

Constructing sustainable agriculture at local level. Insights from small-scale farming in the Alps

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Summary

Our paper presents both results about small-scale farming in the Alps and general information and methods to analyse, implement sustainability of small scale farming.

At alpine level we discuss:

- how sustainability of mountain small scale agriculture is viewed by local groups of actors involved in a participatory project, specially from the point of view of the role of agriculture into rural development
- the solutions elaborated at farm and local levels in favour of sustainable agriculture and rural development
- the consequences of such an approach both in terms of research methods and tools for action.

The general information presented concerns:

- A tool to elaborate local plan of action in favour of sustainable agriculture
- Consideration on relevant scientific methodologies to analyse the functions of small-scale farming and the implementation of actions in favour of sustainability of agriculture
- The assets and limits of the local level as a core level to identify and implement sustainability and multifunctionality of agriculture.

Key words: local governance, small-scale farming, partnership, sustainable agriculture, territorial development, Alps

Objectives and context

Agriculture and society searching for a new social contract

New demands to agriculture are expressed in different fields: quality and diversification of products, environmental management, valorisation of local resources, social and cultural concerns. Those demands have emerged as reasons and solutions to establish a new contract between agriculture and

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society responding to sustainability and multifunctionality challenges. In mountainous areas, the natural handicaps and specific adaptation of practices of small-scale farms make the implementation of these concepts peculiar.

Sustainability and multifunctionality of agriculture are no longer seen as a simple adaptation of agricultural practices. They require construction of a new social and individual rationality¹ for farmers and new forms of governance to handle the relationships between agriculture and society. This search for a new contract between agriculture and society concerns different levels: world-wide, European, national, local, farm. The local level is often seen as a core level to establish new links between agriculture and society: the main and current assumption is that local level could play a prominent role in integrating different objectives and in associating several actors into a consistent development project. Associating the local level and actors' participation appears to be a way to translate sustainability and democracy concepts into actions and to build bridges between agriculture and demands of society.

The objective of our paper is to discuss :

- how sustainability of mountain small scale agriculture is viewed by local groups of actors involved in a participatory project, especially from the point of view of the role of agriculture into rural development
- the solutions elaborated at farm and local levels in favour of sustainable agriculture and rural development
- the consequences of such an approach both in terms of research methods and tools for action.

Our paper is based on two European research-demonstration projects. As for demonstration part, the first project proposed to design a plan for rural development for the coming 20 years and the second project gives the conditions to implement some of the ideas of actions formulated in the first project. As for research, scientists assessed sustainability of small-scale farming in the first project, and in the second one, they will assess the impact in terms of sustainability of processes induced, at local and farm levels, by the implementation of action plans discussed collectively.

The paper is articulated around 4 parts. Part 1 is dedicated to the context, including the theoretical framework, the geographical environment and the methodologies applied. Part 2 will present the problems of sustainability of small-scale alpine farming. In part 3, we will present the multi-actors group and the resulted actions plans targeting a more sustainable agriculture for small-scale farming systems. In part 4, we will discuss the assets and limits of the local level as a core level to identify and implement sustainability and multifunctionality of agriculture.

1. Analytical framework and local context

1.1 The analytical framework

Agriculture and society are searching for a new partnership that responds to challenges posed by the concept of sustainable development. The notion of sustainability in agricultural sector has been translated into or assimilated to the construct of multifunctionality. The multifunctionality was recognised as a key notion in the 1990s and was integrated in the Agenda 21 in chapter 14 entitled "promotion of agricultural, rural and sustainable development".

¹ The term "rationality" is used in the meaning of what is making sense for people.

The multifunctionality as well as sustainability were mainly interpreted and worked out towards environmental protection. The concept of multifunctionality highlights the derived functions of farming, different from productive and technical aspects such as the ecological functions and the social benefits, i.e. landscape upkeep, landscape assets for tourism development, management of habitats where biodiversity is important. These intangible aspects are today considered as reasons and solutions to maintain farming in rural areas where small units dominate.

Sustainable development concept has been also discussed as the basis for establishing participative processes in decision-making and developing new forms of governance. Changing sustainability concept into practice turns to work with inter-sector perspectives and create partnerships. The objective of partnerships is to overcome sectoral views and to allow consensus through participative decision-making processes.

All these concepts theoretically well-defined and broadly admitted in international spheres are hardly implemented. The individual farm level has been a privileged scale to move them towards concrete actions (Abelson, 1995; Commission of the European Communities, 1999; Freret & Douguet, 2001). Individual contracts were tested through European, national and regional measures (i.e. agri-environmental measures) to draw up concrete implementations responding to sustainability and multifunctionality challenges. However it was acknowledged that the impact of those contracts is limited. On the other hand, collective actions, like LEADER initiative are supported but their effectiveness in terms of sustainable development vary considerably from case to case (Buller, 2000, Esparcia Perez, 2000, Shucksmith, 2000) and the necessary consistency between different levels of intervention (i.e. farm and local territory) are not easily grasped.

1.2. The Alps context: the Alps and its agriculture

The Alps are often considered by local people or tourists as a unique natural and cultural heritage. Similar to other mountains regions, the area has steep environmental gradients (altitude gradient, slopes, exposure). But in a sense, the Alps are specific because these biophysical contrasts have interacted for centuries with a wide range of agricultural, pastoral and forestry land use. Such a complexity of the ecological and human factors coupled with biogeographic factors explain the remarkable contribution of this area to biodiversity in Europe. Their role as mineral and water reserves for low lands is also very important (Messerly & Yves, 1997). Agriculture is often responsible for this high environmental value and many rare species, biotopes with national and European value, valuable landscapes, etc. depend on specific agricultural practices such as mowing, grazing, various forms of fertilisation, maintenance practices concerning hedges, the edges of forests, etc. (Euromontana, 1997; Dax & Wiesinger eds., 1998).

Consequently, the natural and cultural resources so often admired are partly the result of the past and are therefore very sensitive to variations in human conditions (economic and political), specially the current severe decrease of small-scale farming (European Commission, 1995, MacDonald and al., 2000).

In comparison with intensive agriculture in low lands, Alpine agriculture still has *a good public image* (Pruckner, 1995, IUCN, FAO, ICALPE, 1996, Euromontana, 1997, Fleury, 1999) of a low-input agriculture, developed in natural areas, producing high quality products (cheese). But economists and sociologists have pointed out that mountain agriculture is generally a declining sector. The distances involved and physical disadvantages reduce competitiveness and place severe limits on adaptation.

Farmers have difficulties in developing new strategies suited to the changing economic and social environment.

This process could be explained by changing economic conditions and competitive disadvantages compared with non-Alpine regions (Bazin, 1995; European Commission, 1995). Social changes are also underway with a general decrease in agricultural communities which impacts on the social and cultural environment. (Pruckner, 1995).

1.3. the research and action context

Our approach is based on two European projects:

- The first implemented from 1998 to 2000 was a research and development project (Contract FAIR5-CT97-3798), entitled “sustainable agricultural land use in alpine regions” (SAGRI-ALP). During this project local groups of actors in five areas in the Alps (France, Switzerland, Austria, Italy, Germany) and a scientific assessment of sustainability of agriculture were associated. By means of the “future workshop” method (Jungk & Müllert, 1996), the wishes and objectives of local people for sustainable agriculture were determined and their own sustainability points of view were understood. Finally the local groups of actors elaborated action plans in favour of sustainable agriculture and the researchers structured and organised the process in a practical “guideline to formulate local plans of action for sustainable agriculture”.
- The second one, a 3-year and on-going research and demonstration project, started in January 2003 (Contract QLKT5-CT-2002-01099) entitled “implementation of sustainable agriculture and rural development in alpine mountain” (IMALP) involves 4 pilot areas across the Alps (Moyenne-Tarentaise in France, Val d’Hérens in Switzerland, Oberes Drautal in Austria and Val di Sole in Italy). This project aims to implement the action plans elaborated in the previous project. Local groups of actors are facing the concrete implementation of actions plans. The scientific team has to produce a set of methods for a permanent assessment of the process. Finally, to establish the conditions of general applicability of such experiments, both scientific and local actors evaluation of the process will be confronted.

1.4. Four study areas in the Alps

The four areas of the project illustrate the specificity and diversity of agriculture in alpine mountains

The “**Val di Sole**” is a territory located in the autonomous province of Trento, commonly known as Trentino, at the North-East of Italy. Part of the territory is included within the Stelvio National Park. Agriculture, the traditional activity of the valley, has been progressively replaced by both winter and summer tourism. Main **agricultural sectors** are, traditionally, livestock breeding and, more recently, fruit-growing sector, almost limited to apples, occupies the low valley and is continuously expanding, mostly among young farmers. During summer, mountain pastures are exploited by pastoral units, the milk is used up to produce “Grana Trentino”.

The *Moyenne Tarentaise* is located in Savoie in France. Over the last decades, the economy has been more dependent on tourism and winter sports Farmers have exploited since a long time an area where the relief is hilly and the climate harsh, on the basis of collective organisations grounded on the production of a high-quality cheese called Beaufort. About 240 farms exploit grasslands on the valley slopes, and collectively manage pastures that are also used for winter sport resort. The mean UFA in

Moyenne-Tarentaise is 28 hectares and 60% of farms are considered managed by non-entrepreneur farmers.

The *Val d'Hérens* is located in the Valais Central near Sion in Switzerland. Magnificent landscapes and proximity with high peaks have attracted tourists since long ago in summer, and more recently in winter. Farming is based mainly on little dairy farms with alpine pastures. The number of farms (207 in 2000) and the number of people employed in farming (431 in 2000) are decreasing (from 1990 to 2000 : number of farms –29%, number of farm employee –37%). On the opposite, the UFA has been increasing during the last 20 years. The average farm size is therefore increasing, but with an average of 9,3 ha per farm in 2000 it is still remaining very small. More than 75% of the people on those farms are not full-time farmers. Among the 207 farms of this territory, 80% are dairy farms with an average of about 7 cows per farm.. The main breed is of the local “*Hérens*“ type. In winter, the milk collected is transformed into cheese, mainly of the “*raclette*” and “*tomme*” type. In summer, part of the milk is processed in the high mountain pastures where other smaller dairies are settled.

Oberes Drautal is a valley located in the southern part of Austria and belongs to the district of Spittal a. d. Drau in Carinthia province. The main agricultural land uses are intensive grassland, annual crops and alpine pastures. Forestry contributes to a high degree to the farm income. 75% of farmers are part time farmers. Tourism is today an important factor for the regional economy and an additional income for farms. Because of the importance of forestry the main industries in the pilot area are wood processing and wood working industries.

The similar aspects of the agriculture of these areas are consistent with the general alpine situation :

- The number of farms and the number of people employed in farming are decreasing. The risk of seeing all small farms disappear is high in these areas. Meanwhile, the average farm size is increasing, but the average size remains lower than in plain.
- Part-time farming is developing;
- Links between farming and tourism turn out to be a key aspect through land use and land upkeep, for on-farm sale of high-quality cheese and for part-time jobs linked to tourism.
- Agriculture is mainly based on an extensive use of permanent grasslands and alpine pastures;
- The production of high quality cheese is frequent.

1.5. Methodologies applied

We used different methodologies involving both scientists and local actors in a combined demonstration and research programme consisted in two projects so-called SAGRI-ALP and ILMAP. The methodologies are the followings.

(a) A demonstration phase

The demonstration phase consist in **building-up and implementing action plan in favour of sustainable agriculture based on a team of local actors, in the four European areas located in Alps.**

The first stage is the constitution of a work group representing the diversity of actors concerned by agricultural development (farmers, representatives on the communal level, mayors, economic actors as tourism, forestry industry, ngo’s, etc.) and willing to involve themselves in a long-term project. **The use of participative methods** is the general rule for activation the group. They respect essential factors, namely speaking rules, listening to others, expression of ideas, creativity, sharing the same goals and

respecting the different members, no judgement of others. One of the main points of the process is to focus on the construction by the actors, rather than by the experts.

A progressive and structured process. The group gathers on a regular basis. The elaboration and implementation of the action plan is organised with the following main phases of the process:

- **Sharing the territorial assessment:** Using the own know-how and scientific assessment of local agriculture and territory the local people analyse the present situation and identify the strengths and weaknesses of agriculture and the territory. The objective of this phase is to specify the main concerns and objectives for sustainable agriculture.
- **Imagination phase:** the group builds up common set of consistent and realistic ideas for sustainable agriculture and land use over 20 years. By means of the « future workshop » method, the diagnosis of problems, wishes and objectives of local people for sustainable agriculture are determined and their own sustainability points of view are understood. The precision of these ideas must be high, taking into account every component of local development, i.e. which kinds of activity, what population and where, which farm types and networks, what local political organisation, which relations between activities, etc. The result of this phase are scenarios for a possible and desirable future for sustainable agriculture, capable of reinforcing the weak points detected in the diagnosis. It is possible to establish and compare different scenarios, reflecting different points of view on the future. After actions plans for sustainable agriculture are designed and implemented by this group.
- **Elaboration phase of a plan of action:** This is the translation phase of the desirable ideas into concrete plans of action. The local group identifies a succession of steps that must be implemented and the means that must be mobilised to realise their "dreams". At the end of this phase, the result is a collective project translated into an operational plan of action.
- **Implementation of a plan of action:** during the implementation phase (on-going project IMALP) the local group is in charge of the management of the actions, the aim is to obtain collegial and consensual decision in terms of specification of the actions, in case of difficulties adjustment of their implementation. Complementary small action groups (4-5 persons) are established to ensure the detailed and practical management of each action.

(b) Scientific evaluation

The scientific evaluation aims at analysing the problems of sustainability of agriculture based on an interdisciplinary research team including the following disciplines : ecology, geography, agronomy and economy. A system approach was retained for a overall diagnosis, a set of indicators of sustainability of agriculture was developed to evaluate sustainability (Fleury et al., 2001), and finally a sociological analysis is being conducted to observe the multi-stakeholders processes provoked by the designing and implementation of action plans. The last two approaches are orientated towards the analysis of changes and processes.

- **The system approach** allow a detailed diagnosis of sustainability of farms and territory at local level. It encompassed :
 - a standardised investigation of abiotic and biotic conditions (general geographical characteristics (altitude, climate), geological conditions, hydrology and water resources, type of land cover (Corine land cover), altitudinal zonality, surface in protected areas (national park...)). This diagnosis consists in collection of existing data, maps, etc.
 - a description of agriculture from a socio-economic perspective. Three levels were considered: (i) Regional structure (economic, socio-economic and demographic situation and evolution, socio-economic function of agriculture and relationships between other activities, recent

- evolution of agriculture); (ii) Agricultural product markets (evaluation of marketing value of agricultural products, potentials for new orientations).
- a farming system analysis. It informed the diversity of farming systems through a typology of production systems, with data on strength and weakness of farm types, relationships between types of farming system and patterns of land use and agricultural practices. This work is based upon on the analysis of existing data, interviews of local stakeholders and a survey in a sample of representative farms of each area.
 - an evaluation of land use and analysis of environmental states. Landscape was subdivided into area units according to the land use and landscape ecological criteria. For this step we used cartographic analysis and landscape survey.
- **The evaluation of the impact of the implementation of the action plans associates two approaches:**
 - A set of indicators is being developed as a quantitative or semi-quantitative measure in terms of sustainability of the local agriculture. The objective is to track sustainability progress through a set of indicators that will be interpreted in relation with the analysis of processes.
 - An analysis of the processes (characterising changes in progress and the role of action plans within process of change). This analysis is based on 2 methodologies:
 - sociological analysis of actors processes in terms of governance and sustainability at local and territorial level. The objective is to evaluate the capacities of the local group members to negotiate in a collective way a broad agreement about the goals, the rules, and the means of change towards sustainable agriculture.
 - a farming system analysis : assessment of farm sustainability according to (i) farmer's objectives, constraints and assets (characterisation of farmer's strategic choices) and (ii) territorial objectives; characterisation of the process of change on the farm (links between strategic choices, actions, context and consequences). The on-farm survey is conducted as a semi-directive interview with room for the farmer to express himself/herself and explain his/her practices and choices.

2. Problems of sustainability of small-scale farming in the Alps

2.1. *sustainability of alpine agriculture today*

According to the debates in the local groups of actors and to the scientific diagnosis in the SAGRI-ALP project problems of sustainability in Alpine agriculture could be sum up as follow:

- the agricultural income remains lower to plain agricultural income in each research area (about 30 to 40 percent in average according to Eurostat data). These differences can be explained by a lower size of farms in comparison with the plains, and over-costs in equipment in case of comparable levels of modernisation (Bazin, 1995). In mountain areas, physical disadvantages place severe limits on technical and structural adaptation and reduce competitiveness of agriculture.
- In the Alps, agricultural environmental problems are clearly related to two trends in the evolution of agricultural land use, namely intensification and land abandonment. Few areas are affected by either abandonment or intensification alone. The process of agricultural land-use adaptation to socio-economic pressures is an abandonment/intensification phenomenon: intensification on accessible and better quality land and abandonment elsewhere. The environmental impact of intensification identified are due to: local over-use of organic fertilisers, the occasionally use of pesticides and herbicides, and overgrazing or grazing near water catchments in Alpine pasture. All these practices

have negative impacts on biodiversity and water quality (bacteriology especially). Land abandonment affects negatively biodiversity (especially for species living exclusively in open biotops like grasslands), landscapes and soils. The ecological processes involved are encroachment of vegetation onto old field sites and loss of grassland areas to scrub and forest.

- The social impact of farmers is now low, being closely linked with the decrease of agriculture. The economic development of the Alpine valleys is bringing new residents, with high exigencies on quality of life conditions largely based on quality of the near environment. For example, survey on local stakeholders have complained again farm buildings with bad smells inside the villages. This shows that farmers have some difficulties to find a new position in the new sociological context. Whatever this position cannot be as dominant as in the past and the current evolution of the social recognition of agriculture by local people is one of the major concern of farmers.
- In general, the increase of the size of farms and/or the decrease of the number of AWU by farm, are at the origin of the increase in time of work. This high work time corresponds to a gap in comparison with the rest of the local society. The social relations with other populations (high celibacy rate among farmers for example) can sometimes be very weak because of this problem. And today, farmers long to new way of living (holidays, social life, etc). For farmers the problem is more related to lack of holidays and week-end, periods of work overload than to the average annual duration of work. From the direct point of view of the farmers, this problem of work time is one of their first constraints, in term of liveability which is an essential aspect of sustainability.

These general problems could be specified and concerning sustainable agriculture we identified three major perceptions, characterised with difference in the balance between the environmental, economic and social components of sustainability:

- 1 – Economic factors are the primary concern : the maintaining of farms requires sufficient income.
Today the major threat is that agricultural income in mountain remains lower than the one in plains regions. Present-day farmers feel more and more like producers of goods and business managers. Such an attitude is common among young farmers, who clearly separate meadows with high agronomic value for production, from poor, difficult fields which could be maintained for landscape reasons with financial support from society.
- 2 – The quality of rural life is the secondary factor of concern. The social impact of farmers is now low and still declining. Farmers have some difficulties in finding a new social position which could be a problem in founding a family and taking part in the decisions of the community. The frequent work overload on certain farms is also a major concern. Such an attitude is common both among farmers and representatives of communities.
- 3 – The environmental topic is rarely mentioned by farmers (except positive landscape impacts of agriculture or locally some problems referring to water quality). We can summarise a common point of view of farmers concerning the relationship between agriculture and the environment in the following sentence: "The landscape and the rural area are the result of our work, environmental quality depends on agriculture, so the balance between the negative and positive impacts of agriculture is always largely positive". Such an attitude, common in the different Alpine countries, is more pronounced in regions with Latin culture than in regions with German culture, where from an historic point of view "wild nature" is more important. However, for NGOs involved in environmental protection, the reduction of negative environmental effects by agriculture and the promotion of environmentally friendly practices are important.

Whatever the perception, **three major limits for the implementation of sustainable agriculture are stressed by the rural world:**

- 1 - **On the agricultural level**, external factors, more than territorial aspects, exert considerable pressure on production management, namely world trade and prices, industrial and marketing strategies, consumer demands, sanitary standards, etc. Because of the consequences on their income, such topics are the major concern for farmers. National and European policies are interpreted as being increasingly focused on liberalisation of markets and exports, resulting in price decreases and the increased size of farms, and are also often mentioned as a limitation for sustainable agriculture.
- 2 – **On the rural-development level**, some communities are not able to take into account medium- and long-term considerations for sustainable development. The short term is considered so difficult that it is the single priority.
- 3 – **The lack of consistency between objectives of political tools targeting sustainable agriculture and their administrative implementation.** Time perspective of subsidies is in general too short according to the context of long-term planning of farm activities and investments and administrative constraints are increasing to obtain subsidies.

So in the Alps implementation of sustainable agriculture is clearly related to integrated rural development and local negotiation between different conceptions and objectives. Two general aspects have to be considered:

- a state: natural and cultural richness (landscape) of the Alpine ecosystem in Europe, the high level of aspirations of environmental and landscape qualities for the Alps related to tourism, local inhabitants, nature protection institutions and NGO's ;
- a worrying trend related to the evolution of agriculture. In the majority of the areas we assist to the end of the traditional farm and farmer (closure of farms, increasing of livestock number and hectares per farm and worker). The farmers facing the end of a social rationality based on handing over family heritage and on an economic rationality that usually lies in increase of volumes produced.

2.2 Goals for a sustainable development of alpine agriculture

From the participative discussions held during Sagri-Alp project, different goals of sustainability came out as presented in Table 1. The local groups have defined first collective objectives (Table 1) to improve sustainability and then have prepared local action plans. In each area, in each pilot area, measures to promote sustainable agriculture are combined at 3 levels usually considered separately (table 2).

Table 1: Local goals of sustainable development of agriculture

Economic concern	<ul style="list-style-type: none"> • To remunerate adequately the work of farmers compared to other workers (Austria, France, Italy) • To increase income of small livestock breeding farms (A,F,I) • To create synergy between agriculture and other activities (services, tourism, etc.) (A, F, I, Switzerland)
Social concern	<ul style="list-style-type: none"> • To reduce the difference of living standards between farmers and other groups of population (A, F, I) • To solve work overloads in farms based on milk production (A, F) • To enhance exchanges and mutual understanding between farmers and other stakeholders (A, F, I, S)
Territorial and environmental concern	<ul style="list-style-type: none"> • To maintain an opened landscape; preserve natural and cultural heritage (A,FI,S) • To promote shared objectives and common projects between farmers and land planners (A,F,S,I) • To promote integration between agricultural and tourism activities (I) • To ensure a balanced distribution of farms on the territory (bottom of the valley and slopes) (A, F) • To Increase awareness of farmers about land management and preservation of local resources (A, I, F)

Locally, the action component of SAGRI-ALP and IMALP projects are experiments bringing together actors establishing new ways of exchanging information, sharing a common view on the long term evolution of local territories and their agriculture and making decisions collectively. The challenge is both to define and implement solutions to strengthen the contribution of agriculture to sustainable rural development and to construct a new rationality for farmers. This is why we can consider the local partnerships established for these projects as lab for sustainable agriculture both in terms of action, research and elaboration of tools.

3. Local partnerships established as a 'lab' for sustainable agriculture

To implement an action plan in favour of sustainable agriculture and rural development, the IMALP research and demonstration project is organised as follow:

- In four pilot area, a local group involving farmers, elected officials and civil society is constituted.
- Action plans for sustainable agriculture are discussed and designed by the local group and the smaller action groups, then implemented. The groups gather on a regular basis. They are motivated by a local activator using participative methods.
- The impact of action plans is evaluated by an interdisciplinary team of scientists.
- Methods and tools to disseminate the results are proposed.

In the framework of IMALP research-demonstration project, action plans are currently designed and implemented in four European areas. The key and innovative aspects of these projects are the establishment of local groups involving all stakeholders and run on the basis of participative methods. The actions designed by those groups have to be an answer to current difficulties, should be innovative solutions and address the third components of sustainability (environmental, social, economic), there is room for anticipation on future thanks to prospective methods.

3.1. Action plans in favour of sustainable agriculture

The action plans are addressing agricultural issues at three levels (see Table 2). The first level, the farm level, is usual scale when dealing with agriculture. However, the new role of agriculture in land use planning is requiring actions at territory level. Moreover, farmers are facing common difficulties to sell their products at a good price or for doing their job during work peak periods. For such problems, to organise themselves as a group or to establish a structure of mutual help have been raised as possible solutions. So the level of farmers' group is as well a key level for action plans.

Table 2: Three-scale action plans in favour of sustainable agriculture

<p>In each area, the local group will implement demonstrative actions (see examples below) :</p> <ul style="list-style-type: none"> • AT FARM LEVEL: BY ADAPTING FARMING PRACTICES AND SUPPORTING MULTI-FUNCTIONALITY: <ul style="list-style-type: none"> - Integrate farmers' knowledge to the project through meetings, including project monitoring; - Encourage diversification of agricultural activities (sale on farm, farm visits, accommodation for tourists) - Sign contracts between farmers and local administration to supply services for landscape up-keep and environment preservation. • A FARMERS' ORGANISATION LEVEL : BY OFFERING COLLECTIVELY SUPPLY FOR SERVICES <ul style="list-style-type: none"> - Create a labour bank between farmers to solve over-work loads - Promote valorisation of local high-quality productions - Establish a network among innovative farmers within the region and contacts with other regions; - Develop marketing infrastructure for regional agriculture and forestry products • AT TERRITORIAL LEVEL: BY DEVELOPING NEW PARTNERSHIPS BETWEEN AGRICULTURE, COMMUNITIES AND LOCAL SOCIETY <ul style="list-style-type: none"> - Mobilise a group involving farmers, local administration and local society at a long run - Support communication and debating between farmers and local stakeholders - Support the social acceptance of farming activities - Prepare with stakeholders a scheme regarding rural and regional development
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To go deeper into details, we will give examples of the actions designed in the different field areas by the local group and the action groups established locally.

In the Italian pilot area, Valle di Sole, the action plans concern the renovation of formerly cultivated land currently abandoned, in the framework of a partnership between municipalities and farmers. Other action plans address the problem of manure management. A turning machine for manure curing will be experimented in order to have a better agronomic management of fields and reduce odour nuisance. Action of communication have been designed especially orientated for scholars audience, to promote a better knowledge of agriculture and its role. The local products marketing is going to be developed and supported for better income. The marketing will especially concern sheep meat and local cheese, little known by consumers. In the area's lower part, where the production of golden apple, developed since the 1980's has strongly shaped the current landscape. Most of trees cultivated match to one variety of apple and are managed intensively, an action will be dedicated to the collective cultivation of marginal and fragmented orchards.

In Austria, in the area of Oberes Drautal, action plans address five main problems. First, the protection of groundwater is targeted through the change of cultivation and the reduction of livestock units. Secondly, the evolution of farming systems towards the development of agri-tourism activities is envisaged and will be concretely experienced by the designing and settling of a new track from Spittal up to East Tyrol, involving farmers in the process. The marketing of products is also a key issue in the area. Fourthly, it sounds crucial to activate discussion groups and mobilise stakeholders. A clearing group has been established to promote ideas for Regional development. The last target is the building up of new partnerships between agriculture and society through an "Oberdrautaler manifest".

In France, in the area of Moyenne Tarentaise, actions are scheduled at farm level to address social sustainability that is jeopardised by the overloads of work that make farmers life difficult and make them feeling a deep gap between their status in society and the other workers. An exploration of means to reduce work loads are investigated. Actions at farm level concern also the diversification of farm productions that consists in offering environmental services such as landscape upkeep or tourism services (on-farm visits, meals, *etc.*). The level of farmers' group has been identified as a key level, allowing exchanges between different types of farming and farmers, and making farmers able to envisage solutions coming from their own neighbourhood, for example by organising themselves with other farmers. The concrete action could be the building up of a structure such as labour bank that will allow mutual help and might be able to offer services (in equipment, in work) to municipalities or other farmers. Finally, actions have been designed at territorial level for communication activities on agriculture and farmer job, to establish contracts between municipalities and farmers for adapting their practices to new demand of society or environmental objectives. To sustain the activities initiated during project implementation, efforts will be put to urge the design of a development scheme on the basis the project multi-actor group debates.

In Switzerland, in Valais area, four action groups have been constituted. One is dealing with meat food chain for typical and labelled products little developed in the Val d'Hérens territory. Another group is designing actions to support milk supply for local dairies. The objectives are both to stabilise and then to increase the dairy collection in summer and to improve the marketing of the dairy products. A third action group is dedicated to tourism and educational activities on farm (development of a network of farmers who already offer tourist services on their farm). A fourth group is discussing land upkeep, maintenance of the surfaces and collaboration between farmers. This group is designing concrete actions

targeted the management of areas in abandonment and the way to implement agreements between farmers about farm work tasks.

3.2. Analysis of actors processes observed during the designing of action plans for sustainable agriculture

The first stage of the project was the establishment of a local group constituted of actors intervening in the territory: farmers, elected officials representatives of municipalities of other administrative level, representatives of economic branches concerned by agriculture (tourism sector, refinement industry e.g. dairy), representative of environmental sector and interested private persons, along with a project manager (local activator) and a researcher (member of project management committee-scientific team). In the different field areas, the local groups are composed from 15 to 20 members. The aim of this local group is to reach collegial and consensual decisions about the precise implementation and management of action for sustainable agriculture. Key aspects in the group functioning are based on the participation of volunteers, everybody is equal and free to express individually, there is no chairperson, the important decisions are taken by voting. For the action plans running and their implementation, smaller groups so-called "action groups" have been constituted. They are groups of 4-5 participants who ensure all practical and technical aspects.

After one year of project implementation, we could propose outlines of current processes regarding actors relationships observed during the specification of action plans by the local group and the early concrete tasks identified by the action group.

- **Local group composition**

The local group has been constituted on a voluntary basis. Accordingly, the composition varies from one field area to another. This composition is also shaped by the usual relationships between agricultural sector and other sector, and the general administrative and political organisation of each country. Weaker are the relationships between agriculture and one sector more difficult to get their participation to the group is. For example, winter resorts and services linked to winter sports have few relationships with farmers and their representatives. Their involvement is hard to get. Municipalities representatives are members of the group. They are strongly motivated for example it is the case in Val d'Hérens. However, as the group has no institutional role formally assigned, in some areas municipalities representatives might not maintain their participation steady. Local activators have urged women to participate to the group. However, as men are already involved in professional network or structure, they were more willing to be member of the group. In the case when men were the only ones running the farm, it was proposed to their wife to join the meetings, but they refused. The women participating are all working in farms and, in the local groups, the balance between men and women could not be reached.

- **Differences in participation between local group and action group members.**

In some smaller action groups, the participation of women is stronger. In one dealing with diversification of activities (tourism, on-farm sale, development of new food products, educational activities) men are fewer than women. Women are more frequently in charge of these on-farm activities such as welcoming tourists, making cheese, etc.. So the composition of action groups is slightly different. Usually in those smaller groups, people express themselves more freely in comparison with the local group meetings that might sound for some of them more formal depending on the attending members. The size of the group is a key factor. Bigger is the group more formal the stakeholders' participation tends to be.

It was retained that the composition of the group could be flexible, to keep the exchanges opened. However, a core group of members has to participate to all the process.

- **Analysis of actors relationships in the first local group meetings**

Opposition and differences in opinions were expressed between different type of farmers during the first meeting. We noticed these differences between: dairy farmers and goat and cheese breeders; farmers selling their milk to the dairy or making themselves their cheese in alpine pastures; innovative farmers versus more traditional farmers; full-time farmers and part-time farmers who have different views of what farming as a job is. We could identify other opposite opinions as expressed during the meeting, for example between rich and poor municipalities. Municipality representatives, non-farmer inhabitants, representatives of collective structure, or representatives of other economic sector have adopted different views on agriculture and its role. Despite differences in opinions and the constitution of group of interests, participants took decisions regarding action plans in a consensual manner. As a major result of the local group members' interaction, it could be stated that the priority was given by the stakeholders to an agreement for common objectives. However when people have started discussing how to reach them, which means to use, what concrete actions to enterprise, more diverse opinions and views were expressed.

The above data still need to be completed and further analysed on the basis of the coming meetings and implementation of action plans during the coming year.

4. Limits and assets of the local level to identify and to implement multifunctional role of small-scale farming in rural development

Local group of actors is a way to construct a new social rationality for farmers.

Incorporation of sustainability in agriculture requires deep changes in the farming profession and better identification of the expectations and demands of local society. This cannot be achieved by a top-down approach, which is difficult to understand and to communicate to both the farmers and the local population. Debates involving farmers and local actors could be an efficient way to help farmers in the progressive elaboration of a new social rationality based on activities integrating not only food production but also environmental concerns.

Local groups of actors facilitate self-reliance but global components of sustainability are not easily grasped. Local group motivated by an activator could be seen as a learning process which create new common meaning beyond individual experiences: each actor explains its conception of agriculture, territories, and the group could agree on one common (or partly common) conception. Local group with relevant methods of activation could promote self-awareness and confidence of local people. This helps the local group to be aware of the matters they could have control over, consequently to think over their future and take action accordingly. This is also why global components of sustainability are not easy to grasp: : i.e; air, climate or water change, and some aspects of biodiversity (e.g. a species that is rare on European level and abundant on the local level) are not easy to discuss in local groups. These topics are seldom significant for local actors, even they can consider that there is no need for them to take action, for instance when they said: “reducing water pollution is not an objective for sustainable local development, it is a law that we have to apply”.

Local groups of actors facilitate mutual learning and is a way to find innovative solutions in terms of sustainability of agriculture. In France for example, the project to develop multifunctional farms associating food production, environmental and tourism services aims at avoiding the increase of farm size on one hand

and the decrease of number of farms on the other hand. This is an idea raised during debates between farmers and elective representatives. Data acquired through the observation of local group meetings tend to show that farmers in the local group are assigned to a new role that is not so easy to understand and fit with. Usually, ideas, technical solutions are coming from agricultural technical services. Being in a group where it is possible to express but as well to determine actions is a new situation for them that needs time to be assimilated. However, through the group members' exchanges, participants are in a situation of mutual learning where they are confronted to the views of colleagues or neighbours and this could change the way they perceive their job and their role in local society. Thanks to new partnerships between agricultural sector and other economic sector (tourism) and other stakeholders such as municipalities or environmental NGO's the innovative solutions concern both the technical and organisational aspects of agriculture.

The local level and even more a participative and citizen local group could not work alone. Despite the great confidence and motivation obtained in a local group during the elaboration of an action plan, the implementation of action needs close contacts with local, regional, national administrative and political institutions and their representatives. The necessity of such a network is not always easily caught by a local group. Communication within but especially outside the group members could be a way to cope with those difficulties, by getting a recognition and facilitating the appropriation of results by local officials.

But the major limit of a local group lies in the principle of participation and the common idea that a local group has to obtain a consensus. This objective, sometimes implicit for local actors, but very often present (we have to debate into a democratic way to create a common point of view and a consensual action plan) could be an obstacle to discuss conflicting topics: i.e. competition for land between large farms and small farms, competition for land between agriculture and urbanisation, biodiversity management, etc. To face conflicts could be a way to make progress together by overcoming them (Callon et al. 2001). We observe that such types of debates could be missed by local actors and activators to limit the risk of failure during the process of co-operation. For sure, avoid such a debate is not a sustainable way to have common action for a common future.

Conclusion: research and action towards sustainable development

To associate scientists and local actors towards sustainable development modify the limits between action and research. As to researchers, the project presented and its results are at the interface between science and action. Moreover, to obtain a good analysis of the processes and to establish the conditions of generalisation of such an experiment, scientific evaluation and local actors' evaluation will be crossed. This means that we have to manage both the involvement of researchers in action and the border between research and action. This is another way to practice research with a specific joints between action of social groups involved in the management of the action plan and the researchers involved in its scientific assessment. To manage this we refer to an attitude of "intervention-research model" (Hatchuel, 2000; Hubert, 2002). Producing knowledge is also a way of being actor in the world. The researcher is in interaction with local actors, scientific knowledge (scientific diagnosis of the territory, scientific assessment of the implementation of the action plan) is presented, discussed in the local groups and confronted to local knowledge and understanding of the same situation. So scientific knowledge will be produced in a complex process: observation of action, and interaction between researchers and actors. We will have to prove at the end of our project that something of new appear with such a process. Currently we have also to manage the limits between research and action and we decide to maintain clear limits: the local group is free to decide the actions, the researchers observe the

process, take part to the local discussions by giving their analysis and point of view but do not interact in the decision. This limit considered as theoretically clear is not always so easy to stick to in action, accordingly we could refer to the classical problem between expertise and action (Roqueplo, 1997).

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