning and nested over the hierarchies and when they are capable and willing to learn.

Now when we have tried to identify the components of farm resilience, one may ask what relationship resilience and sustainability have to each other. As was discussed in the introduction, sustainability is a complex and contested concept. I would suggest that sustainability is the overall goal and a resilient system is an indicator of that the system is heading in the right direction – to build resilience is a means of getting into the process of sustainability. Ellis (1998) expresses it somewhat similarly by stating that 'resilience is an integral part of the larger notion of sustainability. Sustainability attempts to convey continuity in the long term of the capacity of a system to reproduce itself or expand over time' (Ellis, 1998). One important finding is that sustainability of rural livelihoods and

farms is not the same thing as sustainability of particular ecosystems, even though a considerable amount of overlap can be expected between those two scales of sustainability. 'Sustainability of a lower order sub-component of a larger system is neither a necessary nor a sufficient condition for the sustainability of the larger system itself' (Ellis, 1998).

In order to put these considerations in a more practical context, an Austrian case study will now be discussed. More specifically it is a case study that currently is under work in two alpine valleys in central Austria.

Exploration of farm strategies in Austria

Austria

Austria is a country characterised by mountainous areas. European mountain communities are characterised by 'major demographic, economic and social instability, with a crisis of unemployment, disrupted communities and growing uncertainties over traditional achievements' (Pretty, 1998). Austria is not an exception to the general European case, and since it has a relatively high number of mountain farmers, the situation is even more difficult in many cases. Austrian agriculture is being more and more polarised. On the one extreme are farmers focusing on growth and production increases, on the other is a focus on sustainability and the maintenance of the ecological and socio-economic functions of agriculture (Bundesanstalt für Bergbauernfragen, 1999). This is connected to the two major survival strategies that can be identified in Austria: diversification of income sources and intensification of production on the farm. The percentage of farmers working full-time on the farm is rapidly decreasing and will continue to do so (Bundesanstalt für Bergbauernfragen, 1999). Many of the farms are run by people in retirement age, and even more common is the development of off-farm income for both or one of the spouses in the household (mainly the husband) (Bundesministerium für Land- und Forstwirtschaft, 1998). Most agree that Austria cannot compete on the European market with cheap mass-production. The solution is therefore to put efforts into getting as much as possible of subsidies and grants from the different EU funds, and to develop an ecologically sound production. Many farmers in mountainous areas have converted their farms to organic agriculture, and are encouraged to do so (Bundesanstalt für Bergbauernfragen, 1999). However, the most common type of farmer in Austria, as the Bundesanstalt für Bergbauernfragen (1993) describes it, is a household that wants 'stable reproduction'. That is, as few changes as possible is preferred, in the farming conditions and in the activities on the farm. These farms are characterised by 'a reluctance to frequent changes and adaptations, and fall into problems when agriculture enters a period of stress and disturbance'.

The average farm size is 15.4 ha and almost 70% of all the farms are situated in so called less favoured areas (Bundesministerium für Land- und Forstwirtschaft, 1998). Pretty (1998) would argue that Austria still benefits from the positive properties of small scale diverse farming systems, even if they are rapidly decreasing in number. According to the Bundesanstalt für Bergbauernfragen (1999), Austrian farmers have a high awareness of

environmental problems and a relatively big scepticism towards new technologies. This could have important implications for farm resilience and the sustainability of the agricultural sector.

The case

The two alpine valleys are situated in central Austria in the broader valley system of Ennstal. The valleys consist of three communities with many small villages spread out within them. Agriculture and forestry have long shaped the landscape of the valleys, even if climate and geographical conditions are harsh for agriculture. Many farms are situated on such steep land that they have to be managed fully manually. These farms are the first to be given up by the younger generation. Until the 1960's, self-sufficiency was not unusual, and alongside the grazing cows and sheep and the dairy products they gave, farmers produced vegetables and cereals for their own consumption. This changed with the increased industrialisation of agriculture in Austria and the rest of Europe. The governmental- and extension bodies promoted dairy farming in the less-favoured areas of Austria and so these valleys became an area of natural pastures and milk/meat production. Even if farms have been given up in a rapid rate since the second world war, the structure of agriculture in the valleys is still very small and farm sizes of a few hectares, some cows and sheep are not unusual. In this area – where the natural conditions do not allow very intensive agriculture, and where high external input agriculture does not pay as much as in low land areas – the main survival strategies of farms to survive have been to diversify income opportunities and, later, conversion to organic agriculture. The valleys are situated in a region (NUTS III region Liezen) with 30% certified organic farms, and even conventional farmers claim that they farm according to the organic regulations.

In the two valleys interviews with farmers have been carried out in order to explore what strategies are used in order to survive, what concepts of sustainability they have, and what potential organic agriculture has when fulfilling the wishes and aspirations of the local farmers. Since this study is in progress, only preliminary findings can be presented in this paper. In table 1, a first try to fill 'farm resilience' with a content for the valleys is presented.

Table 1. Resilience in the valleys

Continuity	Flexibility	Adaptability
Pass farm on to next generation	Work off farm	Take advantage of EU support – convert to organic agriculture
Keep the dairy cows	Market products directly	Re-negotiate gender roles
Use alpine pastures	Process on farm	Keep informed and open
Do not let forest increase	Develop tourist sector	More subsistence farming
Use EU support		

In ecology, resilience is a property without normative value. In farming systems, however, resilience acquires a normative touch since the farmer defines within what 'space' he or she considers him/herself to be resilient and where resilience is lost. In the case of the two valleys, it has shown so far that farmers define themselves as farmers through their dairy cows. A landowner with cattle or sheep is considered less of a farmer than a dairy farmer is. The first step to give up a farm in this view is when dairy cows are sold. Further, diversification of farm income is partly seen as problematic. So far, all interviewees have shared the opinion that the preferred state is when both spouses can be fully engaged in the farm. Possibilities for the husband (mainly) to work off farm for additional income as it fits, and at times when farm work is less intensive, is seen as a positive opportunity. A full time off-farm work, however, is seen as a negative 'must' in order to bring enough income to the farm.

One of the first priorities for farmers in the valleys is to be able to pass on their farms to the younger generation, probably not an uncommon wish within European agriculture where family farms are the norm. Farmers feel responsible towards the next generation(s) and obliged towards the past generation(s). In this respect, gender roles emerge as an important issue. In many cases, the gender roles are still traditional in the valleys. This means that the woman is responsible for household, children and the work in the cowshed¹. Men normally do the work in the forest, take care of the farm machines and bring the manure on to the fields. During harvest time, the whole family is expected to help out on the fields. In the interviews so far, it can be concluded that farms that have a traditional view on gender roles are more concerned about the future of the farm. They fear that no young woman will like to take on such a job any longer. Further, such farms are less flexible, since certain jobs need to be carried out by a certain person that might not be available at all times.

Due to the climatic and topographic conditions in the valleys, the cultural landscape is considered something that brings quality of life and opportunities for tourism. Even if the forest is an important income for farmers and other landowners, forestation is seen as a threat to the cultural landscape. In this context, the alpine pastures are valuable, since they help keep the landscape open and since they help keep avalanches away (grazed, short grass 'cling' to the snow and does not let it slide as easily as long, laying grass).

The pressures from the outside world, mainly the 'market' and the EU make many farmers uncertain of their role. Most try to keep up with the help of available information, EU subsidies (which is seen as a compensation for the low prices) and diversification of incomes. Some farmers even consider going more into subsistence, as a combination of self-sufficiency and tourist attraction.

Farms in the valleys are embedded in a social network of friends, extension services, neighbours, family, etc. This is important to take into account when discussing farm resilience since the farm is dependent on the system surrounding it. In the preliminary

¹ It is interesting to note that male farmers seem to define themselves (having dairy cows) through a predominantly female responsibility on the farms.

findings this is mainly expressed through the need farmers see to inform themselves and give their children a proper education.

Conclusion

The countryside is changing faster than ever, and the two presented valleys are only one example. Social structures are also changing and the stability of these structures is breaking up. Still, the valleys are populated with people that want to stay where they are and that want to continue farming despite the pressures from the world round them. They develop strategies in order to achieve this, and these have been briefly analysed in this paper. Connecting back to the concept of farm resilience it seems that continuity, flexibility and adaptability are useful components of a resilient strategy of farm in order to cope with disturbances and an ever changing world. There are still many questions, however, and it needs further thinking and fieldwork before a more solid definition of 'farm resilience' can be presented.

This paper has presented work in progress and the intention is that it will be accomplished in two years time. The author hopes to be able to present more solid findings at that time.

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