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Mountain Development in Europe: Research Priorities and Trends

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Mountain Development in Europe: Research Priorities and Trends

Zusammenfassung

Die Entwicklung der Berggebiete ist in den letzten Jahrzehnten zu einem immer wichtigeren Thema der weltweiten Forschung und der regionalpolitischen Diskussion geworden. Dieser Bedeutungszuwachs ist auf allen räumlichen Ebenen erkennbar: In der zunehmend differenzierten Diskussion von lokalen Entwicklungsinitiativen auf kleinräumiger Ebene, in der Auseinandersetzung von berggebietsbezogenen Strategien der regionalen Entwicklung, in der Einschätzung der Rolle der Berggebiete für die räumliche Entwicklung auf nationaler Ebene, in grenzüberschreitenden Kooperationsbemühungen, aber auch insbesondere in der Wahrnehmung globalen Wandels in sämtlichen Berggebieten der Erde. Das Ziel dieser kumulierten Dissertation ist es, die Forschungsanforderungen für die Analyse der Berggebiete zu erfassen, die aus den gesellschaftlichen Herausforderungen resultieren und ein immer umfangreicheres Set an Fragestellungen umfassen. Die Analyse erfolgt insbesondere an Hand der Bewertung von Forschungspraktiken und Strategien zur Entwicklung der Berggebiete, die das Konzept der „Sozio-ökologischen Systeme“ von Berggebieten als Rahmen verwenden. Die Publikationen dieser kumulativen Dissertation (sechs Originalpublikationen in internationalen wissenschaftlichen Zeitschriften und fünf weitere ergänzende Publikationen vor allem aus wissenschaftlichen Buchveröffentlichungen) beziehen sich auf die unterschiedlichen räumlichen Analyseebenen und werden anhand ihres Beitrages zum Forschungsrahmen erläutert. Dabei werden die sozioökonomischen Veränderungen, die institutionellen Entwicklungen und eine differenzierte Perspektive der Politikbewertung als wichtige Beiträge hervorgehoben. Die Diskussion der Publikationen wird durch die Auswertung einer Interviewerhebung bei Experten der Berggebietsforschung ergänzt. Der Forschungsansatz ist von der Erkenntnis geprägt, dass inter- und trans-disziplinäre Forschungsmethoden eine zentrale Bedingung für das Verständnis der Mensch-Natur Beziehungen sowie der räumlichen Austauschbeziehungen zwischen Berggebieten und Flachlandgebieten darstellen. Ein solches Verständnis erscheint eine unerlässliche Grundlage für die zukünftige Erforschung der Entwicklungsbedingungen von Berggebieten und die Konzeption von relevanten Politikprogrammen, die den Problemen und Potenzialen der Berggebiete Rechnung tragen.

Abstract

Over the last decades the complexity of “mountain development” has gained increasing attention by local stakeholders, regional development authorities, national strategy planners and global change analysts. Due to this increased focus on these geographical areas, also research priorities, methods and frameworks have been elaborated significantly. The aim of this cumulative doctoral thesis is to assess the emerging research focus that corresponds to the specific societal challenges of mountain areas and to analyze research efforts in Europe against the framework of social-ecological systems of mountain areas. The selected publications (six original publications published in international journals and five complementary publications primarily from book volumes) address different spatial scales of analysis and contribute to various aspects of the research framework, in particular the analysis of socio-economic changes, institutional development and a multi-dimensional perspective on policy impact analysis. The discussion of the presented publications is supplemented by the analysis of a set of expert interviews on key issues for research on mountain challenges. The research concept is based on the widely approved assessment that inter- and trans-disciplinary methods are key requirements to understand the human-nature interrelations and the nature and implications of mountain-lowland interlinkages. Such an enhanced understanding is crucial for future research to allow meaningful and effective contributions to policy options that take account of challenges and opportunities of mountain areas.

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Part B: Selected Publications

"There are many signs that suggest that the One-world doctrine is unravelling. The growing struggles to defend mountains, landscapes, forests, territories and so forth by appealing to a relational understanding of life is (a) manifestation of the One-World world's (OWW) crisis. … The 'pluriverse' (concept) is a way of looking at reality that contrasts with the OWW assumption that there is a single reality to which there correspond multiple cultures or subjective representations" (Escobar 2015, 460).

1. Introduction

Mountain regions have raised specific interest since mountaineers started to travel through them and ascended their peaks, and increasingly impressions of these areas diffused and reports reached other regions as well (Stremlow 1998). This process of enhanced appreciation of mountain environments and specific conditions signified an inclusion into social, economic and cultural developments that involved increased relationships of different areas. Very early these interrelationships were conceived as linking, primarily remote, mountain areas with lowlands that included the main centers of economic and social development and which were the focus of the concentration process of political powers.

Consequently, following the restricted perception of mountains, their geographical features and specificities in terms of topographical, nature resource-based and environmental aspects represented the main priorities for mountain research. Although some authors have addressed significant sector interlinkages and the need for assessing the socio-economic context and related issues already in the more distant past, mountain development research gained momentum only with the acknowledgement of the topic in international fora and the integration into global international documents. Particularly over the last three decades the debate on mountain development research, including the socio-economic challenges, intensified and has led to a much more articulated and evolving research framework with regard to this issue. Representing an inherently socio-economic challenge and variegated societal needs, its focus also shifted over this period from more technical analysis and an increasingly sharpened ecological assessment to a research perspective that integrates the different dimensions (environment, economy, as well as spatial and cultural attributes), with an ever increasing focus on policy relevance and implementation aspects.

Initially, research activities in this field have been developed for the European mountains, particularly the focusing on regions of the Alpine range, in a more comprehensive way so that a strong influence from that research community on the formulation of global perspectives for mountains can be

perceived (Debarbieux and Price 2008). Both Switzerland and Austria reveal a particularly high position in international mountain research. Switzerland hosts some influential international scientific networks (such as the World Glacier Monitoring Service, the Global Mountain Biodiversity Assessment, and the Mountain Research Initiative-MRI), while Austria took the lead role in the Global Observation Research Initiative in Alpine Environments (GLORIA Programme) and, for example, established the Institute of Interdisciplinary Mountain Research at the Austrian Academy of Sciences. Beyond that institutional commitment in these countries, also the experience with the implementation of mountain policies, particularly for mountain farming and forestry, but involving increasingly also aspects of integrated regional development has a specifically long tradition in these countries and in several other European regions as well.

This cumulative PhD thesis draws on a long-term research activity within such an integrated perspective of regional development processes that is esteemed fundamental for the sustainable development of mountain areas. It is based on a wide range of research projects at which the author participated as research partner for Austria coordinating work at the Federal Institute for Less-Favoured and Mountainous Areas (BABF). In particular, this includes the following research projects and activities, among a series of other inter-linked mountain specific studies:

- "Rural Change in Europe: Research programme on farm structures and pluriactivity", EU research project commissioned by the EC Directorate then called DG VI (now DG Agriculture) and coordinated by the Arkleton Trust, Scotland (1987-1993).
  Referred to within *paper JP1*, as well as by complementary *paper CP1* that underline implementation analysis of the Less-Favoured Areas (LFA) scheme.

- "Integration of Environmental Concerns into Mountain Agriculture", EU research project commissioned by then DG XI (now DG Environment), coordinated by Euromontana, Paris/Brussels (1996-1998).
  Referred to within *paper JP2*, as well as by complementary *paper CP1,* underlining implementation of the LFA scheme.

- "Assessing the impact of Rural Development policies, including Leader (RuDI)", FP6 project by DG Research, coordinated by Institut für ländliche Strukturforschung (IfLS), Germany (2008-2011); as well as Mid-Term Review of the Rural Development Programme 2007-2013 for Austria, for Leader measures (2009-2010).
  Referred to within *paper JP3*, as well as by complementary *paper CP3,* assessing the multifunctional roles of agriculture in relation to Pillar 2 implementation of the Rural Development Programmes.

- "The Cultural Landscape in the Mountain Area of Austria, Policies for the environment and rural development", OECD case study for the Group of the Council on Rural Development, commissioned by OECD and Austrian Federal Chancellery IV/4 (1996-1998).
  Referred to within *paper JP4*, as well as by complementary *paper CP2,* focusing on the role of integrated approaches in policies for mountain regions.

- "Alpine Space Prospective Study – Sustainable Territorial Development in the Alpine Space: Towards Long Term Transnational Cooperation", study within the Interreg IIIB programme Alpine Space, commissioned by the Management Authority of the Alpine Space Programme (2004-2005).
  Referred to within *paper JP5*, as well as by complementary *paper CP2,* focusing on the role of integrated approaches in policies for mountain regions.

- Contribution to the working groups of the Alpine Convention as an accompanying research institute, in particular within the Working Group on Mountain Farming (2011-2015).
  Referred to within *paper JP6*, as well as by complementary *paper JP4,* synthesizing the aspect of amenity contribution by mountain farming in Europe and *paper CP5*, addressing transfer of experiences from Alpine Convention implementation work to other mountain ranges.

In addition to the presentation of the selected publications, in the theoretical and methodological framework (Part A) of the Phd thesis, the research discourse on mountain research over the last two decades is pursued in order to work out major evolving trends, particularly focusing on research priorities and gaps as well as challenges for future mountain research. With a clear focus on socio-economic aspects, specific highlights of a questionnaire survey, carried out among expert colleagues across various countries, are included in the analytical presentation of the research framework and conclusions pointing to specific aspects for future priorities in mountain research are presented. These viewpoints from a range of mountain researchers, but also "non-mountain" experts supplement the literature assessment of the scope and developments of respective research activities, and theoretical considerations on revising the scope of research analysis for mountains (Gløersen 2012).

The considerations of the questionnaire add to the intensification of research strategy discussion over the last decade and enrich the various discussion strands emerging over the last years. The analysis and framework conceptualization also draws from the recent involvement of the author in international mountain research debates. This involves particularly the European discussion with regard to compiling a survey on mountain research and supportive activities linked with enhancing the priority for mountain research aspects at the European scale. It also refers to collaborative research organization, the search for transformation of good practice between European mountain ranges (and

beyond) and the analysis of policy impacts on mountain regions as well as the formulation of needs of policy support articulated by mountain areas and local actors.

In the following two chapters the background of the increasing relevance of mountain research will be presented by underpinning the evolvement of research issues (chapter 2) and by showing the various policy sectors and their interrelations in European mountain regions (chapter 3). Chapter 4 will then discuss the mountain research framework as it evolved over the last two decades. The framework presented addresses the comprehensive perspective of mountain research answering societal questions and global change aspects from a series of disciplines, indicating at the same time the need for increased inter-disciplinary approaches. The selected papers will be set into this general frame and reveal their specific contributions to parts of the framework, allowing attribution of its relevance for overall research aspects of mountain development research. In the subsequent chapter, following from that presentation of a general research framework, main trends in recent research discussions and findings from the questionnaire will provide a reference for assessment of major research issues with regard to emerging societal challenges and arguing for priorities and and/or pointing to methodological gaps in current research activities (chapter 5). With regard to the specific viewpoints of mountain geography and concerned mountain regions, conclusions for specific themes to be highlighted and increasingly analysed in future mountain research activities will underpin the need to link research to users and to provide impact at the local and regional level (chapter 6). This last issue of priority for 'transformational' research, expressed in an enhanced user orientation as the crucial aspect of research conceptualization, is central in focusing on impact of mountain research at national and European scale.

2. The emergence of mountain development as specific research area

Since long mountains have attracted the imagination of local and external people and inspired fascination of divergent living conditions. Overcoming the place-specific geomorphological and geophysical difficulties has led people in many regions to settle in mountain environments and to cope with the inherent challenges. It is no surprise that early physical geography books addressed mountains as particular geographic types (Funnell and Price 2003), and as early as 1936, Roderick Peattie proposed main criteria for the basic concepts of *Mountain Geography*. Already at that time he goes beyond a definition of a strict reliance on the altitude (or other physical parameters) and embarks at a more inclusive understanding of mountains when he states that

> "*a mountain is a mountain because of the part it plays in popular imagination. It may be hardly more than a hill but if it has distinct individuality, or plays a more or less symbolic role to the people, it is likely to be rated a mountain by those who live at its base*" (Peattie 1936, 4).

The remit of mountain research has been however historically on the specific geographical features in contrast to other areas (e.g. Geikie 1901; Blanche 1933; and Peattie 1936). Without analyzing the diverse priorities on this issue, exemplary highlights are cited in the classical textbooks of mountain regional development (Price 1981; Messerli and Ives 1997; Price et al. 2013). They deal particularly with significant implications for human settlement and development. Their focus shifted eventually towards a more comprehensive framework of addressing mountain regions not just as areas of conservation of a particular (un-spoilt) environment, but also increasingly as a living space for the local population, which holds considerable attractions also for people not living within that area. With the long period of post-war growth in many parts of Europe, spatial divergence and regional disparities also increased substantially to such an extent that analysts anticipated a tremendous 'turmoil' for mountain regions. The attention to impending changes in the regional economies and living conditions were most advanced in the highly developed regions of the Alps where respective options oscillated between dependence and endogenous development. It was therefore not by chance that Swiss researchers and decision-makers provided a widely acknowledged handbook on the foreseen "Changes in the mountain regions" and options for policy development (Brugger et al. 1984) which took account of new concepts for regional development emphasizing the need for the recognition of endogenous development approaches (Stöhr 1981). The considerable efforts to link theoretical considerations with practical implementation and development activities in less-favoured regions underscored the relevance of this concept for mountain regions. Ever since then the core building blocks for regional incentives included a distinct local priority, the enhancement of human capacity development, the central role of participation and cooperation, as well as a strong perspective on the

need for innovative action. The requirements for long-term and multi-agent involvement underscored the quest for assessing the role of institutions and interrelations between different administrative levels (Tiwari and Joshi 2015). A quest for institutional changes (Vázquez-Barquero 2010) was perceived as one of the major needs for regional and, in particular, mountainous development, resulting from diversification and differentiation processes in regional development.

With the arising challenges of environmental degradation, an even more important conceptual change implied an integration of environmental concerns in the assessment of regional development to a much higher degree than previously. The environmental debate over the 1970s and 1980s eventually led to the claim of "Sustainable Development", most explicitly summarized in the United Nation's report "*Our Common Future*" (United Nations 1987) also known as the Brundtland Report.

The concept of sustainable development within an intensifying globalization process and the emerging integrative perspective on mountain research issues led to the inclusion of mountain issues at global development processes. Particularly the Earth Summit at Rio de Janeiro in 1992 (UN Conference on Environment and Development) included mountains in its resulting document Agenda 21 as a global issue (United Nations 1992, Chapter 13: Managing Fragile Ecosystems: Sustainable Mountain Development). Ever since that, the research remit and activities in many countries of the world increased and focused on a more comprehensive approach. This attitude conduced to the establishment of respective institutional settings (at the global level), an increased exchange and cooperation between countries and institutions active in mountain research, and the call for inter- and trans-disciplinary research approaches. The European Conference on Environmental and Societal Change in Mountain Regions in December 1997 in Oxford (UK) was based on the European Network for Research in Global Change (ENRICH, funded by the 4th Framework Programme). It represents one of the first events that highlight the focus on global change and the fundamental role of networking between European researchers and colleagues in the wider international research community (Price 1999). With the preparation and the activities of the United Nations International Year of Mountains (IYM) 2002 the commitment gained momentum in many countries and the global Mountain Partnership constituted at the final meeting of IYM. While changes of natural resources and the implications of global changes due to aspects of environmental developments constituted the host of research themes at that time, aspects of socio-economic and institutional development were also high on the agenda. Particularly the contribution of mountain stakeholders and experts to the World Summit on Sustainable Development in Johannesburg in the same year established a close link to policy application. The Mountain Agenda (2002) summarizing the needs for adequate policies for sustainable development in mountain areas calls for a significant knowledge transfer from research into practice.

While the key issues and strategies were exposed clearly through those representative documents research intensification on mountain issues had to accommodate in the following decade between high-ranking (global) objectives and challenges of inter-disciplinarity and the need for trans-disciplinary research (Maselli and Wiesmann 2004). With regard to land use development and the role of agriculture for a sustainable use of mountain resources the Adelboden Group initiated an activity called Sustainable Agriculture and Rural Development in Mountain Regions (SARD-M) with FAO being in charge of mentoring and supervising activities in different parts of the world. Still 20 years after the start of Agenda 21 issues of networking and achieving a more pronounced global representation of "mountain views" are highly relevant.

In a preparatory paper for the *Rio+20 United Nations Conference on Sustainable Development* Dax and Hovorka (2011) summarize the international activities and the need for continued mountain development research in the following five paragraphs:

"*Since 1992, when chapter 13 on mountains as fragile ecosystems was introduced in Agenda 21, the recognition of the need for mountain-specific development strategies has risen in many regions. As the demand for goods and services from mountains has grown considerably a stronger targeting of respective policies is sought. Moreover, the ability of mountain systems to provide essential goods and services for all of humanity is increasingly under threat from ongoing land degradation, a chronic lack of investment, climate change and globalization.*

The Federal Institute for Less-Favoured and Mountainous Areas (BABF), a Mountain Partnership member, recognizes that despite the progress that has been made in promoting sustainable development of mountain regions, national and international development agendas still treat mountains, if at all, as marginal environments. As a result, poverty rates are in general higher than in non-mountain areas, depicting the excessive dependency of mountain regions on development centers. Regional initiatives to foster innovation and cooperation of mountains have started, but need further policy incentives and priorities for enhancing effectively the development process.

A positive example for international efforts to support sustainable mountain development and promote mountain ecosystem goods and services at the institutional framework level and green economy in the context of sustainable development and poverty eradication in Europe is the Alpine Convention (partners: eight alpine member states and the European Union; see: www.alpconvention.org). Recently similar trans-boundary activities were established in other mountain ranges like the Carpathians[1] (www.carpathianconvention.org) and the Balkans and the Dinaric Arc[2]

[1] On the activities for the Carpathians, see Kozak et al. 2011.
[2] On emerging cooperation in the Balkans and the Dinaric Arc, see *UNEP Vienna 2010 and Djordjevic 2014.*

(http://www.mtnforum.org/en/content/towards-network-mountain-protectedareas-balkans-and-dinaric-arc) and others. Specific support for mountain farming and organic farming are of crucial importance for sustainable development in mountain areas in Europe.

In the context of a 'Green Economy', new opportunities for investments by the private sector are emerging in mountain regions, especially in sustainable agriculture and forestry, and ecosystem goods and services[3]. This potential has to be reflected critically, implying to a great extent social transformation aspects beyond technological changes[4]. Consequently, innovative institutional arrangements are urgently required to trigger governance models and decision support systems[5] aiming at both the integration of the social, ecological and economic capital at all scales in mountain regions, as well as the actual mainstreaming of mountains into overall national development and conservation processes. Future action has to reflect increasingly the linkages to food supply and food sovereignty issues at a global scale.

Enhancing the global political commitment that translates into increased investments tailored to mountain regions will directly benefit poor mountain communities[6] and indirectly humanity as a whole. Hence, sustainable mountain development, notably through integrated and socially inclusive policies, activities for a fair distribution of natural and human resources, as well as low carbon technologies, should have a prominent place in the Rio 2012 agenda and in particular in its final declaration. To achieve these ends strong and united advocacy for mountain issues with tangible results in future UNCSD negotiations is essential for the future of sustainable mountain farming, integrated development in mountain areas, people living in mountain areas and also people living in lowlands depending on mountain ecosystem services". (Dax and Hovorka 2011, 1f.)

Actually, a wide range of diverse activities have been launched over the last two decades and give evidence of the increasing awareness of challenges for mountain development. In aiming at enhancing transfer of knowledge between different areas and linking to various stakeholders and actors at different levels a great number of network activities have been elaborated. For Europe, one of the most important networks with regard to research development is the Mountain Research Initiative (MRI), originating as a global activity in the preparatory discussions for the International Year of Mountains 2002 of the United Nations in the late 1990s. It had an important impact on the analysis of the state of the mountains and the conception of mountain research. Particularly through the report "Global change and Mountain Regions: An overview of current knowledge" (Huber et al. 2005) in which

[3] On mountains as a "global common good", see *Debarbieux and Price 2012.*
[4] On the 'green economy' and sustainable mountain development, see Rueff et al. 2015.
[5] On the systemic analysis of rural development, see Bryden et al. 2011.
[6] On the vulnerability of mountain people to food security, see Romeo et al. 2015.

67 mountain researchers outlined the current state of the science the need for increased cooperation and networking was underlined. These activities led to the elaboration of a continuous structure of the Coordination Office (through substantial support from Swiss, and later from Austrian sources to some extent). In 2015, the „MRI connects more than 8,200 global change researchers who are organized in regional networks in North- and South-America (TCA), Africa (AfroMont), Europe (MRI-Europe), with regional initiatives in the Carpathians (S4C) and South Eastern Europe (SEEmore)“ (MRI 2015).

With its European branch (MRI-Europe), together with other trans-national institutions and expert networks (like the CH-AT Alliance), it engages increasingly in the discussion of mountain research problems and strategies and contributes substantially to networking of interested researchers and institutions (Debarbieux et al. 2015b). This includes a coordinating role in shaping the discussion of research priorities at the large-scale, particularly European and mountain range-specific discussions, and stakeholder positions for European research strategy building. Within this institutional commitment, MRI-Europe has also organized the drafting of a comprehensive “White Paper of European Mountain Research” that shall influence the trans-national debate and European research development. The Advisory Group[7] launched the Strategic Research Agenda (SRA) document in a European conference in spring 2016, presenting the main priorities of the strategy to officials of the European Commission, national and regional representatives, stakeholders for various aspects of mountain development and other research programme experts. Both the publication of the SRA (Drexler et al. 2016) and the conference aimed at influencing research discussions on including related research issues in European collaborative research.

Despite the on-going commitment of MRI and Euromontana the recognition of the need for mountain-specific research remains scattered. It is most extensively acknowledged among institutions and administrations across the Alpine range. Körner (2009) reviewed the relevant literature on mountain topics and revealed the specific focus of research on the Alpine regions. Also the political commitment is most advanced in these countries as the adoption of the CH-AT Alliance for mountain research underpins (2011-2016). Initiated through an official Memorandum of Understanding, signed by the Austrian Federal Minister for Science and Research, and the Swiss State Secretary for Education and Research of the Federal Department of Home Affairs in October 2011, the Swiss-Austrian cooperation for mountain research provided the background for strengthening research considerations and network activities beyond these countries’ mountains. One sign for the rising understanding that there is a need for a larger geographical scale in mountain research was the adoption of Slovenia and an

[7] The author is member of the “Core Group” of MRI-Europe’s Advisory Group to prepare the Strategic Research Agenda “Mountains for Europe’s Future” (Drexler et al. 2016) and continues to contribute to the discussion of European research priorities in the “Network for European Mountain Research” (NEMOR), established in June 2017 between MRI and Euromontana.

Italian region (via the region of South Tyrol) of this research alliance. The aim to support research into sustainable development in European mountain regions led to the support of MRI's initiative to elaborate a European Research Agenda.

The emergence of mountain research in divergent scientific fields was supported by and, on the other hand, influenced the establishment of respective research units, again many of them concentrated in Europe, and either directly located in the Alpine area or working in close collaboration with institutes in this area. The two institutions who administered the CH-AT Alliance, the Institute for Interdisciplinary Mountain research in Innsbruck, Austria and the Mountain Research Institute in Berne, Switzerland are examples of research institutions that place particular high attention and efforts on networking activities. There are a number of further research centres across Europe that collaborate in this vein and show a similar strong focus on networking activities. These include institutions like

- the Centre for Mountain Studies at the University of the Highlands and Islands (www.perth.uhi.ac.uk/subject-areas/centre-for-mountain-studies), in Perth, Scotland;
- -the Mountain University at the University of Milan, Centre of Applied Studies for the Sustainable Management and Protection of Mountain Areas (GESDIMONT) (www.gesdimont.unimi.it) at Edolo, in the province of Brescia, Italy;
- the Mountain Research Center (CIMO), based at the School of Agriculture of the Polytechnic Institute of Bragança, Portugal (http://cimo.esa.ipb.pt/portal/); -
- the Institutes for Alpine Environment, for Earth Observation, and for Regional Development of the EURAC, Bolzano, Italy (http://www.eurac.edu/en/research/mountains/Pages/default.aspx);
- the Federal Institute for Less-Favoured and Mountainous Areas, Vienna, Austria (www.berggebiete.at); and
- the Alpine Research Institute, Garmisch-Partenkirchen, Germany (http://www.alpenforschung.de/).

In recognition of the global need and implications of mountain research the UNESCO Chair in Sustainable Mountain Development (https://www.unesco.org.uk/case-study/sustainable-mountain-development/) was established at the Centre for Mountain Studies (Glass et al. 2013) at Perth in Scotland, with Prof. Martin Price as UNESCO Chair (2009). He also shared the 2007 Nobel Peace Prize for his work with the Intergovernmental Panel on Climate Change (IPCC).

The spread in research activities is also perceptible through the intensive coverage of research topics and in the rising amount of publications on different issues. While some authors calculated the numbers and focus of publications (e.g. Körner 2009) the emerging discourse is even better discernible

through the steady process of journal publications, university integration and increasing frequency of conferences. Table 1 presents a listing of journals, university courses and main events and conferences underpinning the rising concern for mountain development research, its numerous different topics and the relevance of the topic for policy differentiation.

Table 1: *List of major journals, university courses and events on mountain development*

Activity	Thematic focus	Place, date
Journals		
Revue de géographie alpine / Journal of Alpine Research https://rga.revues.org/	Socio-economic development in the Alpine mountain range	France, since 1913
Mountain Research and Development http://www.mrd-journal.org/	Global journal on all topics of mountain development	Editors in Switzerland, since 1981
Journal of Mountain Science http://link.springer.com/journal/11629	Aim of enhancing research in mountain science, and global transformation	Based in China, since 2004
Eco.mont – Journal on Protected Mountain Areas Research and Management http://ecomont.mountainresearch.at/	Issues of Protected Areas in mountain areas	Austria, since 2009
University courses		
Online Master Course "Sustainable Mountain Development" at the University of the Highlands and Islands https://www.perth.uhi.ac.uk/subject-areas/centre-for-mountain-studies/courses	Environmental and social issues, and policy analysis	Perth, Scotland; since 2004
Master program "Mountain Risk Engineering", University of Natural Resources and Life Sciences, Vienna	Natural hazards	Vienna, 2003 - 2014
UNIMONT (Mountain University), Milan University	"Centre of Applied Studies for the Sustainable Management and Protection of Mountain Areas" *(GeSDiMo*nt)	Edolo, Province of Brescia; since 2000
International Programme on Research and Training on Sustainable Management of Mountain Areas (IPROMO), Summer School: Sustainable mountain development	Environmental and economic issues to enhance mountain sustainability	Piemonte, Italy; since 2008
Course "Environment and Development of Mountain Regions", at National Technical University of Athens, http://mountains.ntua.gr/en	Study of specific issues and opportunities in mountain areas, held in the mountain area of Greece	Metsovo, Greece, since 2008
Mountains 101 https://www.ualberta.ca/courses/mountains-101#sthash.dhpZZelW.dpuf	a 12-lesson inter-disciplinary Massive Open Online Course (MOOC) teaching a comprehensive overview of Mountain Studies	Alberta, Canada; since 2016
Master Degree Program of Mountain Studies (at the University of Tsukuba),	postgraduate course offered through the	University of Tsukuba, Japan, since 2017

http://www.life.tsukuba.ac.jp/~sangaku/en/index.html	collaboration of four universities, initiated by the Japanese Alps Inter-University Project (JALPS)	
Main events and conferences		
Bishkek Global Mountain Summit	Main conference of UN-International Year of Mountains 2002; "The Bishkek Mountain Platform" - Global Mountain Partnership	Bishkek, Kyrgyzstan; 28 October - 1 November 2002
Perth I: Open Science Conference – Global Change in Mountain Regions https://www.perth.uhi.ac.uk/subject-areas/centre-for-mountain-studies/events/previous-events/perth-i-open-science-conference-global-change-in-mountain-regions	Findings of GLOCHAMORE project and opening up research network	Perth, Scotland, 2-6-October 2005
Perth II: Global Change and the World's Mountains https://www.perth.uhi.ac.uk/subject-areas/centre-for-mountain-studies/events/previous-events/perth-ii-global-change-and-the-worlds-mountains	Inter- and trans-disciplinary research, mountain systems and transformation need	Perth, Scotland, 26-30 September 2010
Perth III: Mountains of Our Future Earth https://www.perth.uhi.ac.uk/subject-areas/centre-for-mountain-studies/events/perth-iii-mountains-of-our-future-earth	Global environmental change and transformation towards global sustainability	Perth, Scotland, 4-8 October 2015
Forum Alpinum http://www.forumalpinum.org/en/	Changing thematic focus: urban planning, landscape, nature, land use patterns, and Alpine resources etc.	Alpine Arc, bi-annual event, since 1994 (last: in Darfo Boario Terme, Italy, 17-19 September 2014)
Alpweek http://alpweek.org/2016/	Focus: next generation, innovating in the Alps, renewable energy, and culture	Every four years, since 2004 (last: Grassau, Germany, 11-15 October 2016)
Mountains 2016 – International Conference on Research for Sustainable Development in Mountain Regions	Climate change and Sustainable Development; and networking	Bragança, Portugal, 3-7 October 2016
Conference "Cohesion policy in mountain areas"	Options of Macro Regional Strategies and territorial development; organized by DG Regio and Euromontana	Brussels, 7 June 2017
International Symposium for Research in Protected Areas www.nationalparksaustria.at/symposium2017	Protected areas management and impacts on nature, society and regional economy	Since 1996; 6th International Symposium, Salzburg, 2-4 November 2017

"Mountains under Pressure", Mountain Partnership High-level conference at FAO,	Conference themes "Climate, hunger, migration"	Rome, Italy, 11 December 2017
Mountain Partnership events archive http://www.fao.org/mountain-partnership/events/archive/en/	About 200 mountain-focused events	2009-2018

Source: Own compilation of journals, university courses and events

As indicated, the highlighted items are a selection of most influential and high-level activities. The overview is presented with the intention to underpin the increasing spread of topics covered by mountain research activities, extension of geographical coverage and scientific fields. The series of literature reviews (Funnell and Price 2003; Dax 2004b; Brun 2008; Körner 2009; Scheurer 2014), the overview of interesting journals for mountain geographers (Sarmiento and Butler 2011) and the huge amount of diverse conferences, workshops and thematically focused meetings highlight that the discussion is largely following scientific domains. Very few studies take a multi-disciplinary perspective and achieve an intensive inter-disciplinary exchange. Yet, the conclusions of research concepts and conferences ask for increasing inter- and trans-disciplinarity or more specifically higher commitment for transformation activities, already within the research process. This re-orientation of research tasks is also visible in the research understanding of the European Union's Framework Programme H2020. To underscore the position and the widespread concern for such a research concept with regard to mountain development research, the statement of the Institute for Mountain research at Westminister College in Utah on the need for global engagement of their activities is quoted:

> "*Globally, mountain landscapes and the people who depend upon them are on the front lines of climate change and demand for resources. Ecosystems, indigenous ways of living, and entire local economies are threatened by these changes. But some mountain landscapes house thriving, sustainable cultures that have lasted centuries. An interdisciplinary approach to the study of mountain landscapes is critical at this time of profound change and in the face of problems that defy simple solutions*" (The Institute for Mountain Research 2017).

3. Mountain areas as policy targets in Europe

As shown in the previous chapter the specific relevance of mountains to different territorial levels is increasingly recognized (Dax 2013a). This assessment holds true particularly for the European institutional framework and policy context. It is widely acknowledged that Europe's mountains are of vital significance to the population, economy and cultural development in this space. The main report on analyzing the different relevance, strategic and policy approaches as well as perceptions for the various mountain ranges across Europe lists four main ways of crucial impact of mountains on the continent's population (Nordregio 2004, Introduction, page I):

"1) as 'water towers' supplying much of the continent's water, especially in summer, and as sources of hydroelectric power;
2) as centres of diversity, both biological and cultural;
3) for providing opportunities for recreation and tourism, based on natural attributes and cultural heritage; and
4) because of their sensitivity to environmental change, as manifest in the melting of glaciers".

The report specifically underpins the environmental implications by stating that "[m]ountain geo- and ecosystems are highly sensitive to environmental change, and extreme events likely to derive from climate change may have major consequences in both mountain areas and downstream" (Nordregio 2004, Introduction, page I). The high sensitivity of mountain environments have been assessed in many countries very early and mountain policies have been developed, starting with activities in forest policy in mountain areas of France in the 19th century (Barruet 1995).

3.1 Main policy domains for mountain development

Relevant policies in the European Union's more recent experience started by putting attention first on the close linkage of land use, particularly through agricultural activities, with ecological development in mountain areas. The tight inter-linkages, and beneficial implications of low-intensive management systems that used to be applied in most mountain contexts, are seen as specifically endangered by land abandonment and marginalization processes (Dax and Wiesinger 2008) that put high strain on the sensitive mountain areas. Mountain farming support which started in the 1970s in the European Union's countries, and at the same time also in non-EU (or at that time non-EU) countries, like Switzerland, Austria and Norway, focused first on a compensation scheme for the productivity difficulties of these areas. It should be noted that while agricultural production difficulties (or constraints) were presented as the main reason for the support measures, more comprehensive objectives to provide instruments and programmes against depopulation of mountain regions and environmental losses and reduction of high nature value farming systems (Dax and Hellegers 2000)

through land abandonment were raised simultaneously. These general concepts for mountain region support underscore the important implications on these non-agricultural effects. Integrating environmental concerns into agricultural policies was the main concern in improving targeting and effectiveness of mountain (farm) support (Dax and Wiesinger 1998). In a summary report on the wide range of relevant policies for mountain development, elaborated in the framework of the discussion for the Green Paper on territorial Cohesion (EC 2008), the author analysed the wide scope of policy strands with highly relevant implications for mountain development (Dax 2008).

In particular, over the last four decades elements of mountain policies can be discerned in various parts of the European Community policy. The LFA scheme, developed since 1975, was the first major policy instrument and still represents a core element of mountain policy measures in agriculture. While the need for support instruments in various sectors and a commitment for a more integrative approach is widely accepted, these territorial instruments of mountain policies are more scattered: They have hardly been harmonized over time, but are rather country-specific and remain linked to specific spatial contexts. The underlying policies have largely been based on regional policy action at small spatial scales, following pilot activities since the 1970s, using „bottom-up“ approaches in selected (peripheral) regions of Austria, Switzerland, France and Spain. At that time, the reform of the Structural Funds (1988), the EU -document the "Future of Rural Society" (CEC 1988) as well as the focus on territorial specific policies aiming at mountain development, highlighted in the Amato report (1988), all contributed to the perspective of integrating policies for targeted spatial, and in this case mountain regions, development. The ensuing discussion of mountain policy is taking the need for such an integrated approach (Price 2007a) as granted and evaluation of mountain policies reflects this concern (Bazin 1999; OECD 1998 and 1999; Mühlinghaus 2002; Dax 2004a; Robinson 2009; Ariza et al. 2013). A series of resolutions and charters in favour of mountain area support, launched by the Council of Europe and the Committee of Regions (1997) of the European Union and several mountain memoranda by national governments (Italy, Austria, France and Portugal) launched in 1996/1997, testify the focus for mountain policy in an integrated perspective at that time. It was particularly in the Alpine regions that these conceptual approaches were most advanced (Schleicher-Tappeser 2006) and enabled learning processes and conclusions within the Alpine region and beyond (Ständiges Sekretariat der Alpenkonvention 2011).

Meanwhile the thrust of policy orientation with regard to rural and spatial development has changed significantly, and integration of various sector activities is much less frequent addressed as the strategic objective. With Agenda 2000 a clearer distinction between “rural” and “regional” as well as social policies took place, implying also that support for mountain development was either receiving incentives from one or the other policy field. In many respects, the discourse is not any more primarily

about the question of appropriate support schemes but also the necessity for providing adequate institutions at an intermediate level to facilitate mountain development and the concern to enhance knowledge creation and trans-regional interrelations and exchange.

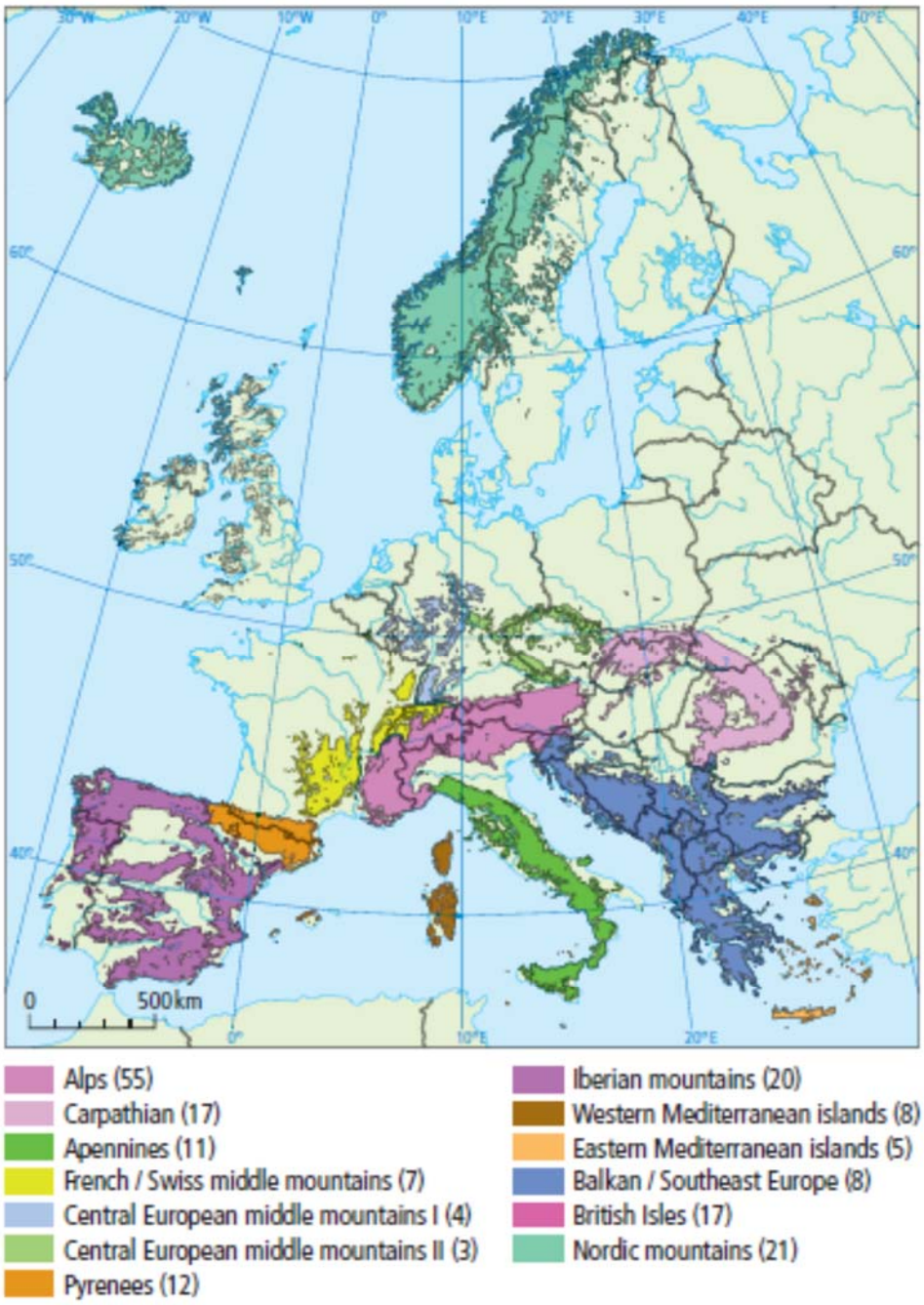
The long-term assessment of the past policy application and main trends reveal that the starting point was the recognition of spatial disparities attesting lagging economic performance and, at best, weak convergence trends for large parts of European mountain areas (Nordregio 2004). The aim to enhance policies that focus on cohesion aspects provides therefore the crucial guiding principles and core objectives for mountain policies. This was at the foreground of political debate in the discussion of the EU's Green Book on Territorial Cohesion (EC 2008) and the thematic consideration on the potential role of mountain regions in territorial cohesion policies (Dax 2008). Application analysis of regional policy programmes (and other relevant policy schemes) document for many countries that Structural Funds programmes and Community Initiatives, particularly Leader and Interreg programmes, are most relevant and influential on mountain areas development. Although recent discourse has further shifted towards improving the process of regional development programmes, implementation, monitoring and a through re-assessment of evaluation models, no wide-spread shift towards priorities for mountain regions was achieved. Hence it is a question how to achieve enhanced policy implementation by research evidence (Gløersen at al. 2016a). Following from that perception, evaluation is not restricted to formal assessment of achieving the programmes goals (measured by various types of indicators) but also is considered as a means to actively provide incentives and an input to effective implementation of actions and, more generally speaking, the process of mountain development in itself. As such it is geared towards becoming a kind of dialogue tool and learning mechanism aiming at innovative local activities in mountain (and other similarly structured rural) regions.

With the start of the preparatory discussion for the next programme period (post-2020) also the issue of territorial cohesion gained momentum. In a specific motion for a resolution by the European Parliament (EP 2016) increased activities for prioritization towards mountain areas in regional development were recommended. The reform demands were accompanied by a dedicated study that explored the potential to earmark policy instruments and application for mountain areas and addresses the specific challenges of these areas (Gløersen et al. 2016b). While the study did not specify additional policy needs, but rather highlighted the increased need for raising local awareness and connectivity of mountain actors and linkages beyond, the aspect of spatial cohesion gained higher attention due to on-going spatial concentration processes across the European space. Identification of peripheral areas seem not any more limited to marginal locations, but include also a "new" type of "Inner Peripheries" (Noguera et al. 2016). This term summarizes the increasing challenges faced by small areas situated within many European countries that show at the same time low accessibility and

negative economic performance indicators. The discussion is also taken to a higher level, culminating in a recent high-level conference on territorial cohesion for mountain areas, organized by the European Commission and Euromontana (2017).

A review of policy application focusing on mountain specific needs across the EU has to take account of the diversity of contexts, socio-ecological differentiation and diverse implementation approaches, levels and priorities of different countries and regions. It has therefore been done only very rarely at a scale that covers all European mountain areas. Before presenting the particular findings of those survey studies it seems important to show the relevant mountain ranges in Europe as these, or the national and institutional contexts, tend to have a substantial influence on policy patterns and could inform our understanding of the high differentiation in priority setting strategies. The following map is derived from one of the most recent and widely approved examples, attempting a coherent, trans-national view on the definition of European mountains. Building on a delimitation of topographical characteristics it combines regions according to bio-physical and socio-economic and cultural parameters, as well as addressing wide-spread cross-country mountain labelling, as good as possible. The study commissioned by the European Environmental Agency (Price 2010) providing this clustering of mountain ranges into 13 larger areas aimed at highlighting the value of the mountains for Europe through its ecological features that are a crucial basis for socio-economic development. The map provides in its legend as an additional information the number of projects carried out in each of the mountain ranges (given in the number in the brackets) as identifies during the FP7 Support Action 'Mountain Sustainability: Transforming Research into Practice' (mountain.TRIP 2009). It thus indicates the level of *research* priority attributed in each of these areas. It will be noticed in this sub-chapter that policy support is often linked to, or at least induced by this spatial pattern.

Map 1: *A classification of Europe's mountain regions*



Source: Drexler et al. 2016, p.41 (quoting Price 2010)

Mountain policy implementation in the EU

There is a wide range of public interventions available to support development in European mountain areas. However, these interventions are hardly directed explicitly towards "mountain" areas and vary considerably between countries and regions, according to the institutional focus and policy priorities in each country. In this regard, general structural features of the policy framework and institution building (centralised, federal, EU Member States, respectively New Member States or candidate countries) have an outstanding influence on definition, selection and political/practical relevance of

"mountain policies". Moreover, in many cases contexts have undergone significant change, particularly in most of the New Member States in the course of integration processes.

"Mountain policies" in the widest sense include general measures and policies with territorial impacts relevant for mountain development (e.g. planning) and sectoral policies which have a particular effect on mountain areas (e.g., agriculture, forestry, environment, tourism policy). They include also relevant actions of programmes involving a high share of mountain zones (e.g. Interreg and to some extent LEADER programmes), and explicit measures and policies directed at mountain areas in order to meet their particular needs as well as integrated mountain policies. Almost all countries with mountainous or hilly regions have some kind of implicit or explicit mountain policy or a mountain approach for specific policy issues. However, there are significant differences from country to country.

The starting point in the policy approaches was the concern to address spatial disparities and to enhance policies that focus on cohesion aspects as their core objectives. According to the first comprehensive comparative study on EU mountain policies, there are four different types of application of mountain policies to be distinguished for the European countries (Nordregio 2004):

(i) *Sectoral focus of mountain policies*: This is the most widespread case, including in particular the EC-Regulation on "Areas with Natural Constraints" (ANC, since 2014), previously addressed through the "Less-Favoured Areas" scheme (CEE 75/268, since 1975). In principle, it is relevant to all EU countries with mountains, but most frequently the prime instrument for middle mountains and/or New Member States of the EU.

(ii) *Mountain policies addressing multi-sectoral development*: Initially based on mountain agriculture due to the relative decrease of agriculture to the mountain economy, linkages and relevance of other economic sectors (mainly tourism), public infrastructure or services, and/or environment have been increased. Austria, Germany and Spain are best examples of shaping their policies along these arguments.

(iii) *Mountain policies oriented at regional development*: policy contexts with an advanced reference to the sustainable development approach a more integrated policy is conceived, instead of focusing (primarily) on compensation aspects. In a few countries, such policies emerged rather early (before the 1970s) through the approval of specific tools such as mountain laws and mountain funds. At present France, Italy and Switzerland have a formally integrated mountain policy (with Bulgaria and Romania disposing of more recent similarly integrated policy frameworks).

(iv) *No explicit mountain policies*: In some countries without any mountains (e.g. Denmark, the Baltic States and the Netherlands) and in some others with few or low mountains (e.g. Belgium, Ireland, Luxembourg and Poland) there is a very limited interest in mountain policies. Still other countries

do not call them mountain policies, as the whole country is overwhelmingly mountainous and no distinction to regional policy seems necessary (e.g., Greece, Norway and Slovenia). In these contexts, mountain policy is effectively synonymous with general development (or regional) policy.

As the concept of "integrated" mountain policy is only weakly defined and the majority of European countries dispose of mountain policies only implicitly the application of mainly sectoral policies and their implications for mountains is central. Moreover, a straightforward policy assessment is complicated by considerable overlaps with rural and/or regional policies.

Sector-specific mountain policies

Most relevant mountain policies are carried out within specific sector policies that differentiate between different spaces. Due to program and policy evaluations linked to use of funds or oriented at specific policy tasks a comprehensive assessment of the effects and impacts of all the various policies on mountain areas was hardly ever commissioned. Only occasionally, countries or regions shared a particular concern for the inter-related tasks and functions of policies and highlighted in dedicated evaluation studies the contribution of a diverse set of policies on mountain development (Markeš 1996; Bazin 1999; Dax 2000; Job et al. 2013; Mayer et al. 2013). In particular the EU-study on the mountains "as ecological backbone of Europe" (Price 2010) referred to the multitude of complementary policy fields to take account of the ecological and socio-economic value of mountain areas. The following list of policies and their focus and achievements in EU-countries aims at providing a sense of the relevance of the divergent approaches.[8]

(1) Agricultural policy

Common Agricultural Policy (CAP) is considered the most closely linked policy domain to mountain areas as it is responsible for large parts of land use, decisively shapes landscapes and safeguards scattered human settlement in mountain areas.

However, implementation varies greatly from country to country, and due to geographical context (North-South variations) and linkages to other non-agricultural activities (e.g. 'pluriactivity' of farm households, processing structures and value-chain organizations etc.). The EU's CAP (and national equivalents of non-EU countries at that time) introduced direct payments for mountain and other less-favoured areas already back in 1975 (EU Regulation 75/268). With subsequent changes, these payments developed to one of the main instruments of the Rural Development Programmes (RDP), now supported under the term of "Areas of Natural Constraints" (ANC) (EU Regulation 1305/2013, Art.

[8] This report on EU policy implementation is based on the analysis in chapter 4 of Dax 2008.

31-32). Various studies on the application of LFA support (e.g. Dax and Hellegers 2000; Crabtree et al. 2003; Cooper et al. 2006; EC 2009; Hovorka and Dax 2009) highlight the following crucial issues:

- Policy implementation of the LFA scheme is dependent on national and regional strategies.
- Albeit the funds for the scheme were increased gradually, and particularly with the establishment of RDPs, nevertheless the distinct North-South decline in support has not levelled out.
- In the New Member States (since 2004) a specific focus on LFA, respectively for some countries on mountain areas support is discernible.
- Agriculture in these areas is carried out under low intensity levels which call for a careful consideration of differentiation of payments.
- The policy objective is based on the argument to provide certain services (Crabtree et al. 2002) that are nurtured through specific types of land management systems linked to the geography.
- In many respects, other CAP measures, like agri-environmental payments add to the place-specific implementation and effects (Hovorka and Dax 2010), and thus can be seen as important elements of mountain areas support.

Spatial assessment of CAP and rural development showed effects that are not favouring territorial cohesion (Shucksmith et al. 2005) and thus hardly prefer mountain areas in their development challenges. Also for the future of rural development policy prioritization of remote (mountain) areas is demanded (Dax and Copus 2016), but support in general discourse for a turn in policy orientation of CAP remains limited.

(2) Forest policies

Forests cover an ever-larger proportion of the mountain area in Europe and in many countries exceed the total land area used for agriculture, but as to its difficult terrains have particularly high costs of harvesting and transport to markets, resulting in the fact that forestry in mountain areas is often not very profitable (EOMF 2000). In many regions, mountain forests achieve a high societal value as they are important for the protection of watersheds and against natural hazards, and provide the basis for tourism and recreation in these areas, as well as for hunting purposes (Nordregio 2004).

The funding for forestry measures by common EU policies is quite low (in comparison to agricultural policy). This restricted policy up-take dates back to the rules of the Common Market in the Treaty of Rome that did not include forests and forest products.

Taking account of the multifunctional nature of forests and with the search for addressing the various parts of land management and interrelations of diverse land uses an integrated forest policy has been

increasingly recognized as part of rural development policy. It is therefore sought to address the functions of forests in their place-specific aspects through integration of several core instruments for forest development in a place-specific context (KANTOR Management Consultants S.A. 2015) in RDPs and to focus on more climate-sensitive decisions in mountain forest research (Tognetti 2017). Application is assessed against the mountain-specific forest ecosystems in Europe (EEA 2016).

(3) Mobility and accessibility

Disadvantages in mountain areas are particularly due to their restricted accessibility. In all calculations of accessibility mountain areas feature with a particularly high degree of areas with very bad accessibility. While indicators can be analyzed at national and European scales, results differ only marginally for mountain areas as they show for all methods weakest accessibility patterns to centres and locations of services of general interest.

As transport infrastructures cannot be improved throughout mountain areas due to topographic conditions, in many cases corridors through mountain ranges concentrate infrastructure and faster accessibility at least partly. However, this aspect remains a permanent challenge since mobility of people is dependent on individual service availability and provision at fine geographical level may change at small distances. Inherently, this feature impacts on availability of services and many functions and has overwhelming implications on quality of life.

Increasingly mountains are experienced as “new immigration destinations” in migration and attract a rising number of migrants. There are many different types of movements which raises new issues to provide appropriate evidence at fine geographical scale and for different population groups (Corrado et al. 2013).

(4) Infrastructure and public services

Accessibility to centres and places of services is hence particularly weak in mountain areas. With concentration processes at different scales the availability and cost of provision, even of basic services, has been aggravated and analysis of the service provision (Petite et al. 2007) focuses on the need to elaborate dedicated policies for mountain areas and find alternative modes of service provision. The European study *Euromountains.net* highlighted that cost for the provision of services is “possibly 20-30% above metropolitan areas. However, the proportion varies depending on many factors, particularly the area of interest” (Price 2007b, 29f.).

The contribution of relevant policies to the strengthening of ‘territorial dualization’ that implies a differentiation towards areas of concentration and peripheral regions being trapped in marginalization processes (Rodríguez-Pose and Crescenzi 2008) was revealed by another study on non-cooperation of

various policies as well (Robert et al. 2001). Many of these peripheral areas are located in mountain regions showing the following characteristics:

- Main problems arise in public transport organization and in protracted integration into new information and communication technologies networks, maintenance of quality education facilities, health care availability and care of elderly persons. In recent years, broadband improvement and lags in its provision is seen as a particular obstacle for mountain areas (European Commission and Euromontana 2017).
- The population groups most affected by reduction in service provision are elderly persons, young people and women and all those without availability of individual cars.
- Many public services hold also important social functions as they create places of meeting and communication and contribute to lively public spaces. The trends of liberalization of services, however, benefits larger enterprises in the centres and drains employment away from rural, peripheral areas.
- Above all, the erosion of basic services leads to a pessimistic and negative sentiment among people in these mountain areas, and also reduces cultural life and self-organized community activities.

(5) Regional policy

Regional policy in the EU strive to enhance living conditions and socio-economic development in lagging regions since its first significant structural policies reform at the end of 1980s. Most mountain areas with the greatest economic difficulties were included in the various Structural Funds programmes established since then in several rounds of policy programming but with low priority (Schindegger et al. 1997; Dax 1998). While the direct linkage of criteria to “mountain” classifications was weakened the comparison of eligibility of support areas (eligible in the various programme periods of Structural Funds for regional support) underscored the relevance of regional development support for mountain regions (ADE 2012), particularly for the most disadvantaged areas (Nordregio 2004). In the two last programme periods (2007-2013 and 2014-2020) the regional differentiation was weakened for “mainstream” programming of regional policy.

However, following the concern for territorial cohesion the thrust of the policy documents on territorial development (“Territorial Agenda 2020”: EC 2011) seeks to enable place-specific and mountain focused support. Some countries put a specific focus on mountains in their spatial development approach and highlight mountains as priority areas in their national strategic documents. There are quite different approaches to take account of the challenges of mountain areas and peripheral areas. Many initiatives can be found in trans-regional and trans-national cooperation

activities, particularly with the support of various Interreg programmes (Bausch et al. 2005). These place-specific activities underpin the need for cooperation at the regional level to address specificity of mountain regions (Gløersen et al. 2012). The debate on development of territories with geographic specificities (like the mountains) has increasingly moved from a perspective of compensation for "natural handicaps" towards strategic approaches that "while still acknowledging the specific challenges of these places, (are) more oriented on the need to reveal and strengthen their development potentials "(ESPON EGTC 2017, Introduction, page i).

(6) Environmental policy

Long-recognized natural risks in mountain areas, which are linked to their specific geological characteristics, topography and climate conditions, are increasingly enhanced by human intervention. The specific sensitivity of mountain areas threatened by land abandonment and subsequent effects on landscape changes, pressures on land use and environmental quality due to infrastructure construction and high level of touristic intensity, and outstanding sensitivity of mountain areas to climate change (Barry and Seimon 2000). The integration of environmental tasks into policy concepts is therefore a long-standing object of mountain research (Dax and Wiesinger 1998) and has recently embraced the dynamic views on socio-environmental systems (Hubacek 2010).

While traditionally environmental conservation and protection was the priority current approaches highlight the need to strengthen this integrative perspective. Among other action (at various levels) this is enhanced by the Natura 2000 programme, relevant to many mountain regions. A thorough investigation of the contribution and inter-relationships of mountain development with European environmental performance is available in the European Environmental Agency's study (Price 2010) on the valorization of mountains as the "ecological backbone" to Europe. While Europe's nature conservation policy is based on the Habitats Directive, dating back in its original form to the Council Directive (92/43/EEC), and the Birds Directive, adopted by Directive 79/409/EEC in 1979 and amended in 2009 (Directive 2009/147/EC), environmental performance is influenced by a complex set of drivers and cannot be reduced to sector policies. It is therefore widely acknowledged that integrated approaches to understanding mountain regions are required.

3.2 The role of mountain development for territorial cohesion

The horizontal nature of the required policy report is most expressively visible in the debate on territorial cohesion. In 2008 the discussion achieved momentum through the preparation process for the Green Paper on Territorial Cohesion (EC 2008). A supporting document commissioned by Euromontana highlighted the role of mountain regions in that policy approach. That review of existing policies focused on "key elements and principles for a policy approach to focus on sustainable

development in mountain areas (Mountain Agenda 2002) and to prevent marginalization tendencies and so contribute significantly to the objectives of Territorial Cohesion" (Dax 2008, 3). It referred to the concept to territorial cohesion that extends beyond economic and social cohesion and aims at fair opportunities for all European citizens, wherever they live or work (EC 2004). This particular attention for specific territories is included in the EC Treaty with Art. 174 of the Lisbon Treaty stating that

> "*In order to promote its overall harmonious development, the Union shall develop and pursue its actions leading to the strengthening of its economic, social and territorial cohesion. In particular, the Union shall aim at reducing disparities between the levels of development of the various regions and the backwardness of the least favoured regions. Among the regions concerned, particular attention shall be paid to rural areas, areas affected by industrial transition, and regions which suffer from severe and permanent natural or demographic handicaps such as the northernmost regions with very low population density and island, cross-border and mountain regions*" (TFEU 2010).

While the Green Paper on Territorial Cohesion underpinned the need for increased coordination between sectoral and territorial policies, implementation focused on mountains did not progress as far as it might have. Further initiatives by stakeholders, mountain regions' representatives and analysts underscored the continued relevance of the issue. There remains the question if mountain regions require a different set of policy programs or if the available policies could be adapted to the specific mountain contexts (Balsiger and Debarbieux 2015; Gløersen et al. 2016). The European Parliament calls in its Motion on cohesion policy in mountainous regions of the EU (EP 2016) for a coordinated approach that emphasizes the functional spatial interlinkages of mountainous regions and improved coordination of policies (Balsiger and Narath 2015). As the EU policies, as outlined above, don't have a specific approach to mountainous regions, their structural disadvantages should be taken into account by a dedicated "Agenda for EU Mountainous Regions" that would "be basis for an EU strategy aimed at achieving the long-term development of mountainous regions and the areas dependent on them" (EP 2016, 9).

The more recent debate called for enhanced recognition of the changes in infrastructure and technology development, and the continued demographic pressures on many mountain regions. The conference on cohesion aspects in mountain regions (EC and Euromontana 2017) strengthened the perspective for proposals for a follow-up on Cohesion Policy more suited to mountain areas. This follows a series of documentation of innovative initiatives and options (Fleury et al. 2008), revealing the potential contribution of mountain areas to the implementations of European objectives (Euromontana 2013) and spatially differentiated analysis of ERDF policy implantation for mountain areas (Giordano 2017).

4. Mountain Development Research: an evolving framework

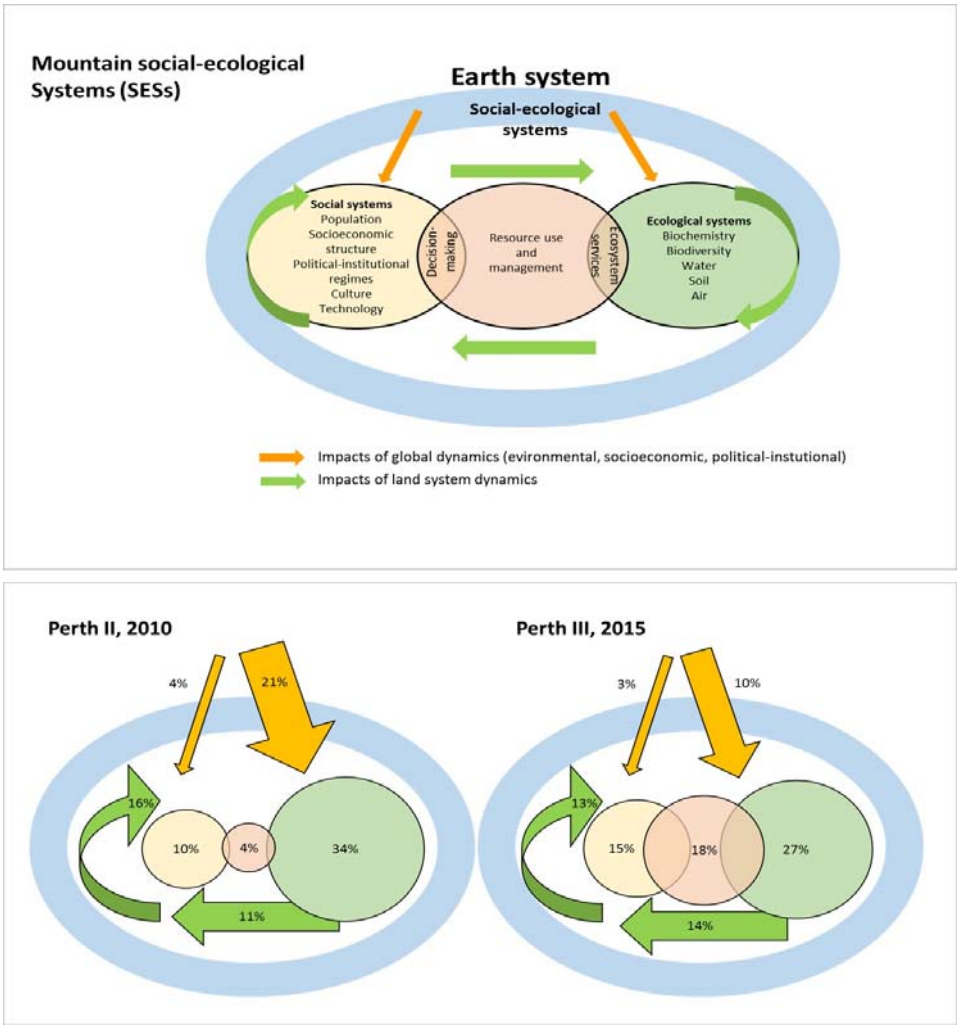
The increasing policy attention for challenges of mountain areas was partly nurtured by research, partly affected an increased activity of scientists in exploring mountain-specificities. This did not just lead to a sharp rise in numbers of research institutions and staff involved with respective analytical questions, but also impacted on the boundaries, interrelations and relevance of the research area of mountain development with regard to other disciplines and societal challenges (Debarbieux et al. 2015a). In particular, it stressed the need to exchange conceptual approaches and methodological considerations with other research disciplines and incited a view fostering inter-disciplinary and trans-disciplinary activities. This chapter intends to provide an introduction to the recent debate on advancing the research agenda for mountain development and links the selected publications of this dissertation to the concepts of these discussions.

4.1 The research agenda for mountain development

As discussion on the agenda of mountain research priorities increased with the higher commitment for their impact on local development, resource use, societal challenges and global change various research frameworks have been explored over the last decades. Starting with linking mountain research with global change (Price 1999), the concern turned very rapidly towards a more comprehensive assessment (The Royal Swedish Academy of Sciences 2002) and strategies to enhance policy implementation (Mountain Agenda 2002). Specific focus is placed on research aspects and trans-national cooperation in the Alpine countries (ISCAR 2008). The most comprehensive research event on mountain issues, provided through three periodic research conferences organized by the Mountain Research Center in Perth (Scotland), referred to the analytical structure of the Global Land Project (GLP 2005) and the GLOCHAMORE research strategy (Björnsen Gurung 2006), and presented an analysis of research focus of the last two Perth conferences. In terms of thematic fields addressed, priority of action is put on environmental aspects, highlighting global change implications due to climate change, biodiversity threats and demand for ecosystem services provision (UNEP 2013). While the Perth II conference in 2010 reflected that situation, and was heavily dominated by analyses of the ecological systems and global change impacts on the environment (Björnsen Gurung et al. 2012) the search for a more balanced contribution of mountain researches to Perth III conference in 2015 was successful (Price 2014). As Gleeson et al. (2016) reveal through the comparison of emphasis of conference abstracts (see Figure 1) the portion of research on “social systems” and “resource use and management” aspects has been considerably increased. This has been an explicit target of the

Scientific Organization Committee[9] for that conference. As the conference was linked to the research concept of the Future Earth programme (Future Earth 2013) it also addressed the three main components of the Future Earth research agenda (2014), research for a "Dynamic Planet", for "Global Sustainable Development" and "Transformations towards Sustainable Development". This classification of conference contributions was also used for assessing the balance of thematic coverage at Perth III conference and provided a reference for "identifying gaps and emerging issues to inform future research directions" (Gleeson et al. 2016, 539).

Figure 1: *Adapted Framework for analysis of global change research in mountains and thematic foci in abstracts submitted to Perth II and Perth III conferences*



Note: The top figure is the modified analytical structure of the Global Land Project Science Plan and Implementation strategy (GLP 2005) as a basis for thematic analysis of Perth II conference abstracts (Björnsen Gurung et al. 2012); the bottom two figures show the emphasis given to the various components of the structure by the papers at the two last Perth conferences.

Source: Gleeson et al. 2016, 541.

[9] The author participated in that committee to prepare the selection of the focus and contents of contributions to Perth III conference in 2015.

The Research Framework builds on the concept of Mountain social-ecological systems (SESs) which are part of the Earth System with increasing interrelations between its different sub-sections. In these theoretical considerations mountains are understood as a specific type of areas that ask for specific research efforts and systemic perspectives to take account of driving forces and changes most relevant to these areas. It implies that the concept of mountains as social-ecological systems is "part of a broader trend in the sciences to recognize that humans are shaping ecological systems though many activities including resource exploitation, land use change, and industrial processes" (Tucker 2015, 2). This concept is based on Ostrom's work providing a social-ecological system framework that seeks balanced assessment of contributions of ecology and society to development in an area, and taking account of the various linkages between sub-parts of the system (McGinnis and Ostrom 2014). As a simplification of diversity of contexts and complexity of interrelations and dynamics, the framework is not intended to 'explain' in detail cause-effect relationships, but highlights the main actors, elements and effects in the system (Ostrom and Cox 2010). In the context of mountain development research it is particularly important to look at the boundaries of the systems and include 'external drivers' in the analytical concepts, as global aspects are of overwhelming importance for mountain contexts and mutual impacts between mountain and lowlands.

Taking account of the lack of coordinated research at transnational scale in Europe, the Mountain Research Initiative with the support of a group of researchers (see footnote 1 above) from various mountain research areas and thematic contexts elaborated in 2015/16 the European Mountain Research Agenda (Drexler et al. 2016). The strategic documents structure only partly applied the (thematic) research framework presented in above Figure 1. It was more closely linked to the structure of EU's Horizon 2020 programme and presented research options for mountain areas along the Societal Challenges that are the primary current building blocks of European research collaboration (see research priorities in Table 2 below). This reflects the main target to influence research programme organization in Europe and to raise visibility and understanding of mountain research concerns. At least partially this initiative was successful by raising discussion about mountain topics at EU-level and including a specific topic on "Tomorrow's resilient value chains in areas facing natural constraints" (RUR-01-2018-2019-2020: Building modern rural policies on long-term visions and societal engagement, sub-task D) which focuses particularly on "understanding dynamics and modernizing policies" (call title). The selection of this research topic was first directly addressed to "mountain value chains" and only later re-formulated towards including all "areas facing natural constraints", the currently used expression for the Rural Development instrument to support mountain and other less-favoured areas.

4.2 Relation of findings of the selected publications of the PhD thesis to the research framework

The topics of the selected publications span a wide range of research issues and intend to highlight the big scope of issues relevant for mountain development research. In this sub-chapter the relation to the research framework will be specified by focusing on the key topics and findings of the publications.

Before analyzing those linkages to the research framework a classification of publications by (main) scale of research is presented (Table 2). This categorization intends to emphasize the different analytical approaches and spatial perspectives relevant for mountain research. As actual implementation within households and small-scale initiatives at the local level is decisive for keeping the dispersed population in mountain areas, issues of local development have a key role (Dax 2015b). Particularly publications JP1, on farm household strategies and decision-making in different mountain areas of Europe, and JP2, on the assessment of land abandonment trends at a fine geographical scale in European mountains, underpin the local perspective.

Table 2: *Scales of Research, selected papers and link to research framework*

Scale of research	Selected original publications	Link to research framework	Complementary publications	Link to research framework
Farm household – local level	JP1. / JP2.	SES and PIR / RES and LD	CP1. / CP3.	PIR – DM / PIR - ES
Mountain areas – regional level	JP2. / JP3.	SES, RES and ES / POP, PIR and CULT	CP2.	SES, PIR, DM and LD
National level	JP4.	POP, PIR, DM and CM	CP1. / CP3.	PIR – DM / PIR - ES
Trans-national cooperation	JP5.	PIR, DM, LD, GD and CM	CP4.	PIR, RES and ES
Multi-national and Global scale	JP6.	PIR, RES, DM and CM	CP5.	SES, DM, LD

Notes, according to structuring elements of Figure 1:
Social systems: Population (POP), Socioeconomic structure (SES), Political-Institutional regimes (PIR), Culture (CULT), Technology (Tech);
Ecological systems: Biochemistry, Biodiversity, Water, Air, Soil
Resource use and management (RES), Decision-making (DM), Ecosystem services (ES)
Global dynamics (GD), Land system dynamics (LD); changes in mountains (CM)

Source: own compilation, with reference to Björnsen Gurung et al. 2012, 48.

At the same time, it becomes obvious through these analyses that "external" drivers from the regional level and beyond are of increasing relevance. The best known programme for (small-scale) regional

development of rural areas is the LEADER programme. LEADER started as a Community Initiative of the European Union in 1991 (abbreviation for French programme title "Liaison Entre Actions de Développement de l'Économie Rurale") and later, since 2007, has been integrated into the Rural Development Programmes (Dax 2015a). Seeking primarily innovative approaches in rural regions (Dargan and Shucksmith 2008; Dax 2013c) it is of outmost importance to mountain areas development in Europe. Publication JP3 analyses the tasks, aspirations and obstacles of programme realization through the implementation practice in two highly committed countries, i.e. Austria and Ireland.

As has been shown in the analysis of mountain policies, the influence by the national level is decisive. Examples of France, with an intensive evaluation study of the implementation results of the Mountain Law (Bazin 1999; La Loi Montagne 2016), of Switzerland, with the recurrent analysis of regional and mountain-specific policy targets (e.g. Mayer et al. 2013) and recently of Georgia (Mountain Law of Georgia 2015) are characteristic for the strategy building process at national level. In Austria, an OECD case study on the "cultural landscapes" development of the mountain areas provides a thorough analysis of the implementation of mountain policies form the 1970s to the 1990s (OECD 1998). Following on that, and integrating findings from a national evaluation study of the regional support programme for mountain areas, publication JP4 summarizes the national experience (at that date).

But for many mountain ranges a trans-national approach is very important since mountains are often border areas (Majtényi and Tamburelli 2009; Price 2015). International conventions (like the Alpine Convention, the Carpathian Convention and the Observatoire Pyrénéen du Changement Climatique – OPCC) are main examples. For the Alps, the Interreg programme Alpine Space provided an additional support of trans-border activities. Strategy building processes are intensively discussed at this level (see expert studies Bausch et al. 2005 and Gløersen et al. 2013). Publication JP5 aims at reviewing the potential of trans-border cooperation and highlights the priority action areas with the aim of strengthening cooperation activities.

As mountain ranges quite often extend over several countries multi-national perspectives gain in relevance. This is already the case for the Alpine and Carpathian (Björnsen Gurung et al. 2009; Ruffini et al. 2008) mountain ranges, but more and more applies to international discussion of many mountain ranges contexts (e.g. elaboration of networks in South-East Europe, in Djordjevic 2014). The European Commission enhances considerations at such a "macro-scale" and started a process of "Macro-regional Strategy" building which resulted, among other, in the adoption of the EU Strategy for the Alpine Region (EUSALP; EC 2015). Publication JP6 addresses the linkages between and contributions of the diverse activities within the Alpine range to that Macro-regional Strategy and underpins its impact on general European spatial development issues.

Selected publications are not only exemplary for the different scales of analysis. They also address various components of the research framework, at different degrees. Corresponding to the research field and expertise, the focus of publications is on the analysis of social systems. Nevertheless, there are important linkages to the other two domains, the ecological systems and global dynamics, expressed in several of the publications. The main aspects addressed are socioeconomic structure (SES) in publications JP1, JP2, JP3 and political-institutional regions (PIR) in publications JP4, JP5, JP6.

As Table 2 shows also other aspects of the research framework are highly relevant to the publications. A more detailed review of the core issues and relevance to the research framework of the individual publications will be provided below. At the general level, the various publications address the socioeconomic development potential linking it to the specific contexts of mountain areas with resource use and land management issues (Brouwer et al. 2008). In all publications, the impact of policy concepts and assessment is of high relevance. While the dynamic aspect is highlighted in Table 2 only for the last three publications ("changes in mountains" – CH) it seems also relevant for the other publications. This is a specifically interesting aspect with regard to the discussion of future research priorities (chapter 6).

A series of complementary publications (CP1 – CP5) is included in the PhD thesis to underpin the pertinence of inter-linkages of issues and multi-level governance aspects. While publications CP1 – CP4 all address governance and institutional aspects, two papers on implementation of programmes (CP2 and CP5) focus on the socio-economic development of mountain regions, and publication CP4 emphasizes the basic role of amenity provision of mountain agriculture in Europe. They also analyse various aspects of policy implementation, focusing on the LFA scheme (publication CP1), the rural development programme (CP3) and an integrated approach for mountain policies (CP2). Moreover, the transfer of development experiences (from the Alps to Chinese mountain areas, Zhang and Dax 2013) is highlighted in publication CP5.

Linkages of selected papers to the research framework

All the selected papers contribute to specific issues of the research framework (see Figure 1 and Table 2). They have been published at various dates and obviously reflect the specific contexts analyzed and the period when they were drafted. The following overview is organized through individual abstracts of the six selected publications and a short accompanying review of their contribution to the research framework.

National and European policies are a priority theme in many of them, underscoring the long-term acknowledgement of the need for policy support of mountain areas. The first selected **publication JP1** analyzes farm households' behaviour in mountain regions of Europe at the beginning of the 1990s

when the most decisive CAP reform to shift farm support towards direct payments took place. In relation to the mountain social-ecological systems, at first glance this addresses mainly the part of the social systems. However, farming practices and land management systems are always an expression of resource use and involve direct impacts on ecological systems. Any attribution to a primary research concern has to be reflected therefore also in an inter-disciplinary approach.

***Box 1**: Paper JP1*

This paper explored the role of national and European policies in influencing farm households' behaviour in mountain regions of Europe at the time of CAP reform 1992 when a shift in farming support towards direct payments took place and rural development emerged as an important policy field across Europe. Many aspects of those policy adaptations had seen pilot schemes in the previous years, particularly in mountain areas. The paper is the collective effort of the "Mountain group" of the long-term study on "Rural Change: in Europe: Research programme on farm structures and pluriactivity", focusing on the specific lessons from a range of case studies in mountain regions. The author contributed the cases of reactions and decisions of farm households in Austria and the framework to the analysis of differentiated farm household behaviour. The main findings of the paper underpin the large scope of differentiation in the responses of farm households to policy schemes. The respective decision-making processes can only be assessed if regional contexts, structural conditions and diversification activities of all household members are thoroughly addressed in the analysis. In particular, this result points to a need to overcome "simplistic and mechanical ideal(s) of policy user(s), and a narrow view that privileges the perspective of its own sectorial policy, never achieving an understanding of the complex interplay of agricultural and non-agricultural policies from the point of view of the family household" (p.124). As the paper focuses on the uptake of diversification opportunities and policy options through farm households it highlights in the conclusions the tight connection of observed pluriactivity patterns to non-farming skills and knowledge and to the specific local labour market opportunities. A tension between extension services focus on modernization and farm households' adaptation strategies becomes visible through the in-depth analysis of their perspectives towards policy options and development. This underlines the then on-going changes of policy orientation and the emerging more positive attitude towards recognition of environmental positive effects of farming, particularly in mountain regions.

JP1: Bel, F., Dax, T., Herrmann, V., Knickel, K.H., Niessler, R., Saraceno, E., Seibert, O., Shucksmith, M., Uttitz P. and Veuthey F. (1993) The role of policy in influencing farm household behaviour in European mountain areas. in: *Revue de géographie alpine* 81(2), 101-127. http://www.persee.fr/web/revues/home/prescript/article/rga_0035-1121_1993_num_81_2_3707

The second **publication JP2** is the product of a European-wide research project on the "Integration of environmental concerns into mountain farming", commissioned by the European Commission (DG Environment) and coordinated by Euromontana. Its focus is on the assessment of land abandonment across European mountain areas and particularly on common features at small-scale level. It was drafted at a time when the agri-environmental support scheme was in its first application period. The scope for integrating policy schemes with beneficial effects on the environment was seen as

particularly high. Although it includes all European mountain areas in its analysis, the publication clearly shows the place-specific evidence and policy implications for diverse development processes. Due to its interest in agri-environmental support and implications for environmental performance, the paper can be categorized to be linked specifically to management aspects (RES), land system dynamics (LD) and the provision of ecosystem services (ES), highlighting the interrelation of ecological and social development issues.

Box 2: *Paper JP2*

With technological development and rise in productivity across European agriculture, gaps between mountain and lowland competitiveness increased. Starting from the 1970s a support scheme for Less-Favoured Areas (LFA) was conceived that should alleviate these disparities, particularly for most affected mountain areas. Agricultural abandonment reflects a post war trend in western Europe of rural depopulation to which isolated and poorer areas are most vulnerable. The commercialisation of agriculture, through technological developments, and the influence of Common Agricultural Policy have increased productivity and focused agricultural activity on more fertile and accessible land thus transforming traditional approaches to farming. In many areas, this has led to a decline in traditional labour-intensive practices and marginal agricultural land is being abandoned. The problems that these trends create are particularly marked in mountain areas. While the social and economic impacts of these changes have been observed and well documented, the implications for environmental policy are less well recognised. This paper reviews the literature on abandonment and gives a comparative analysis of European mountain case studies to assess the environmental impacts of land abandonment and decline in traditional farming practices. It finds abandonment is widespread and that, while the influence of environmental changes is unpredictable due to environmental, agricultural and socio-economic contextual factors, abandonment generally has an undesirable effect on the environmental parameters examined. The application of agri-environment policy measures in relation to abandonment is discussed and suggestions for future policy are proposed. The paper is the result of a study commissioned by DG Environment in the first phase of the application of agri-environmental support schemes seeking an assessment of on-going land use changes at that period. The driving forces highlighted in the study and the patterns of differentiation within the mountain areas are still relevant today and provide arguments for current assessment of spatial effects.

JP2: MacDonald, D., Crabtree, J.R., Wiesinger, G., Dax, T., Stamou, N., Fleury, P., Gutierrez Lazpita J. and Gibon A. (2000) Agricultural abandonment in mountain areas of Europe: Environmental consequences and policy response, in: *Journal of Environmental Management* 59(1), 47-69. http://www.sciencedirect.com/science/article/pii/S0301479799903353

Publication JP3 is derived from case studies on LEADER implementation in various EU-countries and compares the experiences of application of 'mainstreaming' of the scheme into the Rural Development Programme in Austria and Ireland. It provides a critical assessment of the administrative obstacles and the weaknesses of implementation with regard to the objective of raising innovatory action. This is of particular importance for mountain areas which constitute about two thirds of the Austrian LEADER

regions. This publication has the most clearly expressed relevance for aspects of institutional development and governance (PIR), including participation and decision-making processes (DM), and also implications on the demographic development (POP) at regional level. With its concern for enhanced local and regional participation it is oriented at the development of social systems, yet highly relying on historic developments and contextual features.

Box 3: *Paper JP3*

Since the beginning of the 1990s, the Leader programme has been elaborated as core instrument of local development in rural regions. It was appreciated as that instrument of rural policy that most explicitly takes account of the territorial dimension. Hence, it is also of particular relevance for mountain development and a large share of the local areas addressed as target areas through LEADER initiatives are located in mountain regions. The positive assessment of the impact on local development of the scheme culminated in the "mainstreaming" of its underlying concept into the Rural Development Programmes since the programme period 2007–2013. This integration into the administrative structure of the overall rural development programmes aimed at a significant increase in effectiveness and impact of policy implementation through paying particular attention to the place-based needs of rural regions. Starting from analysis of the application and delivery of Leader under the present Rural Development Programme in two EU countries, Austria and Ireland, this paper presents an assessment of the effects of this programme change. In addition, it includes the EU-wide discussion on the (limited) effectiveness of the current implementation of Leader and the search for a reorientation towards local development activities in the EU's reform proposals. The paper frames the analysis around the notion of social innovation, a concept of central importance to the aims of Leader. It is argued that the implementation of Leader in that period falls far behind its potential to beneficially impact rural regions; hence it should be an object of critical debate in the reform of the Common Agricultural Policy and rural development measures, as well as coherence analyses with other policies, beyond 2013. Although the local development concept is relevant for all rural regions it is of particular relevance to mountain areas, and encapsulates enhanced opportunities for framing mountain development strategies and local-based initiatives.

JP3: Dax, T., Strahl, W., Kirwan, J. and Maye, D. (2016) The Leader programme 2007-2013: Enabling or disabling social innovation and neo-endogenous development? Insights from Austria and Ireland, in: *European Urban and Regional Studies,* published online 26 July 2013,
DOI: 10.1177/0969776413490425.
http://eur.sagepub.com/content/early/2013/07/25/0969776413490425

Austria was one of the first countries to adopt the "endogenous development" approach in its regional development policy for mountain areas (Bundeskanzleramt 1980). The application of this concept has been analyzed 20 years later and highlighted specific mountain development needs that are widely taken up as a 'role model' in international discussion. The **publication JP4** underpins the requirements for social changes as a prerequisite to effective policy implementation. The publication addresses the aspects of institutional development and changes (PIR), decision-making processes (DM) and its effects

on demographic development (POP). It seems particularly important to enhance coherence of relevant policies.

Box 4: *Paper JP4*

Regional development in mountain areas and the impact of development on landscapes have been focuses of economic and regional policies in Austria for many decades due to the country's predominantly mountainous topography. A special 'Support Program for Mountain Farmers' was established in the early 1970s which aimed at raising especially low incomes of mountain farmers and addressing weak infrastructure and services provision in mountain regions. Extending this approach, since the late 1970s support for regional economies in peripheral mountains of Austria has been defined from a bottom-up perspective and used an 'experimental' pilot character to explore useful pathways and creative solutions at local level in mountain areas. Meanwhile, measures designed in accordance with agricultural and regional policies have become an important component of Austria's mountain policy, with significant implications for sustainable regional development. Assessment of mountain agriculture in Austria has been carried out with particular attention to ways and means of supporting the agricultural sector and to measures aiming to preserve and manage land resources sustainably under the difficult production conditions in mountains. At the core of mountain policy is the valuation of nonmarketable goods, which are increasingly referred to as "rural amenities" in international discourse. Such valuation must be included in comprehensive policy assessments of sustainable development. Emphasis on the character of mountain areas with respect to potential local and regional amenities has made it possible to enhance small-scale development initiatives at the local level. Sustainable resource use in peripheral mountain regions largely depends on the possible development potential of amenities in regional concepts, on nurturing the endogenous potential of the local population, and on inducing appropriate initiatives for balanced development of cultural landscapes and rural society.

The long-term experience of Austria with this participatory approach and the focus for mountain "needs" gained international recognition and various countries with similar mountain challenges called upon the advice of Austrian administration and experts. Findings from the assessment expressed in this paper are therefore valuable sources for considerations on policy advice and reflections for good practice of regional governance.

JP4: Dax, T. (2001) Endogenous Development in Austria's Mountain Regions, From a Source of Irritation to a Mainstream Movement, in: *Mountain Research and Development,* 21(3), 231-235. http://www.bioone.org/doi/pdf/10.1659/0276-4741%282001%29021%5B0231%3AEDIAMR%5D2.0.CO%3B2

The following **publication JP5** concludes on findings from the "Prospective Study", an experts' study (Bausch et al. 2005) intended to provide incentives for the strategy building process of the second Alpine Space programme period (2007-2013). It reviews the major achievements of programme realization and highlights the challenges to mountain regions in securing sustainable territorial development. With regard to the research framework the paper reflects above all on the institutional background and governance issues (PIR), linked to activities that influence land use dynamics (LD) and,

more generally, changes in the mountains (CM). Strategy processes at the trans-national sphere are in the foreground of this assessment. This perspective implies that national programmes and development schemes are not sufficient to address the large-scaled spatial influences on mountain ranges (e.g. of the Alps).

Box 5: *Paper JP5*

In the context of European spatial development, mountainous regions are characterized by specific development issues and by limitations on regional exchange. The EU Community Initiative Interreg IIIB Alpine Space Program (ASP) was launched within the EU Community Initiative Interreg and the present paper addresses the lessons learnt from application in the period of Interreg IIIb (2000-2006). Its main task was, and still is, to strengthen transnational cooperation and promote balanced development, covering the geographical area of the core mountainous area of the Alpine mountain range and the neighbouring interlinked regions of the seven Alpine countries. Its perimeter is hence significantly larger than the area covered by the Alpine Convention. The priorities of its activities focused at that period towards activities targeted at the impact of climate change on risk management, polycentric spatial development and the support of sustainable transport systems. The paper reports on the work of the 'Prospective Study' that was commissioned by the Management Authority of the Alpine Space Programme to prepare the strategy and remit of the next programme period (2007-2013). At that time, almost 60 projects had been realized and substantive efforts for cooperation and implementation of innovative pilot actions already had taken place.

As an implementation review and strategy paper the Prospective Study assesses major achievements of programme realization in the various regions of the Alpine space and across different topics and actor groups. At the same time, it points to the core requirements for ongoing transnational projects in order to overcome deficiencies experienced in these regions and policy areas. The conclusions and recommendations summarize the challenges for mountain regions in securing sustainable territorial development, despite ongoing changes in land use and contrasting spatial trends. The impact of the findings for the programme application is thus primarily dependent on its integration into the regional knowledge system and a linkage to spatial strategies at the different geographical and administrative levels. It already addresses as a future task and a next step of cooperative activities, the increasing linkages to adjacent non-mountainous regions and the need for a closer network with other mountain ranges outside the Alpine space. Some of these aspects have been intensified and partly realized over the last decade through extending spatial coverage of "Alpine" strategy considerations to the Macro Regional Strategy approach of the Alps, and inclusion in work of the global Mountain Partnership and other bi-lateral mountain areas consultation programmes (including the Carpathians, the Pyrenees, the Balkan mountains, but also the Caucasus, the Himalayan and Central Asian mountains etc.).

With regard to the research framework this paper reflects in particular the institutional basis of mountain regions development and governance aspects linked to shaping land use changes, sustainable development issues and mobility concerns, all dealt with in a transnational context.

JP5: Dax, T. and Parvex, F. (2006) Strengthening Cooperation Strategies in Mountain Areas, Assessment of the Interreg IIIb Alpine Space Program, in: *disP - The Planning Review* 42(3), 35-45. http://www.tandfonline.com/doi/abs/10.1080/02513625.2006.10556961

The last **publication JP6** highlights the concern for taking account of these "macro" perspectives and large-scale driving forces through elaborating the "European Union Strategy for the Alpine Region" (EUSALP). This Macro-regional Strategy combines activities of all the programmes relevant for the Alpine area and seeks to enhance strategic approaches to nurture potential available at different levels of all the Alpine region. In this area, a multitude of activities have been elaborated over the last decades so that a combined effort to increase synergies of various efforts seems useful. The paper focuses on the institutional governance aspects (PIR) and an inter-disciplinary perspective of resource use (RES), ecosystem development and socio-economic changes, as well as a dynamic perspective of changes in mountains (CM). As the publication is drafted in the period of strategy elaboration it primarily sets out the future perspectives for the objectives and approach of Macro-regional Strategy.

Box 6: *Paper JP6*

Despite the strong concentration of worldwide mountain research on the European Alpine countries links between research and practitioners are emerging only by and by. Taking stock of best-practice seems important at this stage of strategy building and might supply useful findings in the search for adaptation of action in mountain areas: The inclusion of local, non-government stakeholders, the cross-sectoral approach and an anticipation perspective towards development trends are suggested as core elements of any mountain development strategy. This will particularly become more important with the current preparation for a Macro-regional Strategy for the Alpine Region.

The European Alps include a wealth of worldwide referred images of mountain habitats. This paper assesses the various activities developed in this mountain range over the last decades that have addressed their amenities, created attractiveness and increased awareness towards environmental sensibility of mountain areas. Observations are drawn from participation in various national and international research projects on European policies to cope with the specific production and development problems of mountains in different contexts. These include relevant policy instruments, the Alpine Convention as framework for sustainable development, the European Union's transnational Alpine Space Programme and a host of local, regional and national initiatives and networks. The paper will explore approaches to secure commitment for comprehensive policy strategies with regard to future challenges and the potential to transfer experiences between mountain regions.

The most relevant observations in this regard are: First, activities are not limited to institutional development (of the Alpine Convention), but extend to the widely accepted framework of integrated approaches in national and regional policies, and the multiplication of local action. Second, many spheres of activities have elaborated over recent years, reflecting the concern to take account of the diversity and impact of global changes on mountain areas. And third, trans-national cooperation has nurtured similar approaches for mountain ranges in Europe (e.g. Carpathian Convention, Balkan etc.) and beyond (e.g. Himalayan Region Initiative and an alternative model for the Andean Community).

JP6: Dax, T. (2014) Drawing lessons from Alpine space activities for integrative regional development in mountain regions, in: *Die Bodenkultur, Journal for Land Management, Food and Environment* (forthcoming).

5. Research priorities and gaps

5.1 On-going discussion on enhancing mountain research

Mountain research commitment has increased with the appreciation of its role and impact for environmental performance and the rising interest for the human - nature interlinkages (see above, chapter 2). In particular the need for a globally coordinated framework to address the intensive reliance of human mankind on natural processes and the implications of human activities in the mountain areas contributed to launch UNESCO's Man and Biosphere Programme (MAB) in 1971. From its start until nowadays it provided an important impetus to researchers in many countries to delve into respective research issues and, indirectly, paved the way to an enhanced uptake of mountain research issues at large. Its most famous feature is its World Network of Biosphere Reserves that currently counts 669 biosphere reserves in 120 countries all over the world (UNESCO 2017a), with 3 of them in Austria in 2017 (UNESCO 2017b)[10].

Mountain research priorities have therefore been discussed in many occasions of international fora, relevant programme preparation and mountain development conferences. For the global context the Mountain Partnership assumed the role of exchanging information and incentivizing activities among its partner organizations and countries. Established in 2002 the Mountain Partnership aimed at providing an overview on partners' priorities and pressing challenges by organizing a comprehensive e-survey (Kohler et al. 2006). It was used to focus Mountain Partnership activities in Member Countries and instigate a series of thematically focused mountain development analyses and events. The main thrust expressed in that survey of institutions and mountain experts revealed the status and future of mountain research. While the wide range of themes is acknowledged, the report concludes that "natural resource management, with a strong orientation towards biodiversity and issues related to protected areas, dominate the research agenda" (Kohler et al. 2006, 10). It calls for an increased discussion of inter-linkages and support for the "negotiation power of mountain areas" in political implementation, improved access to land and natural resources, action against poverty and degradation of land and soil. The final conclusions stressed the shift of the research community "towards a more integrative view on research and development, and … the need to place greater weight on the socio-political and economic frameworks" (Kohler et al. 2006, 28). Ever since then, these guiding principles were important in the orientation of the work of the Mountain Partnership (see also the current annual report, Mountain Partnership 2017).

[10] Four other biosphere reserves of Austria already designated in 1977 were withdrawn in 2014 (two of them), respectively in 2016 (the other two).

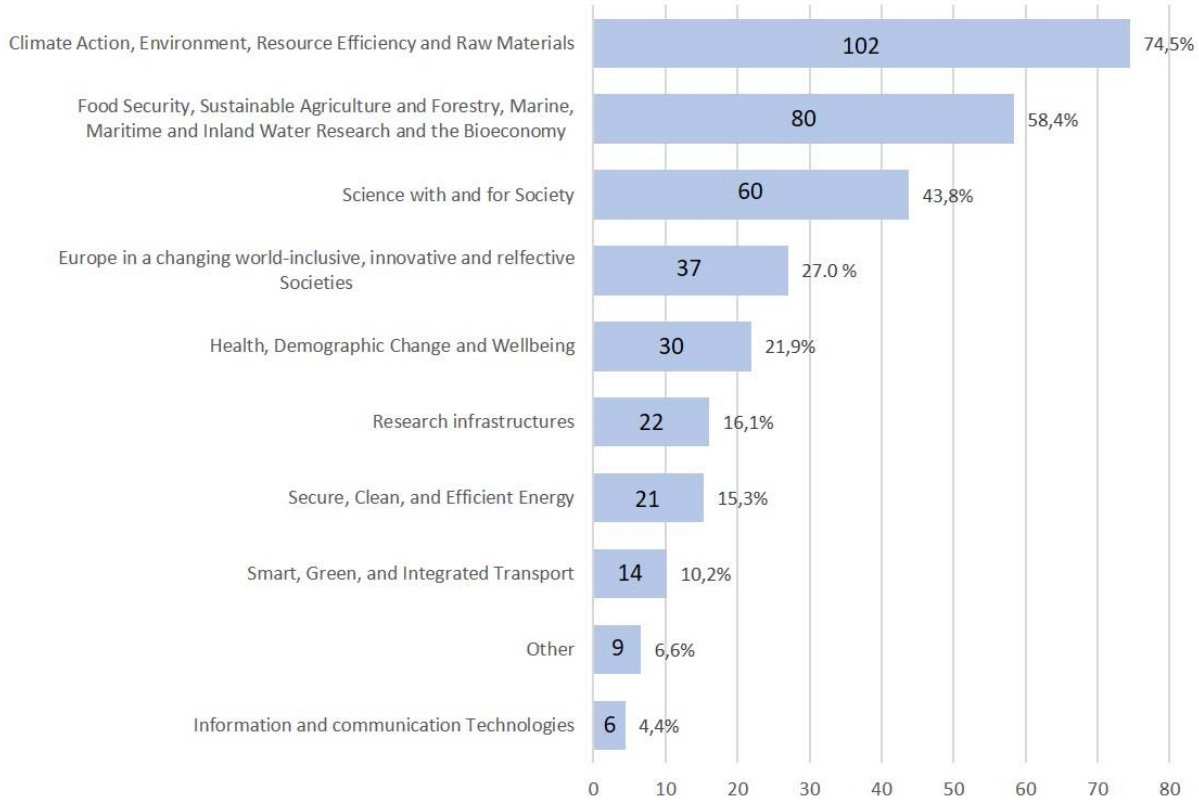
Discussions on mountain development research were carried out in European network meetings (like Euromontana, Dax 2004b; and ISDEMA-project, Dax 2003; Price et al. 2004) aiming at extending mountain research from a (primarily) global change perspective to an integration of socio-economic challenges. For example, at that time, the submission of joint research activities at the European level was drafted as an Expression of Interest for a research programme addressing the EU-Framework Programme 6 call (Dax 2002) indicating the wide-spread interest of European researchers from different disciplines in collaborating in mountain research to enhance sustainable development pathways. The proposal seemed too ambitious and was not selected by the EU Commission, however, it seems that some of the ideas included in the approach were carried on and could be integrated in later activities.

A review of existing activities and relevant analyses was undertaken for the programme elaboration process of Interreg operational programmes, particularly for the Alpine Space (Bausch et al. 2005; see publication JP5; and Gløersen et al. 2013) as well as in the preparatory debate for the Macro-regional Strategy of the Alpine region (Bauer 2014, EC 2015 and publication JP6). Similarly, authorities of other mountain ranges commissioned SWOT assessments and review studies on development perspectives and policy options for mountain development (see e.g. Omizzolo and Streifeneder 2014 on the discussion in the Apennines).

Since several decades research intensity on mountain issues has been particularly high in the Alpine countries, and above all in Switzerland and Austria (Körner 2009). Despite that concentration there are significant research questions that need more attention also within this area. The Memorandum of Understanding of the responsible Ministers for Research of Switzerland and Austria signed in 2013 provided an additional incentive to investigate specific mountain research issues with a comparative approach. Moreover, together with the Mountain Research Initiative (MRI) a combined effort for assessing research gaps and aiming at a European research strategy was started (Dax 2013b). A small expert group of European research experts (see MRI's Core Group above) engaged in a joint endeavor (2014-2016) to analyze the current research needs and propose a Strategic Research Agenda for European mountains (Drexler et al. 2016). This was in line with MRI's commitment to instigate more analytical and effective research collaboration[11] through its networking activities (Greenwood 2013). In that process an assessment of research priorities was carried out among interested mountain research experts (Figure 2).

[11] Recently this networking approach was revised and a new organizational structure is elaborated in close collaboration with Euromontana. The institutional collaboration adopted in June 2017 intends a more effective research-practice linkage in future mountain research activities.

Figure 2: *Research priorities expressed in online survey of MRI 2015*
(for the elaboration of the European Mountain Research Strategy)



Source: MRI 2015

Its results underpin the focus on climate change, and food security and sustainable agriculture research. Of course, the allocation to the different topics might be biased by the expert selection, respectively different coverage of expert groups, countries or other sub-groups in the survey panel. As the strategy was organized around the Societal Challenges of Horizon 2020 Framework programme it highlighted, in particular, the need to address mountain areas explicitly in key research topics of the Horizon 2020 programme. The strategy therefore proposed for each of the Societal Challenges a selection of several key research questions that could provide specific research insights with regard to mountain areas.

The selected publications of this PhD thesis mainly address the following Societal Challenges of Horizon 2020:

- Food security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research and the Bioeconomy (JP1, JP3; CP1, CP2, CP3, CP4)
- Climate Action, Environment, resource Efficiency and Raw Materials (JP2, JP5, JP6; CP3, CP4)
- Science with and for Society (JP3, JP5; CP2, CP5)
- Europe in a changing world (JP4, JP6; CP5)

- Health, Demographic Change and Wellbeing (JP3)
- Smart, Green, and Integrated Transport (JP5, JP6)

Quite often it is lack of data at fine geographical level that prevents differentiated analyses of mountain and non-mountain developments. As Gløersen et al. (2016b) analyze such differentiation is crucial for cohesion considerations. Future research priorities depend therefore also on data improvement and spatial differentiation of data provision.

5.2 Analysis of experts' statements on mountain research focus

In order to place the selected publications into the context of actual research discussion a brief questionnaire focusing on main specific research considerations was distributed (by email) to mountain research experts. Answers were provided by 8 international experts (Austria, Greece, France, Italy, Slovenia, Ireland and China) who are mostly "mountain" research experts, but comprise also other fields of expertise. The main interest in carrying out these expert interviews was to validate the perspectives on research priorities, gaps and future needs by including personal experience relating to different professional background. Table 3 presents common aspects, by summarizing the experts' core statements from the very comprehensive answers to the questionnaire. The most relevant statements include the specificity of local conditions and environmental sensitivity, the need for empowerment and an integrative perspective taking account of internal and external linkages, the core role of inter- und trans-disciplinary approaches, and the lack of transformation research so far. As the last column of the table indicates, they address many aspects of the mountain research framework.

Table 3: *Summary of experts' statements derived from the questionnaire (Annex 1)*

Question / role of *mountain research*	Summary of *core statement*	*Main* linkages to research framework (section 4.1)
Relevance for local and regional development (qu. 01)	Local conditions determine activities; no universal solutions. From sporadic topics to research priority areas and programmes (e.g. Alpine Space), linkages to rural issues and addressing marginalization threat. Environmental sensitivity, space limitations, as well as social demand and valuation are framing research topics (differently by large-scale context).	SES and PIR
Experience with "Sustainable Mountain Development" (SMD), (qu. 02)	All reveal specific interest and experience: from project participation to highlighting aspects of SMD, in particular human-nature interaction, local development aspects, specific topics like mobility, sustainable tourism, demographic development and technological development; as well as empowerment, cooperation, spatial linkages and explicitly, future development.	RES; and PIR, SES and POP; and CM
Main research gaps (qu. 03)	A wide scope of research aspects mentioned, specifically strong on enhancing targets for an integrated and systemic approach, and specific focus on social and relational issues. Selected issues: resource use, man-environment interaction; access to	RES and LD; and SES and PIR

	resources, value-chain analysis, alternative socio-economic structures; highland – lowland interaction, cooperation, movement/migration, remoteness, abandonment and resilient pathways; effects of global change and globalization; innovation, quality development, well-being aspects, thematic interfaces and foresight studies.	
Role of topic of territorial cohesion (qu.04)	Less clear focus, mainly linked to spatial analysis, rural-urban linkages, cross-border issues and reference to existing EU Programmes (Alpine Space; and Macro-Regional Strategy), but also relationship of negative natural developments (desertification, drought) to social effects (increased risk of poverty).	CM and DM
Services provided by mountain activities (internal and external), (qu. 05)	High awareness of internal and external influences, expressed in aspects of ecosystem services, natural and cultural diversity, landscape, water and soil quality and risk prevention; linkages also to other activities (recreation and tourism), Quality of Life, food security, biodiversity etc. Potentially missing the appreciation of external (large-scale) influences.	ES; CULT and RES
Need for inter- and trans-disciplinary approaches (qu. 06)	Need for stronger focus on inter-and trans-disciplinary research underpinned, however no explicit focus: a more territorial approach and higher relevance of social development (e.g. demographic issues) and innovation addressed, Biosphere Reserve Areas seen as model areas for SMD, including aspects of participation, community development and research integration.	PIR and SES; and DM and GD
Opportunities and obstacles for local participation (qu. 07)	"Rhetoric" for SMD, but substantial pitfalls: still too strong specialization of research into "disciplines", no integration of results, selective participation and bias, absence of sufficient human capital and social innovation processes. on the other hand, a wide range of examples of collective action, "social learning" and social movements and focus in research programmes on transferability. (Overall, still a high need for better implementation of results and raising image of applied research).	PIR; and RES and CM and LD
Best-practice and transfer activities (qu. 08)	Increasing amount of transformation projects and activities, including local action networking, LEADER and exchanges often focusing on one region; more media coverage need, better dissemination; best-practice – very different between locations; context specific assessment, need to link to non-mountain contexts and people; strong concern for methods of transfer exchange.	DM and LD
Summary	Expert assessment highly dependent on personal experience in mountain research, inter- and trans-disciplinary activities and transfer knowledge; integrative perspective of mountain and lowland development emerging and research focus also increasingly targeted towards societal challenges.	Focus on inter- and trans-disciplinary research, interrelations and knowledge transfer

Notes: Social systems: Population (POP), Socioeconomic structure (SES), Political-Institutional regimes (PIR), Culture (CULT), Technology (Tech);
Ecological systems: Biochemistry, Biodiversity, Water, Air, Soil
Resource use and management (RES), Decision-making (DM), Ecosystem services (ES)
Global dynamics (GD), Land system dynamics (LD); changes in mountains (CM)

Source: Questionnaire for mountain research experts (see Annex 1)

In order to allow a comparative view on the issues of the questionnaire with regard to the selected publications the next Table 4 links each of the publications with the main relevant research questions of this questionnaire (column 3) and also presents the *main* topic of the mountain research framework

(column 2) relevant for each of the publications. The emerging picture confirms the impression that questions relate to many of the papers and thus the statements derived from the answers to the questionnaires constitute a thorough support on topics and research developments presented above.

Hence, a consolidated view of research focus is supported by various survey results and activities carried out over the last years (following the commitment of MRI and Mountain Partnership, and its rising number of members in almost all parts of the world. Implementation and realization of sustainable mountain development objectives have to be seen as a continuous process and iterative refinement, update and renewal of research strategies, which are an inherent part of any research development process. This focus on key elements of the experts' statements should, however, not be neglected. Some of the selected publications investigate aspects of those research issues, in particular on local development (JP1), environmental focus (JP2), empowerment (JP3), integrative approach (JP4) and inter- and trans-disciplinarity methods (JP6).

Table 4: *Topics of the research framework and research questions addressed by selected publications*

Selected publications	Main topics of mountain research framework 1)	*Main relevant research questions 2)*
JP1	SES	Questions: 1, 2, 6
JP2	RES	Questions: 2, 8
JP3	SES	Questions: 1,,5, 7, 8
JP4	PIR	Questions: 1, 4, 5, 6, 7, 8
JP5	DM	Questions: 2, 3, 4, 5, 6, 8
JP6	PIR	Questions: 1, 4, 5, 6, 7, 8

Notes:

1) According to classification in Table 2
2) As of questionnaire (see Table 3)

Source: own compilation

6. Main issues for mountain development research

The selected publications provide a view on mountain development research that is particularly inspired by the research focus, methods and approach of the author. It mainly addresses the socio-economic issues of mountain development, its interrelation to land use management systems and an integrated view on policy assessment and strategic research considerations. As they were drafted and published over a long period they address also different institutional and governance contexts. As to the conclusions for future mountain development research, the most recent publications seem therefore to be the pertinent ones. Main issues arising from these publications (JP3 and JP6; and CP3 and CP5) underpin the relevance of scale, cooperation and coordination, policy coherence, policy impact assessment and transfer knowledge as key requirements of mountain specific research. These aspects chime with the strategic framework of the Future Earth Programme (Future Earth 2014, 6-8) that highlight as its main objectives to provide by 2025

- "*Inspired and … ground-breaking interdisciplinary science relevant to major global sustainability challenges,*
- *… products and services that our societal partners need to meet these challenges,*
- *pioneered approaches to co-design and co-produce solutions-oriented science, knowledge and innovation for global sustainable development, (and)*
- *enabled and mobilized capacities to co-produce knowledge, across cultural and social differences, geographies and generations.*"

As outlined in various publications, strategic research issues should address aspects of dynamic changes ('Dynamic Planet' as referred to in Future Earth 2014, 15-18), progress in analysis and practice on realizing a globally sustainable future ('Global Sustainable Development', in Future Earth 2014, 19-22) and overcome obstacles of path-dependency and slow shifts in societal and economic adaptation, coping with institutional and political barriers ('Transformations towards Sustainability', in Future Earth 2014, 22-25). This refers to the intensive discussion of the last decades on how to enhance "Sustainable Mountain Development" at the global level (Maselli 2011; Messerli 2012 etc.).

The publications address an important part of the research framework presented above (in chapter 4) which is a widely referred basis for research assessment. Further elements of the framework, like a thorough investigation of resource use and management, the analysis of ecological systems of mountain regions and the impact of global dynamics point to the need for a balanced perspective within the analysis of the socio-ecological systems of mountain areas. The simplified structure of the framework should not mislead to concepts that seek separate solutions / research foci for the different sub-parts of the systems: On the contrary, the publications, the analysis of priorities for European

mountain research and the analysis of experts' views on mountain research perspectives, all three parts of this PhD thesis underpin the need for inter- and trans-disciplinary approaches. It is particularly this view on perceiving inter-relations between disciplines, actors, regions and mountain-lowland inter-linkages that are the key emergent issue of mountain development research (Pratt and Shilling 2002).

While much concern is placed within disciplines on aiming at a comprehensive coverage of research issues, the nature of systemic approaches and dynamics of inter-relations call for concepts with different methodological approaches, research questions and procedures. As the experts interviewed for this study and the debate on the Strategic Research Agenda (Drexler et al. 2016) reveal this is the core challenge for mountain development research: to go beyond a disciplinary assessment of mountain specificities, and to address the synergies by viewing on challenges and opportunities in mountain areas, as shaped by significantly changed contexts. The inherent dynamic of the various parts of the system (see specifically on this aspect: Price 2015b) therefore has to be addressed in its complexity and inter-relationships. The focus in this study is on the European situation of mountain areas and common, as well as diverse features of spatial performance and changes, and policy implications (Messerli 2008). Albeit also those issues might be very different among European mountain ranges, they tend to have at least to some extent common background and share characteristic similarities.

Experiences from procedural insights should however also allow "transfer" of knowledge to other mountain contexts across the globe where challenges seem even higher than within European contexts. As Fourny (2008, para 7) argues the "Alps (attain) special 'laboratory' status and enable research to develop a relevance that goes beyond the specific sites being analysed". The Mountain Partnership network is dealing with these issues and incites partners to contribute place-based experiences and enhance reciprocal learning processes (between different mountain regions). This is a final target for research development, to seek findings that go beyond contextual restrictions, but inspire the process of knowledge creation and transfer, as well as knowledge – policy exchange.

Annex 1: Questionnaire

Priorities and gaps within Mountain Development Research -

Questionnaire

Introduction

Following the recognition of mountain areas development as a global issue in the Rio Conference's document Agenda 21 (UN 1992, chapter 13: Managing fragile ecosystems: sustainable mountain development) former scattered initiatives were increasingly coordinated and networks of scientific and political reflection emerged at different levels over the last two decades. The momentum of heightened awareness for mountain issues achieved within the application process of Agenda 21 culminated in the declaration of UN's International Year of the Mountains 2002 and the establishment of the global Mountain Partnership. This network of worldwide mountain institutions and interested stakeholders thrives to fulfill its role in the debate on sustainable development aspects. Within the evolving institutional framework research agendas (Mountain Agenda 2002; Borsdorf and Braun 2008) and assessments of actual research priorities have been provided, including high-level surveys on the extent and focus of mountain research (Körner 2009, Sarmiento and Butler 2011, Greenwood 2012). Among other important contributions, these activities have particularly benefited from two major conferences on "Global Change and the World's Mountains (Perth 2005 and Perth 2010), organized by the Centre of Mountain Studies at the Perth College of the University of the Highlands and Islands (UHI), Scotland.

Similar to other reports the Perth conference 2010 addressed in its conclusions a significant lack in socio-economic research participation in mountain issues. The present survey therefore attempts to address this research domain and aims at synthesizing the main reasons for the comparably weak integration, as well as at providing some clues to overcome implementation deficiencies. According to the most recent progress report on sustainable mountain development at global level (Ariza et al. 2013) such an endeavour has to draw on the various regional experiences and a variety of research and action backgrounds. It therefore cannot pretend to close all the gaps, but draws its main inspiration from the search for increasing application of concepts and strategies at various development levels. The main input would thus be indications how research findings could be transferred more meaningfully into practical frameworks and where actual priorities and increased implementation is most required.

The subsequent set of questions intends to raise specific concerns from *your professional experience* and knowledge of the context. It moreover should reveal the scope of challenges and opportunities to contribute to current development issues.

Thomas Dax
Federal Institute for Less-Favoured and Mountainous Areas
Vienna, Austria

17 December 2013

Question 1

In which regard is mountain research relevant for local and regional development aspects?

Please provide a brief account of main research programmes and projects and indicate their relation to pressing mountain development issues.

Question 2

Do you have specific experience with or perception of mountain (or place-specific) research that you would characterize as particularly influential for "Sustainable Mountain Development"? If yes, please indicate *local and small-scale projects that* – beyond global and large scale action - *address crucial research aspects.*

Question 3

In your opinion, what are the major research gaps for mountain development research (respectively for spatial research with important implications for mountain areas)?

Please list examples of missing research activities from your and other (social) science disciplines, both either at project or programme level.

Question 4

Which are the most important topics of mountain development that contribute to territorial cohesion? In the debate on future territorial development, and particularly the increased focus on territorial cohesion, mountain regions have been referred to as "regions with specific geographical features" (CEC 2008).

Please indicate those topics that seem most relevant contributors of mountain areas to territorial cohesion considerations.

Question 5

What are the main service activities that mountain areas provide internally and to areas beyond their "boundaries", i.e. adjacent and dependent lowland areas?

Please focus on service provision by mountain regions that are particularly important (and acknowledged) by society at large.

Question 6

Do you recognize specific examples where inter- and trans-disciplinary approaches have to be strengthened? *If you agree that inter- and trans-disciplinary research is crucial to future mountain research, please provide those areas and research issues that need priority in this regard.*

Question 7

Which are the main opportunities and pitfalls for participation of local actors in mountain research?

Please highlight those aspects that are most important with regard to raising awareness and participation of actors in mountain regions.

Question 8

How could best-practice examples be exchanged more effectively between different mountain areas and mountain ranges (of Europe and at global level)? Several transfer activities between mountain ranges have been enhanced by networking institutions and global collaboration of dedicated programmes (e.g. Mountain Partnership).

Please indicate approaches and proposals for transfer of relevant knowledge and experiences to make even better use of the available best-practice examples and conclusions from effective programme action.

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Part B: Selected Literature

B.1 Selected original publications (JP1-JP6)

JP1. Bel, F., Dax, T., Herrmann, V., Knickel, K.H., Niessler, R., Saraceno, E., Seibert, O., Shucksmith, M., Uttitz P. and Veuthey F. (1993) The role of policy in influencing farm household behaviour in European mountain areas. in: *Revue de géographie alpine* 81(2), 101-127. http://www.persee.fr/web/revues/home/prescript/article/rga_0035-1121_1993_num_81_2_3707 (accessed 25/08/2017)

JP2. MacDonald, D., Crabtree, J.R., Wiesinger, G., Dax, T., Stamou, N., Fleury, P., Gutierrez Lazpita J. and Gibon A. (2000) Agricultural abandonment in mountain areas of Europe: Environmental consequences and policy response, in: *Journal of Environmental Management* 59(1), 47-69. http://www.sciencedirect.com/science/article/pii/S0301479799903353 (accessed 25/08/2017)

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JP4. Dax, T. (2001) Endogenous Development in Austria's Mountain Regions, From a Source of Irritation to a Mainstream Movement, in: *Mountain Research and Development,* 21(3), 231-235. http://www.bioone.org/doi/pdf/10.1659/0276-4741%282001%29021%5B0231%3AEDIAMR%5D2.0.CO%3B2 (accessed 25/08/2017)

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B.2 Complementary publications (CP1-CP5)

CP1. Dax, T. and Hellegers, P. (2000) Policies for Less-Favoured Areas, in: Brouwer, F. and P. Lowe (eds.), *CAP Regimes and the European Countryside, Prospects for Integration between Agricultural, Regional and Environmental Policies*, CAB International, Wallingford, 179-197.

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CP2. Dax, T. and Hovorka, G. (2004) Integrated rural development in mountain areas, in: Brouwer, F. (ed.), *Sustaining Agriculture and the Rural Environment: Governance, Policy and Multifunctionality*, chapter 7, Advances in Ecological Economics, Edward Elgar, Cheltenham, UK and Northampton, USA, (ISBN 1-84376-256-0), 124.143. http://books.google.at/books?id=UM5dmq_9pwQC&pg=PA141&dq=crampton+dax&lr=&sig=45yPjRVvI27zqfJJ6MoEL_PHM70#PPA126,M1 (accessed 25/08/2017)

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Publication JP1.

Bel, F., Dax, T., Herrmann, V., Knickel, K.H., Niessler, R., Saraceno, E., Seibert, O., Shucksmith, M., Uttitz P. and Veuthey F. (1993) The role of policy in influencing farm household behaviour in European mountain areas. in: *Revue de géographie alpine* 81(2), 101-127. http://www.persee.fr/web/revues/home/prescript/article/rga_0035-1121_1993_num_81_2_3707

The role of policy in influencing farm household behaviour in european mountain areas

This paper is a result of international empirical work of a group of researchers from different disciplines within the Arkleton Trust project « Rural change in Europe... » within the periods from 1987 to 1991[1]. Contributions were supplied from :

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Persée creative commons

Influence des politiques agricoles sur les comportements des ménages d'agriculteurs[2]

1. Cadre

*Fruit d'une étroite coopération entre les équipes du Groupe « Montagne » de six pays d'Europe de l'ouest, cet article a pour objet de mettre en évidence l'impact des politiques agricoles nationales et européennes sur les ménages d'agriculteurs dans les zones montagneuses d'Europe. Il s'inscrit dans le programme de l'*Arkleton Trust *qui étudie les transformations du monde rural et l'adaptation des agriculteurs à ces transformations.*

2. Difficultés actuelles du secteur agricole

L'agriculture européenne traverse actuellement une période de grands bouleversements structurels. Le déclin du secteur agricole se traduit par une diminution marquée du nombre d'exploitations, du nombre d'emplois de ce secteur (5 %) et de sa contribution au PNB. La stagnation des revenus agricoles et l'attrait d'autres secteurs aux conditions de travail moins exigeantes ont poussé de nombreux agriculteurs à abandonner ce secteur. Ceux qui restent le font par choix et ont du s'adapter aux transformations.

1. Arkleton Research. Agrarian change and farm household pluriactivity in Europe : second research report for the Commission of European Communities on structural change, pluriactivity, and the use made of structures policies by farm households in the European Community. Volume I : European analysis. ATR/90/19. Arkleton Trust (Research), Enstone, Oxford, UK 1990.

2. Traduction et synthèse réalisée par les étudiants en DESS de traduction spécialisée de l'Université Stendhal de Grenoble III, sous la direction d'Elisabeth Lavault.

Les politiques agricoles nationales et européennes ont ajouté à ce contexte défavorable des effets à plus court terme : contrairement à ce qui était attendu, il semble que les disparités au sein même du secteur agricole se soient accentuées selon la taille, la diversification des revenus dans l'exploitation, et la zone d'implantation — favorisée ou défavorisée. De plus, la concurrence au sein du marché communautaire et les disparités dans l'aide financière apportée par les états ont renforcé les inégalités régionales.

3. Evolution et effets des politiques agricoles

Depuis 40 ans, les politiques agricoles étaient axées sur des problèmes spécifiques (amélioration foncière, aide à l'installation), dont le choix dépendait des partis au pouvoir, puis, des orientations de la CE, sans véritable orientation à long terme.
C'est à la fin des années soixante que l'apparition des excédents et le début de la stagnation des revenus agricoles ont conduit à une nouvelle définition de la politique agricole, fondée sur le principe de viabilité, qui privilégiait les exploitations familiales des zones favorisées et à forte production, au détriment des autres. Les fermes jugées non-viables ne bénéficiaient que d'une aide sociale encourageant principalement la reconversion des agriculteurs vers d'autres activités.
Cette politique productiviste, combinée à la politique traditionnelle des prix, a eu pour effet l'augmentation des disparités et des excédents. Dans les années 80, les aides aux agriculteurs ont été réduites, suite à la remise en cause du bien-fondé de l'aide publique dans plusieurs pays. Dans le même temps, une nouvelle conception de l'agriculture est apparue, mettant l'accent sur la sauvegarde de l'espace et l'entretien de l'environnement rural, d'où un regain d'intérêt pour les exploitations pluriactives qui sont maintenant soutenues dans presque tous les pays du moment qu'elles dépassent une certaine taille. Cependant l'augmentation de l'aide à ces exploitations pluriactives dans les zones défavorisées est généralement arrivée trop tard pour compenser l'effet des marchés, ou d'autres effets, comme ceux de la fiscalité, de la loi foncière, des lois sur l'environnement, ou encore de l'offre d'autres emplois plus attrayants sur le marché du travail.

4. Problématique, hypothèses de travail et enquête

Le but de la recherche est d'analyser comment la politique agricole est interprétée et appliquée par les ménages d'agriculteurs en examinant les comportements dans différents types d'exploitations. Trois modèles d'adaptation sont définis : la professionnalisation (apport

accru de ressources à l'exploitation), le maintien de l'exploitation en l'état, le désengagement (retrait des ressources). Le Groupe « Montagne » a choisi d'étudier les ménages correspondant aux 1ère et 3ème catégories, et d'adopter une approche générale fondée sur les « types de comportement », qui vise à analyser les actions du point de vue des acteurs.

L'hypothèse de base est que les comportements sont liés à la perception que les exploitants ont d'eux mêmes et des possibilités qui leur sont offertes. Elle s'appuie sur le concept « d'habitus » créé par P. Bourdieu. Les sept hypothèses qui en découlent se résument ainsi :

Si la politique structurelle est parfois déterminante dans les changements de comportements (exemple des quotas), son interprétation et son utilisation varie selon les exploitations. D'autres facteurs, tels que les ressources propres du ménage ou les objectifs personnels de l'exploitant, semblent avoir plus de poids. Par exemple, le choix pour un ménage de maintenir une petite exploitation en zone de montagne peut s'expliquer par le choix d'une vie proche de la nature.

La politique de modernisation, très appliquée, a surtout contribué à renforcer des décisions déjà prises. Cependant, le manque de souplesse des mesures d'aide à l'investissement a parfois entraîné l'aggravation des difficultés financières des ménages, voire l'abandon de l'exploitation. Les indemnités compensatoires ont des effets qui varient selon leur montant : au mieux, elles permettent la survie d'exploitations jugées non viables, au pire elles découragent les initiatives et la diversification vers des productions ou des techniques nouvelles. Les nouvelles mesures (qui poussent à la diversification et au gel des terres) portent atteinte à la sensibilité des agriculteurs et risquent d'entraîner le départ de ménages traditionnellement attachés à la terre, et l'arrivée de nouveaux exploitants d'origines différentes. Il ne faut pas non plus négliger le retard culturel et le poids de la bureaucratie qui privent parfois l'agriculteur de l'accès aux mesures de soutien.

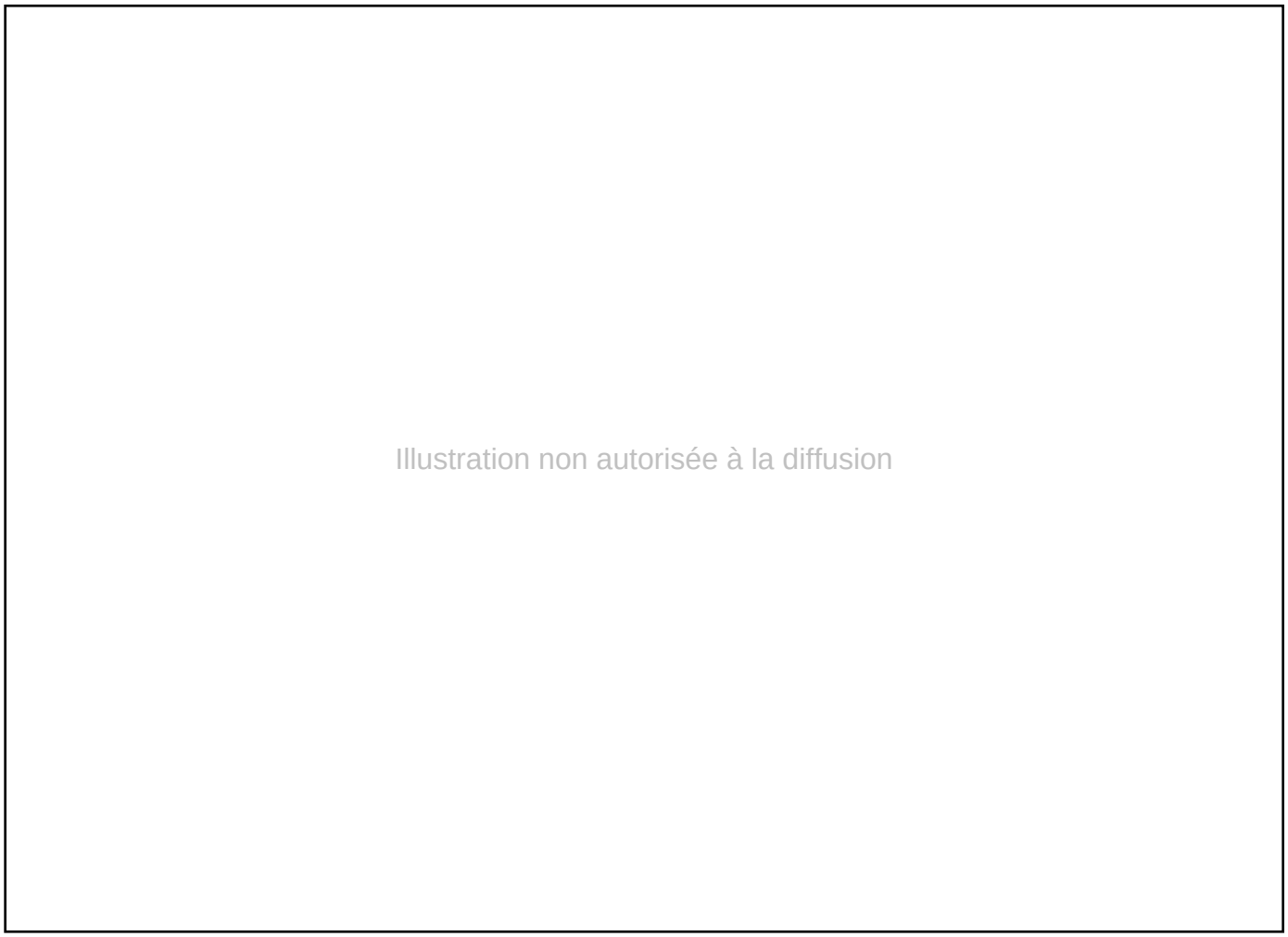
Quatorze études de cas sont présentées, trois exploitations de petite taille, les autres de taille moyenne ou grande. Elles ne constituent pas un échantillon représentatif : l'objectif est de montrer les différences entre les comportements-types et les comportements atypiques dans une même région. L'analyse de ces comportements varie selon les régions, ce qui est typique dans une région pouvant être considéré comme innovant dans une autre. L'accent est mis sur les exploitations qui sont en train de changer leur situation professionnelle, et surtout de la diversifier.

5. Conclusions

L'analyse des cas montre bien que l'effet des politiques agricoles doit être étudié en tenant compte des réactions individuelles de chaque

ménage d'agriculteurs. Celles-ci résultent d'une interaction complexe de différents facteurs subjectifs et objectifs. Sans aller jusqu'à proposer une politique à l'échelle de l'individu, on constate le besoin d'une plus grande souplesse et d'une adaptation aux cas individuels, étant donné les difficultés actuelles, l'échec de la politique productiviste et la multiplicité des options offertes maintenant aux agriculteurs.
En ce qui concerne les comportements, pour ces exploitations qui sont toutes situées en zones de montagne ou en zones défavorisées, il faut souligner l'importance des possibilités de mise en location des terres qui ont facilité l'adaptation, que ce soit le démarrage ou l'abandon d'exploitations. La vente est une autre solution, plus liée au marché foncier qu'à la politique structurelle, et elle profite souvent aux agriculteurs productivistes qui restent.
La diversification des activités agricoles est une autre réponse des exploitations pour remédier aux quotas laitier et à la réduction des cheptels. La fabrication de produits de transformation (fromage d'appellation contrôlée), le développement du tourisme à la ferme, les solutions plus classiques de regroupement en coopérative et de production de qualité attestent de cette diversité, qui s'accompagne de l'orientation de plus en plus marquée des ménages vers la pluriactivité, parfois provisoire, et toujours étroitement liée au marché local de l'emploi. Le travail de l'épouse à l'extérieur de l'exploitation, dû à son désir d'autonomie et d'épanouissement personnel, a fait de l'agriculture une activité de plus en plus individuelle.

Comme prévu, la rigidité des mesures de modernisation les rend de plus en plus dépassées. Il semble nécessaire d'adopter une politique plus souple qui intègre la diversification des activités agricoles et la pluriactivité au sein de l'exploitation pour pouvoir maintenir de jeunes ménages dans les zones de montagnes.
Les paiements compensatoires, déterminants lorsqu'ils sont élevés, sont souvent moins avantageux que les possibilités de pluriactivité. Ils ont souvent un rôle de tampon, mais ils sont insuffisants pour assurer la stabilité et la reprise de l'exploitation par la jeune génération, d'autant plus que leurs contraintes (soutien limité à certains types d'élevage) favorisent les comportements traditionnels.
Enfin, les agriculteurs acceptent mal les nouvelles mesures, comme le gel des terres, qui leur paraît un gaspillage de ressources contraire au bon sens, et atteint leur sensibilité, ce qui est particulièrement grave dans les zones qui ont déjà tendance à se dépeupler. Une solution mieux acceptée est d'allier les compensations à la gestion de l'espace et à l'entretien des paysages.



Carte de localisation des aires étudiées.

Introduction

The aim of this paper is to examine the role of European and national policies in influencing farm households' behaviour in the mountain areas of Europe. In the approach farm households according to their objectives, opportunities and constraints.

In the first part of the paper there is a short description of current policy development and an assessment of its possible influence on structural change. There are also some theoretical remarks about the potential influence of policy on farm households' decision making. At the end of the first part some hypotheses are stated.

The second part of the paper illustrates these issues by presenting some typical cases of reactions and adjustment of farm families in various regions.

After that hypotheses are reviewed again in the light of the cases presented, and of the particular regional context, and some general conclusions are drawn. These conclusions take account of findings from other parts of the Arkleton project.

I. Policy development and policies'influence

1. Sectoral differentiation processes

European farming is currently in the middle of tremendous structural changes. This is happening on two, inter- and intra-sectoral levels. From the inter sectoral point of view, agriculture is becoming increasingly less important. For decades, the number of farms decreased annually by about 2 to 3 % ; at the present time, the decline in the number of farms is speeding up, to perhaps twice as fast. As a consequence of this, the percentage employed in agriculture in Central Europe ranges from 18-2 % , and the share of the contribution to the gross national product from agriculture is in some countries negligible.

Stagnation in farming incomes, disparities in labour returns between agriculture and non-agricultural activities together with expanding non-agricultural labour markets, have encouraged the decision to leave agriculture in the 1980s. Only the lack of off-farm opportunities and the status and the expressive enjoyment of being a farmer run counter to these forces. As a consequence of this, the values and standards of farmers, and their strategies for adapting to structural change, have undergone a transformation.

However, these influences have more of a long-term effect, and are not sufficient to explain the pace of structural change in agriculture which has occured in recent years. But they form a fertile soil for more rapid changes provoked by factors having a short-term effect. Such immediate triggers include, in particular, measures of European and national agricultural policy.

The trend towards a decreasing agricultural sector is accompanied by growing intra-sectoral differentiation processes. Existing structural and developmental inequalities in Europe have not been reduced — as demanded by EC decree. Indeed, it is possible to identify increasing disparities in income and in development opportunities between :

— agricultural holdings of differing size and enterprise mix,
— monoactive and pluriactive farm households,
— locations in favoured and less-favoured areas.

These differences can only partly be attributed to the direct influence of structural policy. The horizontal EC market and price policy has had a far stronger effect on development than the structural policy itself and this has acted to reinforce the wide European differences in regional conditions. In addition, it is evident in all European countries that agricultural policy goes far beyond any mere catalogue of agricultural policy measures. National differences in the level of financial support have probably been a more important factor in maintaining regional disparities than national differences in the structure of support measures.

2. Long-term changes in the range of farm-related measures

The development of intra-sectoral differences in European farming has been closely connected with long-term adjustments in agricultural policy priorities. During the past forty years, emphasis has been placed partly upon specific problems (e.g. land-consolidation, less-favoured areas programme) influenced considerably by national agriculture ministers and their party programmes, together with — from the beginning of the sixties — an increasing link with EC developments. It is difficult to identify any long-term, consistent line of action.

So long as there were no market surpluses and farm incomes rose at the same rate as producer prices, the differences between mono-active and pluri-active farming, or between favoured and less favoured areas were largely irrelevant from the policy makers' point of view. Agrarian policy was limited to (and financially dominated by) market and price policy, backed up by the traditional means of structural support, such as settlement and land consolidation.

A clearer differentiation in structural policy did not begin until the end of the sixties, with the appearance of market surpluses, increasing scarcity of funds and a slowed increase in farm incomes. Through the orientation of agrarian structure support towards the principle of « economic viability », clear support preferences were established for family farms with large produc-

tion capacities and located in favourable areas. For « non-viable farms », social assistance was offered in the first instance in order to cushion farmers' adjustment and to reduce the pressure caused by structural change. Social assistance measures included the intensification of advisory services, the promotion of professional qualifications, retraining measures, leasing premiums, etc. Pluri-active farm households were essentially regarded as « non-viable » at this time, and many were thus excluded from investment support funds.

In combination with traditional price policy, this productivity oriented policy of investment support increased income disparities within agriculture, and provoked rapidly rising surpluses. Nevertheless, the restrictions on support to farmers which have been imposed since the beginning of the eighties were only partly a consequence of the heavy financial burden. In view of the many problems in rural areas, there was in some countries at this time more open discussion as to whether public financial aid should be granted primarily with regard to economic allocation aspects, or more strongly in accordance with social criteria and widened social objectives. In other countries, simultaneously, these restrictions conformed to a general policy of reducing public expenditure and promoting the free market.

In the majority of European countries it has been recognised in the meantime that agriculture — above and beyond its traditional role of food production — has become increasingly important with regard to the provision of public goods — maintenance of natural living conditions, care of the natural environment, maintenance of the entire rural sphere. In this context, it is advantageous that measures which reduce environmental pressures also favour a reduction in the pressure upon agricultural markets.

This is one reason why there is now renewed consideration of the achievements of pluriactive farming. Whereas households with multiple job-holding were largely excluded from structural support in the past, there has in the eighties been an increased effort to achieve equalization. Except where EC regulations are expressly tailored to mono-active farms, all farms above a specified minimum size are nowadays usually included — in Germany and Austria, for example — in the agricultural support programmes.

But in the majority of cases the widening of support in the less-favoured regions for pluri-active farm households has come too late. Experience shows that the influence of past structural policy on farm change and on rural areas has probably been overrated. The structural side-effects of market and price policy have in the main been much stronger.

In addition, the fact is often overlooked that policies affecting agriculture go far beyond the realm of specific agricultural policy. Regulations in fiscal law, the law of tenure, environmental law, commercial law, etc, are also of considerable influence. The additional effect of the supply of opportunities for skilled work or attractive training or professional qualification measures has been adequately confirmed in the past.

3. Patterns of behaviour and use of policy

This contribution attempts to show how — and to understand why — policy, is interpreted and used (or not used, or misused) by farm families. To do this it is necessary not only to examine different policy measures but also to look at the variations in patterns of behaviour amongst different types of households.

According to the 2nd Research Report to the EC (Arkleton Research 1990), our global objective is « seeking to understand the movement of resources into and out of farming »[2]. Such « movements » are typologized in the report into three patterns of adjustment : professionalisation (« into »), stable reproduction (« no movement »), disengagement (« out »). The authors of this paper[3] broadly agree with this typology, but with some reservations. We prefer instead to seek to understand actions from the point of view of the actors themselves.

Our basic hypothesis is that the perceptions households have of themselves and of opportunities, resources and constraints available to them, sustain their behaviour and act as filters : some households may perceive opportunities which are neglected by other households.

P. Bourdieu's concept of « habitus » (1979)[4] can be very useful here. Habitus is a « matrix of perceptions, appreciations and actions » which is shaped throughout the education and experiences of an individual. Although the life of each person could be very different, similar experiences will lead to similar habitus. The

2. Arklelon 1990, page 92.
3. See specially M. Shuchksmith and R. Smith, V. Hermann and P. Uttitz, E. Saraceno in the volume II of the Report : study area analysis.
4. Bourdieu P. (1979), Distinction : A Social Critique of the Judgement of Taste (trans. published by Harvard University Press, 1984)

conjunction of the habitus with situations or events experienced by individuals leads to social (patterned) practices. People with the same habitus will tend to have the same pattern of behaviour.

Habitus can thus be seen as an « incorporation » of social structure in each individual, integrating also the position of the individual in that structure. It acts as a filter in the perception of what is possible and leads the individual to « refuse what is refused and accept what is unavoidable »[5]. The same idea is found in Crow's comment of Pahl's work : « Social structural conditions work to « allow » the emergence of particular household work strategies and to discourage others »[6]. Pahl adds : « However the way that households get the work done does provide some scope for choice and innovation »[7], although the concept of « cultural lag » may explain a varying scope of choice : the poorest households may be « forced to accept » rather than « choose » a given behaviour[8].

These considerations lead to the following hypotheses which will be tested later in this paper :
1) It appears that structural policy measures are not main determinants for structural change. They are mere resources among others available to farm households who interpret and use them in different ways according to their « pattern of behaviour ».
2) Furthermore the material resources of the farm and the household, as well as personal goals and expectations, seem to be more relevant than external resources. Nevertheless, an external constraint such as a price/quota policy or restricted labour market possibilities may also be very important (external factors may appear more relevant in comparative analysis).
3) One aim of agricultural policy in mountain areas is to keep people on the land or in the region. And one major criterion in any household's decision to go on farming is to get a fair return from their activity. But what is a « fair return » varies from one household to the other : the degree of expressive satisfaction of one's own goals and expectations has to be taken into the « equation ». A household running a small farm may valorize values such as proximity to nature and independence in just the same way that innovative professionalisers may valorize diversity of work or entrepreneurship as much as economic yield.
4) It seems that modernisation policy has been particularly effective, in the sense that it has been widely adopted. But these measures probably contributed more to reinforcing decisions and eventually to increasing the intensity of change rather than to

5. Ibid
6. Crow G. : The use of the concept of « strategy » in recent sociological literature. In Sociologie, vol. 23, N° 1, February 1989, p. 8
7. Pahl R.E. Divisions of labour. Basi Blackwell, Oxford, 1984, p. 327
8. These theoretical concerns, merged to the project's reflexions so far (theory task group report, working group on strategies at the Braemar review meeting) were also summarized in a model proposed by Hermann V. and Veulhey F. Questions on attitudes in the final survey : theoritical and practical approaches. Unpublished paper, 1991.

provoking decisions which would not have been taken anyway. Furthermore measures directed to modernization are often not adapted to the needs of farm households (flexibility on the scale of investment, investment spread over time, farmer's freedom of decision) : that leads some farmers to renounce such measures (and sometimes renounce to farming) or perhaps to contract heavy debts, making new adaptations difficult and increasing the vulnerability of the farm.

5) Compensatory allowances seem to have a different effect in keeping people in farming according to the amount paid (e.g. High amounts contribute sometimes to survival of non-viable monoactive farms. These payments are necessary in the medium term but should not be sustained beyond one generation). Lack of flexibility in productions that are supported hinders entrepreneurship and diversification of activities out of the usual track (access to pluriactive farmers, support of experiences with new crops or with innovative livestock breeding) and thus reinforce farm enterprises within traditional modes of behaviour.

6) New policies (diversification, set aside...) do not take into consideration personal goals and expectations of farm households and even conflict with their own notion of « being a farmer » (independent, hard worker, food producer). By challenging this self image they generate a motivational crisis in the reproduction of the family farm. This may bring a greater shift in the people farming the land, traditional farm families being replaced by new entrants, from other backgrounds, more oriented towards new functions of agriculture.

7) Knowledge, as well as capacity (and will) to fulfill requirements and to manage the bureaucratic aspects of applications may be relevant in some cases. Thus the use of policy measures also depends on the cultural lag of farm household members and on the efficiency of extension services (and other informers) in facilitating the access to policy measures to any farmer.

II. Farm household behaviour : selected cases

Actions of household members of farm families rely on a wide set of reasons, not only reflecting capital assets and ressources of the household but also very personal motivations and aspirations. The following 10 case descriptions of farm households contacted repeatedly throughout the 5 years of our study are intended to show actual examples of reactions and adjustment of households. The main discussion deals with shifts of labour allo-

cation, together with their circumstances and « reasons », the role of (agricultural) policy measures as seen by household members and their attitudes and value patterns towards farming, diversification and off-farm work.

Of course,the great variety of different actions of households can only be suggested and indicated through these case studies : it cannot be covered completely. The choice of the cases presented is deliberately not a representative one : farm households with small farms who are often withdrawing from farming are numerous but here are represented only by a few cases. This is because the main purpose of this representation is to stress differences between households with « typical » patterns of behaviour within the study area from which they have been taken or households with remarkable action patterns, clearly different from those of the majority of the study area. As the usual farm work and para-agricultural work opportunities might be very different between study areas, so the interpretation of the households' actions will be different from study area to study area too. What is a wide-spread pattern of behaviour in one region, might be an innovative way of adjustment in the totally different situation of another region. The selection of cases presented in this paper therefore primarily looks at households changing their work situation and especially at those diversifying it.

Each case description offers a thorough look at policy consumption in that single case. Though consumption and the relevance of measures may vary, to a great extent it is perceptions of policy measures and the way in which measures have been taken up or not taken up by the households, that are of greatest interest in these descriptions. The values and attitudes of the households revealed through their pen-picture may offer some hint for understanding the actions of these households (with or without the use of policy measures).

The case descriptions start with two cases of small size farms. In some study areas this group is the majority of the farms. The presentation of some of them should reveal that also in this group very different ways of adjustment might occur. All the remaining cases give descriptions of households with medium or large size farms. Some of these act on a rather classical path, others are diversifying their activities and the last two cases disengaging from farming (though they had considerable farming resources).

Selected cases

A. Small size farms (ESU)

Household A : A traditional « worker farmer » with reduction of farming activities

Study area : Austria South-East Burgenland

This farming family is fairly typical in combining a distant off-farm job (to which the farmer commutes weekly) with a small farm unit in southern Burgenland. The farm occupies about ten hectares, half of which is forest. This size is about the regional average. The farm is managed by a couple (both around sixty) who work the farm alongside the main off-farm job of the man in Vienna.

Like many men (and many farmers) from that area he has been is forced to commute all his life to Vienna, spending only weekends and holidays at home in southern Burgenland. Although his wife is not happy with this lifestyle, after being used to it for so long, she expresses the view that « It would have been a real burden if we have not had enough money ».
For the woman this meant that she had to do all the main daily jobs on the farm. Recently the farm has been much simplified. It no longer has cattle and the two remaining pigs mainly serve for self-consumption. Machinery investment necessary for crop production has been undertaken without any credit support : the money came instead from off-farm earnings. The farmer says that he has always known that the farm makes no money. Investment was not undertaken for profit reasons but mainly to reduce the burden of work. The farm manager never considered giving up the farm because he wanted to return to work it when he retired.

Although the farmer is highly involved emotionally in farming, other important values expressed by the farmer are atypical of this farming sector and derive far more from a worker's perspective. For example, his investment priorities favoured the house against the farm buildings. Furthermore, the farmer is keen to spend money on exotic holidays far away (India or Africa). Thus his self-fulfilment is not bound to the farm.

Agricultural supply measures had no effect on the development of this farm. Premia for turning agricultural land into an ecological reserve were accepted because it allowed a reduction of the burden of work. The « non-use » of other support measures also derives from the high off-farm income which disqualifies him from most of the support measures.

The reduction and simplification of farming activities can mainly be considered therefore as the result of his aim of reducing the work burden for his wife and for himself in his retirement. As with many other small farms in that area, stability is the major general goal. But in reality, his case reflects far more a clear withdrawal from farming as the

best long-term strategy. He even agrees that the sons should eventually sell the farm and make something better out of the sale of the asset.

Household C : The pluriactive disengaging widow

Study area : Italy, Udine

The farm is medium-small (8,16 ha), mostly grassland, and only half a hectare is owned. The rest is an inherited lease. The present farmer is a woman who became a widow in 1984. Her late husband used to work full-time in a nearby steel factory, while she worked full-time on the farm with her parents-in-law. They had two children (boys) who were in school then and are now both working. She realised she could not live on farming alone and accepted a job in the same factory where her husband used to work. She thus became pluriactive. As she could not cope anymore with farm work, she decided to change from milking cows to raising suckling cows because it allowed a more flexible working schedule. Since then she has encouraged her children to find off-farm jobs. She released about 1 ha of formerly leased land and she has reduced the number of cattle from 10 to 6. Her father and in-laws help with the animals and the wine, and share some machinery. She has a good network of parental solidarity which has allowed her to be pluriactive.

She considers farming to be an important contribution to income (about 20 %), which has become less important with the work of her children.

Policy use is quite low and unattractive given her situation. She is still a member of the Farmers Association and she received a grant to fix farm buildings after an earthquake. She dœs not receive compensation and thinks it would make no difference to her pluriactivity. She thinks no policy measure could match her off-farm job and thinks her two sons are much better off with a non-farm job.

This case shows the impotence of policy to solve a situation based on pluriactivity. Aid was available to modernise but being a leaseholder and needing a steady income to replace that of her husband, she was compelled to look for an off-farm job. Direct payments were too low to make farming more attractive. Her « demend » for policy was low both before and after her husband's death.

Household F : Productivist type of farm household

Study area : Germany, Freyung-Grafenau

The F family are Mr and Mrs F and one child. Three retired people and one other relative live in a separate household. The family operates a relatively specialised dairy farm with 60 milk cows and with a quota of 244,00 kg — which is very large scale in Freyung-Grafenau where the average farm has 8 cows.

Mr F points out that he has already been a skilful trainee at the agricultural school (Landwirtschaftsschule) and that his father has already run a relatively large farm. He adds that right from the time when taking over the farm in 1977 he has tried to obtain « the maximum out of it » and that « the two main levers are producer prices and quantity ». Consequently, he has concentrated on the most profitable crops and has cultivated them intensively. Farm operations have become increasingly specialised and livestock production is more and more based on low labour-input slurry-based husbandry systems and on the purchase of feed concentrates. The overall development of the farm is characterised by increases in capital-intensity and scale while production is still being geared to current product markets. Since 1986/87 farm size has nearly doubled. The availability of additional land resources and milk quota is however still a key question.

When asked why he farms more intensively than his neighbours, Mr F explains that sufficient feed has to be produced on a small area, compared with herd size. He adds that the considerable milk quota he has received justifies the high level of intensity in land use. With more and more land becoming available in the area because of other households giving up farming the level of fertilizer use will be decreased in the next few years, « which will also reduce costs ».

Mrs F was working at the district council until she became pregnant. At present she is on maternity leave and receiving a corresponding family allowance (Erziehungsgeld). She insists that it would be possible for her to start working at the district council again and that she alone would earn nearly as much as farming contributes to the household income. Mr F, however, argues that she is needed to run the household and that he has « no spare time to assist with housework and child raising because the management and running of the farm is a full time job » (but he likes it).

Mr F cannot imagine receiving regular direct transfer payments. He dœs not understand regular producer price support as a similar form of subsidy. However, measures relating to the improvement of social security among farm families, the compensatory allowances (EC Directive 75/268) and programmes in support of more environment-friendly farming are accepted because they are not seen as forms of transfer payments.

Without support from investment-related programmes, Mr F believes that increase in the scale of farm operation would have only been a littlebit slower. Available financial support alone did not trigger any investments.

Farm tourism, direct marketing, organic farming, pluriactivity and income combination are not seen by Mr and Mrs F as suitable for « full-time farmers ». The set-aside programme is in the F's eyes a waste of natural resources ; it is diametrically opposed to their understanding of the task of « cultivating the land ». Mrs F appears slightly more open towards pluriactivity. Her parents had not much to do with agriculture, she had a non-agricultural training and she has already been off-farm employed and so has a broader value orientation.

In this area, only a minority of households — such as the F's — now rely exclusively on farm income. But, these households are totally committed to farming. Farming is « a way of life » for them. The abondonment of farming is, as a result, only considered when the problem of succession arises.

Household G : Productivist professionaliser

Study area : UK, Grampians

This is a very interesting case because it illustrates many recurring features concerning the importance of the genetic tie, the role of women in agriculture, attitudes to diversification and how these often seem to conflict with the desire to remain a « good farmer ».

The farm itself is a large, tenanted, upland farm with a mixed regime of cattle and sheep. The tenancy is owned by a couple in their 70s who farm in partnership with their son and daughter-in-law and their grandson and his wife. Unusually, three generations are present.

The respondent, the daughter-in-law, is not from an agricultural background but has thrown herself wholeheartedly into the role of farmer's wife. In order to deal with the farm paperwork she attented classes in accountancy at the local shool and gained a pass at higher level. She became very involved in the Scottish National Farmers Union and her proudest achievement is that she is the first woman president of her local branch. In addition, Mrs G lets out the farm cottage to tourists and has recently started a successful bed and breakfast business in the farmhouse. However, these activities are seen as subsidiary and distinct from the family's farming. Their main concern is to produce quality livestock which will fetch high prices in the local markets and win cups at shows. The family is exceedingly proud of its collection of cups. Mrs G echœs the theme of local quality produce in her for tourist accomodation enterprise : quality is all important to her.

The only policy payment the G's receive is LFA compensatory payments : these are headage payments related to the number of hill sheep and cattle, and these are crucial to the farm's survival. This is the principal policy issue seen to be affecting this household.

If farm prices were to fall substantially the G's would not be prepared to diversify further. Within the family there is an ambiguous attitude towards diversification. While the family are pleased with the success of the tourism venture this is seen very much as « women's work » and nothing to do with farming. The male members are extremely antagonistic towards diversification on the farm itself, and Mr G is adamant that anything to do with tourism be confined to the house which is physically separate from the farm.

Off-farm employment is only really an option for Mrs G, with her accountancy skills and SNFU experience. Mr G would have difficulty in obtaining off-farm employment since he left school at 15 and has no trade, craft nor training of any kind. Instead, the G's would rely on the quality of their livestock production to support themselves, with the grandparents retiring from the farm.

B. Medium-large, diversifiers

Household I : The faintly shifting pluriactive

Study area : France, Savoie

Mr I is 54 and his wife is 41, they have five children : the only son is 18 and the four girls are younger (16, 13, 11, 9). He is a native and took over the holding from his parents in 1972. He married at the same time to a young lady who came from the town and taught skiing with him in a nearby resort. The local labour market is poor : declining manufacturing industries and a slowly increasing tourism industry. This mountain farm is at an altitude of 1500 m. There are some future prospects for the development of a local resort, however.

When taking over the farm Mr I increased the flock from 30 to 120 ewes, which was large enough to provide a decent income by that time. They had a house built and a new stable, they also contracted various loans to help modernise the machinery. Strong efforts have been made since taking over to improve the main product of the flock : meat. But the nominal price of meat has merely kept steady over the last 20 years while costs more or less doubled. Although strong inflation made it cheap to borrow money for investment, these circumstances were very negative in terms of the household's agricultural income.
When he took over the farm Mr I increased the winter ski teaching activity (in which he was well practised) in order to expand the sources of finance. This increase was somewhat contradictory to the improved sheep raising techniques which resulted in heavy constraints on his working schedule. For example in early spring, lambing time is also the most active period for ski teaching. Efforts were made to manage the lambing period in order to concentrate them on weeks which fall outside holiday periods.

Mrs I stresses that beyond the narrow income generated by this mix of farm and snow activities by her husband, she wants to have a job of her own. During the first ten years of their marriage she had a lot to do with child caring, she also took part in a number of local training activities in connection with a sheep producers union. Some years ago the couple decided to sell the whole flock and to buy a shop in the village (bar-tobacconist) but it did not to provide a better income. Luckily they were able to sell it a year later and to resume sheep raising. More recently they have bought a clothes shop in the nearby resort where Mrs I spends four months in the winter, living with the children in

a flat. The three recent years have not been very successful because of the lack of snow. Now they have to consider whether they should sell the shop. Their main income sources are the income from ski instruction, sales of farm products, compensatory allowances and social transfers justified by the large family.

The parents are somewhat concerned with the son being interested in taking over the farm in the future. He already takes part in the summer alpage activities (including cheese making) and is having agricultural training.

In conclusion, it seems that it is not possible to make a decent living for a family out of a medium-sized holding, even if it is well managed and despite support from agricultural policy and inflation making it easier to repay loans. In a poor labour market location, activities additional to farming are difficult to set up and remain fragile. Whilst farming may remain a core activity, it requires a lot of energy and large financial resources. The only motivation which pushes strongly enough to consider risk taking, by setting up a new job, is the need for autonomy felt by the farmer's wife. Pluriactivity is therefore essential to provide the family with a decent income but is also sought by the household for non-pecuniary reasons.

Household J : Para-agricultural diversification

Study area : Switzerland, Chablais

Mr J is 27 years old. He got married in 1989 after taking over the farm. His wife is 30 years old and they have a one year old daughter. The wife stopped her off-farm job after marriage in order to dedicate time to the family and the farm, which is run as a common business.

The main farm is located in the Chablais mountain area 1000 m above sea level and is wholly rented (14 ha of meadows). The building and 50 % of the land belong to the father. The son will inherit it. Other meadows are hired from a third party. An alpage for 45 cows is rented from the local community, with a quota of 20.000 kg of cheese, and this is run together with the father. They keep 16 cows in winter, with a quota of 40.000 kg. The machinery is new.

Both husband and wife used to work before marriage, she as a secretary, and he as a parking attendant in a ski resort as well as on the farm for pocket money. When they married, both decided to live on the money earned from the farm. Before starting at an agricultural school (for which you have to be 18), he followed a public business course : « it's useful for the management of the farm and it's good to have another skill ».

Most of the changes that have occured in the last decade improved the farm. Mr J wanted to succeed, but not at any price. He wanted to make a decent living out of farming, and only farming, or to abandon it. This meant having more cows, so more land, a big-

ger building to house the cattle and store the hay, and a good level of mechanisation to do the work more quickly and to make it less of a burden.

A new farm was built in 1986. The parents and the son designed an enlargement to the existing building, contiguous to the house. They asked a local builder for an estimate. Then they made another design incorporating grant-aid. They calculated that with the same paid-in capital, plus grants, they could have a separate, bigger and better equipped building. So they applied for the grants and contacted a foreign company to do the work cheaper. Grants took up 65 % of the cost, plus 15 % covered by a no-interest loan.
In the same year, they rented a 4,5 ha meadow from a retiring farmer. The meadow was far from the main farm (it takes time with a slow hay transporter), but there was a 15000 kg mild quota on it. Nearby land would have been available, but with no quota. This would have wasted time and brought higher production costs. But Mr J thinks his milk quota is still too low. He believes it dœs not allow him to make as good a living as he would like. Modernisation brought him extra quota but not as much as he expected.

Mr J and his parents would have preferred to run the farm together in a formal association, but they soon realised that they would earn less that way : compensatory allowances are high (SF 760 in mountain area III in 1991) but to a ceiling of 15 animal units, which makes about SF 11400 per year. By splitting the farm, each one could receive the maximum. Another reason was their different attitudes towards farming, the son being more oriented towards modern techniques. The division of the farm was possible because the father owned a small mid-mountain farm higher in the valley where they used to go only in spring and autumn. So Mr J's parents moved there after their son got married and took over the farm.

In 1989, Mr J also started to rent a bigger alpage (prior to this, they could only take heifers onto the alpage they rented), with a capacity for 45 cows and where they make cheese (matured and commercialised by a local, dynamic cooperative). According to Mr J, that is what makes the farm viable : costs of production are lower and making cheese adds value. But milk quota is exceeded by 30000 to 40000 kg over the quota in 1991, and the price was reduced by 20 % . In the second year, Mr J decided to make more cheese and commercialise the excess through direct selling (tourists and acquaintances) which is more or less illegal and unfair towards the cooperative. Mr J recognises that it was not a solution : « One can hide it one year, but it's not possible in the long term ».

Now Mr J feels somewhat awkward : « They give the money to build a farm for milk production, but they refuse to give the quotas to make this investment profitable ». Unwillingly he is forced to find new side-lines. He made calculations for beef production and found it unprofitable, and the farm structure is not adapted to it. But he says he will keep on farming and will have to find a solution.

Household K : Innovative professionalisation and para-agriculture

Study area : Germany, Euskirchen

Mr and Mrs K own a farm of about 47 ha. The farm is located in the Voreifel, part hilly and part plain, but still a less favoured region. Their agricultural production is based mainly on market crops, ie rape, barley and rye, and on poultry and hen-keeping. Hens and poultry are kept free ranged, and the products are marketed directly.
Mr K was born en 1932, the son of a farmer. He got an advanced training in agricultu-rebefore he became manager of an estate located in an area of intensive agricultural production about 150 km from his home. He married in 1964. His wife was a bookseller and she did not have any farming knowledge ; she stopped working in her profession after the marriage. The couple have two daughters. In 1967, after Mr K's father died, he quit his job and took over the family farm. He modernised and intensified production which was based primarily on fodder and livestock production in those days. In 1983 the farm couple started poultry and hen-keeping and started marketing their products directly. Two years later they gave up pig raising because of falling prices.

In 1987 their youngest daughter, after returning from Canada, where she had spent a year as an au-pair within a farm household, decided to take up an agricultural training and to succeed her parents later. Now she has just finished her primary vocational education which included training on a dairy farm. She will carry on with her education and study advanced agriculture. The older daughter left the household some years ago when she started to study sports.

Tasks and responsibility are divided within the family : general farm work (including machine repair) is done by Mr K and his daughter, direct marketing and housework by his wife. But all family members confirm that « everybody knows everything » and « farming is a family business ». They intend to continue para-agriculture and to search for intra-sectoral pluriactivity to maintain the farm and to secure the family's income.

The K family receive compensation payments for less favoured areas. They are aware that these are a kind of direct payment and think that they should be enlarged ; for example for environment protection or for ecologically sound farm production. They also participate on the extensification programme. Here they are obliged for five years not to grow wheat but rye. Therefore they receive a restitution (300 DM/ha) which does not really compensate for crop failure and lower prices but « at least one has to start in stopping surplus production ». This is why they are trying to get a contract with a backing company to deliver rye which has been produced without the use of pesticides. Contract farming is a new element in the K family's strategy to enlarge and ensure the economical basis of the farm.
The couple have not asked for support from investment-related programmes because « there was no need ». They applied for participation within an environmental measure (Ackerrandstreife-programm) but have not yet received an answer. This is one of the

reasons why they assess agricultural policy as not very effective. They also complain about the « famers' deprivation in the political arena » and fear further disadvantages for German farmers in connection with the European Single Market. Anyway they believe in their abilities and in the continuity of their farm.

Household L : Diversification of household activities by expansion of on-farm tourism

Study area : Austria West

Family L is an example of combining mountain agriculture with farm based tourism, a business typical for Alpine western Austria. The farm unit is of mountain farming Zone 2, which means that it faces a medium degree of impediments.

The household consists of the farmer (50 years old), the spouse (39 years) and the two sons (19 and 20). The farm consists of a property of 50 ha, all grassland and alpine pastures, as well as of rights to timber in forest equivalent to 11 ha. The farm unit can be considered as medium-sized for the Salzburg area. The farm's main business is cattle breeding with 12 milking cows and 25 young bulls. The number of cattle was increased by one third in 1978 by a takeover.

The dwelling house dates back to 1687. In 1979 general improvement and change of the house had been undertaken. Strong efforts were made to preserve the substance and shape of the old house. The farm building is very attractive and is typical of the architecture of traditional farm buildings in Alpine Salzburg. Renovation was difficult and cost intensive. Two apartments, one high quality guest room and two normal guest rooms have been created. There is still one considerable part of the house to be renovated. The farm building is also 300 years old and is currently kept in good condition and has been improved. Further property belonging to the farm consists of an Alpine hut and another dwelling house. Both have been rented to tourists on a long term basis. A further important source of income for the farm is a gravel pit which is rented out to a local entrepreneur for excavation.

The farm operator inherited the farm from his parents. He has a basic school education as well as professional education in agriculture. Besides his work on his farm he is manager of a large hunting district in the valley. His wife also comes from a farming background and attended an agricultural school. Prior to the marriage she worked for one year in a hospital and one year in a large hotel. The intended successor is the oldest son. He finished professional training in agriculture and works near the home as a ski-instructor. The youngest son is attending a commercial school. All the men of the family are passionate hunters.

The main source of income for the family is still agricultural production. The farm has a milk quota of 54000 kg, obtained by permanent surplus delivery. In addition to that

15000 kg milk from Alpine pastures (not considered in the quota), is supplied. As a professional and organised cattle breeder he gets a good price for young cattle. They do not own any forest within the farm unit but rights to timber are appreciated as a good contribution to income.

Because income from the gravel pit is slowly becoming exhausted, the tourism business and cattle breeding have been intensified. A lot of processing of farm products is done by the woman, eg making farm cheese and butter or baking bread for self consumption and for tourism business on the farm.

The farmer considers tourism an excellent source of income for the future, but development should proceed conservatively. For preserving the natural resource, tourism intensity should be limited. Farmers may participate in different ways with tourism development, with farm orientated activities (letting of rooms and apartments), and by taking jobs in the non-farming sector, eg working as landscape cultivators.

The farmers is well informed about the supply of agricultural support measures. With the renovation of the house, supported credits have been used. Because of the high investment, support from policy measures has helped considerably. Supported credits have also been used for renovating the stable and for the building of the apartment for letting. The woman expressed the view that apartments are the far better and more convenient alternative, when compared to the traditional « holiday on a farm » with bed and breakfast. She can manage the work involved with renting apartments. She complained that such experience is not covered by the extension service. Direct payments for mountain farmers as well as cutting premiums for grassland are considered good initiatives. The farmer regrets that it is not possible to provide adequate income out of farm products. High quality products should be reawrded with a high price, he feels. Mountain farms working under high impediments should be supported in the direction of extensification (eg breeding suckling cows instead of milk delivery).

C. Medium-large disengagers

Household M : Disengager (forced)

Study area : UK, Grampians

Mr M's case is one of the most dramatic instances of change. At the time of the early 1990 interviews, Mr M was a full-time farmer, with a medium-sized (70 ha), mixed arable/livestock holding. During 1990 he sold the 65 ha he owned and became a full-time joiner, while continuing to rent the other 5 ha which he farms as a hobby.

Mr M was a traditionally minded local farmer who attaches great importance to the ideal of family farm. His family had owned the farm for many years. The reason he sold his

farm was because he was in financial difficulty. The farm had invested through a modernisation and improvement scheme for which the farmer had had to borrow heavily. When interest rates soared in 1988/89 he found he was struggling to keep up with his repayments. One response to this was to register for set-aside, as a precautionary measure in case his position worsened, but in the event he did not set any land aside. His main « strategy », however, was to reduce stock slightly as a short-term measure, in the hope that interest rates would soon fall again, and to try and « stick it out ». Instead, his situation deteriorated further, so that when a neighbour expressed an interest in buying his land he decided to sell it.

Mr M is a skilled carpenter and had no trouble finding his present job with a local firm. He says that the relief of knowing that he has a regular income and no overdraft is tremendous. He now finds that working on his smallbolding is pure relaxation, and he feels he has found the best combination of both worlds.

Mr M's case is one in which the active use of modernisation and improvement policy led him into financial difficulties which resulted in his eventual disengagement. However, it is clear that this way out depended upon both the externally-derived opportunity offered by a neighbour's wish to purchase his land and on the occupational mobility of Mr M himself, which is atypical of farmers in the area. Most farmers would probably still be attempting to « stick it out » because of their fear of proletarianisation if they gave up farming.

Household N : Unsuccessful farming

Study area : Germany, Euskirchen

The N family lives in the Eifel, a hilly, relatively remote, disadvantaged region. The family farms 20 ha ; half of the land is rented. The main area of production was once dairy products and bull fattening. Nowadays the latter is the main source of agricultural income.

Mr N was born in 1933, the son of a farmer. He has had a non-agricultural education and has been a joiner for about 30 years. In 1957 he married a farmer's daughter from the neighbourhood. Mrs N has no formal education. The couple have four children. In 1966 Mr N officially took over his father's farm. He continued off-farm work on a full-time basis while his father and wife shared responsability for the running of the farm. Later, in 1978, when his father died and his wife fell ill, he was forced to stop off-farm work. For about two to three years the couple had been monoactive but due to low income they had to look for additional financial resources. This time it was Mrs N, now recovered, who took off-farm work as a nurse assistant. It was just luck that she got this job although she was not trained for it.
Mr N considered farming as hard work in those days and needed his sons' help. In 1984, when the milk quota was introduced he had to reduce milk production (to

30000 litres per year). An application to receive an exception to the rule because of undue hardship (Hartefallregelung), was turned down because of the off-farm income of Mrs N. Later, they participated in the 1990 milk-repurchasing-campaign of the Federal Government which provided a payment of 1,60 DM for each litre of milk given back.

Within the last few years Mr N has started joinery work again, on an occasional, and according to tax legislation, more or less illicit, whereas Mrs N retired from work.

The family receives compensation payment for less favoured areas which are considered to have geographical disadvantages. They also receive socio-economic compensation payments and bull premia which are regarded as payments they would rather not qualify for. Nevertheless, further direct payments, such as compensation for reduced profits because of low prices or environmental controls, would be acceptable. The same applies for restrictions in production and rewards for maintaining the landscape as a contribution to environmental protection.

The family focused on policy restrictions in regard to both agricultural and non-agricultural implications which hindered farm development. So they never have been supported by an investment-related programme and have failed in their efforts to maintain the original milk production because of the additional off-farm income. Mr N even regretted that he had stopped his off-farm work and he showed understanding for his sons' refusal to succeed in farming, although he always liked farm work and wishes somehow to continue the family tradition. But now « it looks as if the farm will be given up within the next few years ».

Conclusions

The analysis of a set of cases chosen on the basis of their differences shows extremely well a general point that this paper has tried to emphasize : the influence/impact of policy measures of any type or origin should always consider the quite differentiated way in which farm households interpret and use them according to their established « patterns of behaviour ». Policymakers tend to have an extremely simplistic and mechanical ideal of policy user, and a narrow view that privileges the perspective of its own sectorial policy, never achieving an understanding of the complex interplay of agricultural and non-agricultural policies from the point of view of the family household.

This general point should not be taken to mean the extreme case that one should have « individual » policy measures, but some

more flexibility in order to get nearer to the consumers demands seems extremely desirable. Especially today when a fairly standard model of modernisation is no longer able to sustain a farm family's « viability » and is being substituted by a multiplicity of options. The diversity of individual solutions is likely to increase in the near future both because of the failure of the productivist policies and because farmers (and their families) have come a long way in training, entrepreneurship, reduction of hard labour, farming techniques and market options, evaluation of advantages, non farming opportunities, economic planning, lifestyles, and many other aspects which can be appreciated by reading through the single cases described. The interplay between these individual/subjective factors and objective changes in price policy for farm products has produced several « rationalities » in their responses which suggest much more care in the elaboration of policy measures.

Our concluding observations will deal with the two main themes that have been focused in the cases described above : farm households behaviour and policy consumption. Context variables have stepped backwards because of the methodological approach chosen, based on comparison of farm families across study areas.

Farm household behaviour

In the area of land, size, farm activities and other gainful activities some interesting patterns emerge.
Most of the farms described are mountain farms or farms in less favoured areas, and it is remarkable the role of leased land in all the broad types in which we have grouped our cases (small, classical, diversifiers, disengagers). The possibility to lease land in LFA's has facilitated not only entries and exits but also variations of activities, according to the changing patterns of behaviour. It is interesting to know that this happens even in the smallest sizes (C). Nevertheless, also sale of property seem possible behaviours in view of the difficulties of economic sustainibility (M) to the benefit of the productivist farmers left (F). Price and policy changes seem to be stirring the land market more effectively than « structural » policies.

Farm activities is the area where the most varied responses of households may be observed. Even though labour saving continues to be an important rationale of families' actions, type of

enterprises are being innovated with the logic of escaping milk quotas and livestock limitations. Para-agricultural activities represent a successful strategy, whether directed at transformation (quality cheese) or farm tourism (bed and breakfast, sledge tours), while classical scale increasers introduce in any case quality products (G, K), specialisation and cooperation geared at cost reduction (F). Imaginative combinations with pluriactivity (N) give a hint of the unexplored and richer possibilities in this area than thought of in diversification policies.

Pluriactivity reconfirms itself as a behaviour strongly connected to the lifecourse of the family, often considered in a temporary and trial frame of mind (C, I) and obviously extremely tied to local labour market opportunities. A subjective element comes also through with the importance that having more than farming skills may mean opting for a non farm job (again C, I). Wife's off-farm jobs could represent a separate case since this theme seems charged with important « black box » changes : here the need for autonomy and self identify (F, G, I, L) has made farming more of an individual profession, with all that implies for attributing one common pattern of behaviour to the whole family. However there are still cases of integrated work of the couple in facing changes in farm enterprises (M).

Policy consumption and patterns of behaviour

The hypothesis that modernisation policies have been widely used but have not been crucial for major decision making seems largely valid. Again the rigidity of measures, especially desirable in view of the fact that what these families wanted to do turned out to be more sensible and gainful than what extension services proposed and achieved the aim of maintaining a young family in a mountain area. It is also quite true that heavy consumption of modernisation policy may lead to increased vulnerability (M). Modernisation policies seemed to provide in only a few cases help for diversification (L) ; more often they were « late » in reacting to the new needs of households . It may be noted that these new needs, in the case of medium large farms, were in response to changes in agricultural price policy.

Compensation payments have a crucial role in most farms, even if they work more when the amount paid is significant (G, I, K, L), however they often cannot compete with pluriactive opportunities (M, N). However, the possibilities of succession in a

situation characterised by heavy dependence on compensation should be attributed to these policies : stability of population in LFA's in the long term needs more than compensation payments to be successful. Furthermore the fact that it is tied to the number of certain types of livestock has reinforced traditional behaviour and entrepreneurship.

Past patterns of behaviour both of diversifiers and classical farmers create a situation where new policies such as set-aside are not at all understood or accepted by farmers who remain extremely critical of these set-aside in particular seems like a waste of resources that gœs against the common sense of farm families, and in their view it seems preferable in any case to think of some other activity. This is a highly emotional issue that touches the self image of farmers, and this is quite serious in demographically fragile areas. A much more positive attitude may be seen in linking compensation with environmental management and landscape care.

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Agricultural abandonment in mountain areas of Europe: Environmental consequences and policy response

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Agricultural abandonment reflects a post war trend in western Europe of rural depopulation to which isolated and poorer areas are most vulnerable. The commercialisation of agriculture, through technological developments, and the influence of Common Agricultural Policy have increased productivity and focused agricultural activity on more fertile and accessible land thus transforming traditional approaches to farming. In many areas this has lead to a decline in traditional labour intensive practices and marginal agricultural land is being abandoned. The problems that these trends create are particularly marked in mountain areas. The social and economic impacts of these changes have been well documented. However, the implications for environmental policy are less well recognised. This paper reviews the literature on abandonment and gives a comparative analysis of European mountain case studies to assess the environmental impacts of land abandonment and decline in traditional farming practices. It finds abandonment is widespread and that, while the influence of environmental changes is unpredictable due to environmental, agricultural and socio-economic contextual factors, abandonment generally has an undesirable effect on the environmental parameters examined. The application of agri-environment policy measures in relation to abandonment is discussed and suggestions for future policy are proposed.

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Keywords: land abandonment; agriculture; agri-environment policy, biodiversity loss, landscape change

Introduction

Agricultural land is abandoned as an economic resource when it ceases to generate an income flow for businesses or households and the opportunities for resource adjustment through changes in farming practices and farm structure are exhausted. Agricultural adjustment may be limited by traditional attitudes, inflexibility in production and fragmented structures (Dax *et al.*, 1995), and if alternative, more profitable uses cannot be found (e.g. forestry, recreation) land is abandoned from productive use. In some mountain areas, despite physical difficulties, there are opportunities for diversification: quality produce, agricultural or nature tourism. However, the opportunities for adjustment in farming are dependent on the competitive position of the rural economy and its comparative advantage for different types of economic activity. Baldock *et al.* (1996) have identified the particular vulnerability to marginalisation and abandonment of small and extensive farming systems, and these types of farming systems dominate mountain zones. Nowadays, in mountain areas, extremes of remoteness and physical disadvantage reduce competitiveness and place severe limits on technical and structural adaptation, and mountain people may be less adaptable due to age, constraints on skills, and ingrained tradition (Campagne *et al.*, 1990; Walther, 1986) as well having an aversion to risk taking. In particular, in southern Europe low productivity of land combined with small farm size, often made

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up of dispersed farm plots has resulted in very low incomes, and this situation has been compounded by a concentration of agricultural research on increasing the productivity of lowland crops and livestock (Stamou, 1990; Kitsopanidis, 1990).

Specific policy measures for mountain areas have been instituted primarily to provide compensation for disadvantage, although such areas are typically a priority for structural and development assistance. Additionally, the EU's Common Agricultural Policy (CAP) recognizes the natural handicaps of such areas and their association with depopulation and land abandonment through its structural support to 'Less-Favoured Areas' (Regulation 950/97). Fifty-six per cent of the EU utilised agricultural area (UAA) comes within the delimitation of less favoured areas, and of this a substantial amount is classified as mountain areas. Much of this mountain zone is designated Objective 1. Recent French, Austrian and Italian memoranda on mountain agriculture and forestry presented to the European Union Agriculture Council (Council Memorandum, 1996a,b,c) reflect a continuing concern with the economic and social pressures facing mountain farming. However, despite efforts of compensation policies, agricultural incomes in mountain areas remain much lower than lowland farming incomes (Bazin, 1995).

What has been less well recognised in policy development is the environmental impact of agricultural decline. Several recent seminars and reports have examined the topic (Baudry and Bunce, 1991; Beaufoy *et al.*, 1994; Baldock *et al.*, 1996; Bennett, 1997). Over the previous centuries agriculture has modified the natural environment in many ways. Low-intensity farming, in the form of livestock rearing and traditional cultivation methods, has created semi-natural habitats that now support a wider range of species than might otherwise be found in purely 'natural' climax vegetation. Species-rich grasslands, hay meadows, grazed wetlands and moorland habitats, are all examples of environmental assets associated with, or produced by, low-intensity agricultural land use. Initial estimates reveal that around half of the European network of Natura 2000 sites designated under the Habitats and Species Directive (92/43/EEC) are farmed environments (Bennett, 1997). Areas of high conservation value associated with farming have been created indirectly, rather than purposefully, by certain types of agricultural system. However, in the face of decline in traditional agriculture, these areas may now need to be maintained by conscious management of the practices involved (Bignal and McCracken, 1996). With biological and landscape diversity partially dependent on the farming systems in operation (Beaufoy *et al.*, 1994; Pain and Pienkowski, 1996) land abandonment may lead to a corresponding loss in natural capital, although it may sometimes be the case that changes in management practices concerned with stock control and burning practices within low-intensity agricultural systems, may lead to environmental degradation. Baldock *et al.* (1996) have coined the term High Nature Value farming for those types of farming systems associated with valued semi-natural habitats, and the majority of (although not all) such systems occur in remote areas under extensive land use.

In mountain areas, the degree of mechanisation and intensification has been particularly limited and consequently these areas have a high proportion of farming systems which are small-scale and low-intensity and often highly adapted to restrictive or localised conditions (Beaufoy *et al.*, 1994). Mountain areas are particularly valuable areas for biodiversity conservation (UNCSD, 1997) and where this resource is threatened by abandonment, the issue needs to be addressed. In its proposals for the reform of rural and agricultural policies, the European Commission (CEC, 1997a) recognises the actual or potential role of mountain farming systems to provide high nature value and to maintain the countryside. Specific examples are given from the southern member states, and from Alpine and Pyrenean valleys. On the international scale the environmental capital associated with mountain areas and the related issues for sustainable development are highlighted in Chapter 13 of Agenda 21 (the 'Mountain Agenda') (UNCED, 1992). The Convention on Biological Diversity, which is a vehicle for the implementation of Chapter 13, recognises the significant role of mountain ecosystems in conserving biological diversity (Gross, 1997). The Habitats and Species Directive (92/43/EEC) identifies the Alpine zone as one of six biogeographical zones and

makes specific reference to important species and habitats (e.g. alpine grasslands) within that zone. It is therefore important that the environmental consequences of agricultural decline in these areas are more fully understood and the implications for management considered. The potential for amelioration of natural capital loss through policies promoting 'environmentally friendly' agriculture is one possibility. The case for agricultural support to such areas could be re-established and made compatible with World Trade Organisation (WTO) constraints by identifying public benefits from traditional farming systems through their maintenance of landscapes, provisions of habitats and embodiment of cultural heritage.

This paper reviews and discusses the evidence of the environmental consequences of agricultural land abandonment and of decline in traditional farming practices in mountain zones. Where these consequences appear to have a negative impact, clearly, management strategies are needed to prevent further loss of nature conservation value. Current and potential policy mechanisms by which such environmental change may be addressed are also discussed. The paper examines current literature on abandonment and draws specifically on the data and expertise from a series of case studies in the mountain areas of Europe. These case studies formed the basis of a report for the European Commission coordinated by Euromontana (1998), which was concerned with environmental pressures and impacts in mountain areas, and their relationship to European agricultural policy. For the purposes of this paper these case studies also provide useful information and insight into the environmental effects of agricultural abandonment in European mountains. (Authors of each case-study are given in Appendix 1).

Description of the study zones

The 24 case-study areas that this paper reviews all conformed to the delimination criteria of mountain zones under EU directive 950/97 (CEC, 1997b). They have a wide geographical distribution (Figure 1), and were selected to be representative of the range of issues currently facing mountain agriculture in these areas, and where information was expected to be reasonably accessible either through existing datasets or the presence of knowledgeable informants. Of these 24 case-studies, one was located in Finland and one in Sweden. Despite their relatively low altitude, these are areas included under 950/97 because of their remoteness and the severity of the natural conditions. Three zones were outside the European Union; two in Switzerland and one in Slovenia. The case studies used a combination of research material including the results of previous studies and consultation with key experts in the fields of agriculture, ecology and policy development. The level of analysis was generally at the scale of the whole zone. Table 1 gives the location of the zones, each classified into one of six climatic groups: Dry Mediterranean, Nordic, Eastern Alps, Western Alps, Oceanic and Central Pyrénées. The zones varied in size between 15 000 and 1 999 000 ha, the boundaries being selected on the basis of internal coherence and data availability.

Table 1 indicates the main forms of land use in the different zones, and these are seen to be contrasting between climatic zones. Arable and cultivated land is a major land use in some Mediterranean zones, whereas in other areas virtually all the land is under agriculture, forestry or unused. Forest cover also varies dramatically between regions with it dominating the Nordic zones and of major importance in many Alpine and Oceanic zones. Due to limitations in data availability and difficulties in definition it was impossible to obtain direct estimates of the areas of 'abandoned' land. However, there are some indications of the scale of the problem in Vallee d'Aoste (zone 16) where it has been estimated that 23% of the agricultural area is threatened with marginalisation and 16% of the area has been totally abandoned (Castelnovi *et al.*, 1990).

All zones were affected by the pervasive socio-economic pressures driving agricultural change. Those countries in this study not under the influence of the CAP are affected by WTO regulations, which are directed at removing agricultural trade barriers. Thus the large-scale general pressures which are driving agricultural adaptation may be expected to be broadly similar across all of the case-study zones. Regional and local socio-economic characteristics are also key factors in the process driving change

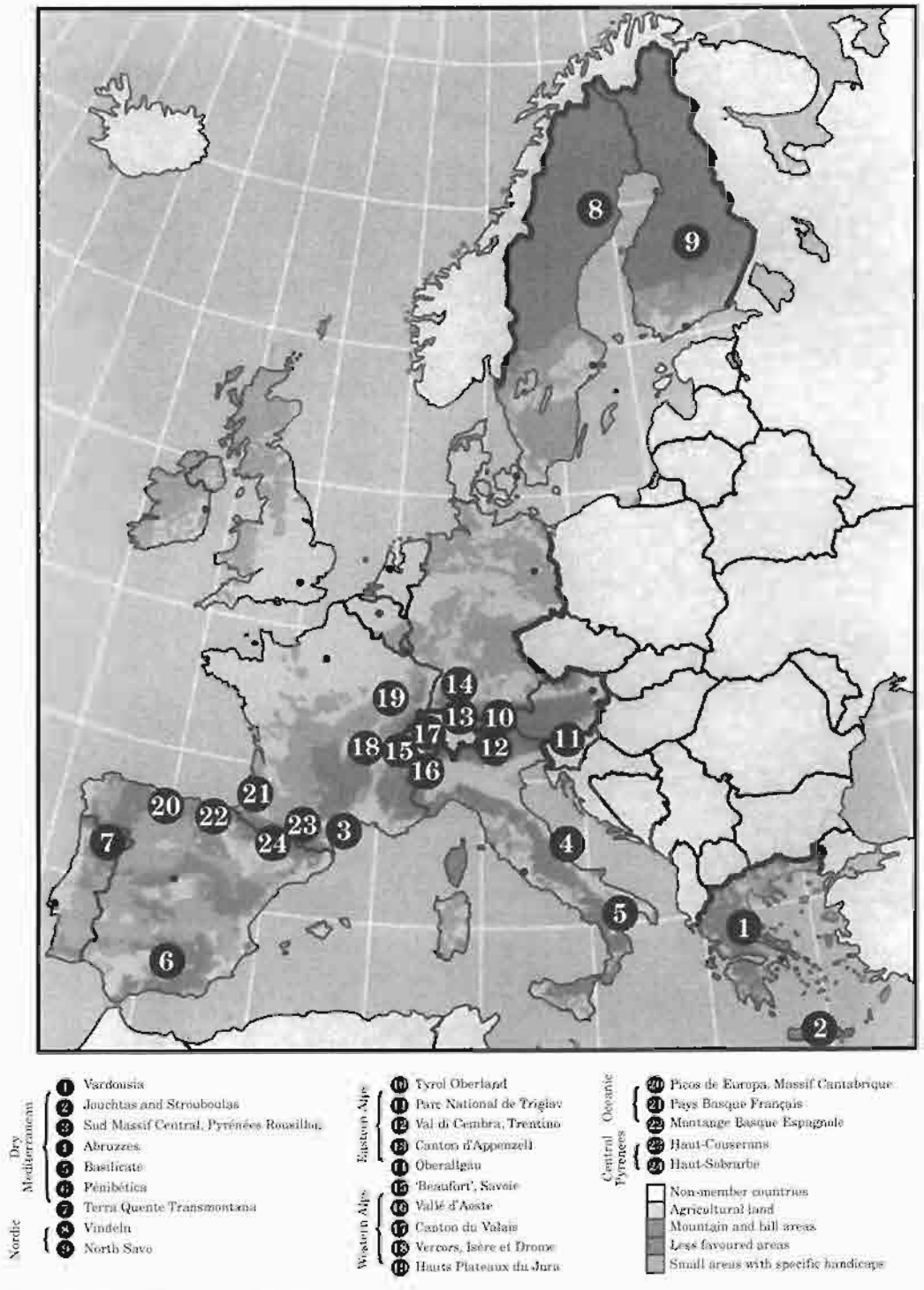

Figure 1. Location of case-study zones.

Table 1. Characteristics of study zones

Climate type	Zone	Name	Country	Zone area (ha)	Altitude range (min-max, m.)	Arable or cultivated land (%)	Grassland/ rangeland (%)	Total UAA (%)[a]	Forest (%)	Unproductive (%)
Dry Mediterranean	1	Vardousia	Greece	56 000	600–2400	15	28	43	52	n/a
	2	Juchtas-Stublas	Crete, Greece	45 000	500–1900	38	54	98	2	n/a
	3	Eastern Pyrenees and Massif Central	France	250 000	300–2800	n/a	n/a	n/a	n/a	n/a
	4	Abruzzo	Italy	190 000	500–3000	n/a	n/a	n/a	n/a	n/a
	5	Basilicata	Italy	201 000	800–2000	n/a	n/a	88	n/a	n/a
	6	Penibetica, Andalousie	Spain	70 000	600–1600	55	7	62	n/a	n/a
	7	Terra Quente, Transmontana	Portugal	340 000	200–1200	39	52	91	9	n/a
Nordic	8	Vindeln	Sweden	265 000	100–500	n/a	n/a	1	78	6
	9	North Savo	Finland	1 999 000	100–200	4	4	8	71	16
Eastern Alps	10	Tyrol Oberland	Austria	335 000	700–3700	1	25	26	52	19
	11	Triglav	Slovenia	84 000	200–2800	n/a	n/a	12	n/a	n/a
	12	Val di Cembra, Trentino	Italy	15 000	200–2500	28	11	39	48	18
	13	Canton D'Appenzell	Switzerland	24 000	500–2500	2	57	59	33	n/a
	14	Oberallgau	Germany	153 000	900–2700	1	46	47	n/a	n/a
Western Alps	15	Beaufort, Savoie	France	389 000	400–3900	n/a	n/a	33	15	51
	16	Vallee d'Aoste	Italy	326 000	300–4700	n/a	n/a	30	24	40
	17	Canton du Valais	Switzerland	522 000	400–4600	6	16	22	22	54
	18	Vercours	France	177 000	200–2300	6	12	18	50	5
	19	Haut-Jura	France	430 000	600–1500	n/a	n/a	n/a	40	n/a
Oceanic	20	Picos de Europa	Spain	180 000	100–2600	n/a	n/a	26	33	15
	21	Pays Basque	France	248 000	100–2000	n/a	n/a	72	n/a	n/a
	22	Pays Basque	Spain	166 000	0–1500	n/a	n/a	30	54	2
Central Pyrenees	23	Haut-Couserans	France	120 000	500–2900	n/a	n/a	n/a	n/a	n/a
	24	Haut-Sobrarbe	Spain	112 000	800–3400	n/a	n/a	n/a	39	n/a

[a]UAA=Utilised Agricultural Area.
n/a, not available.

in mountain areas and will determine the vulnerability and response to external pressures. Table 2 gives some characteristics of the agriculture and economy of the study zones. There is a strong predominance of livestock farming with a tendency for dairy cattle farming in the Alpine and Nordic areas, while the Dry Mediterranean areas have higher concentrations of sheep and goat farming, and permanent crops in the form of vines, almonds and olives. Dairy sheep farming is also common in the Oceanic areas. With the exception of part of zones 2 and 3, which have distinct subzones, farm size is very small. The pattern revealed is one of small-scale farming, often of an extensive nature. The proportion of farmers in the working population varies widely with the Mediterranean and Oceanic regions retaining high levels of agricultural employment compared to Alpine and Nordic regions which have more diverse economies. Common to all areas was the tendency for the farming workforce to be elderly and often without successors although precise statistics were not available in all zones. This implies major structural change in those areas dependent on farming as current farmers retire. The population trend is variable with half of zones experiencing increasing population. However, averages mask depopulation within more rural, isolated parts of some regions while other zones have low population density combined with a declining population.

Abandonment

The socio-economic characteristics of the study zones reveal them to be potentially vulnerable to abandonment either through their high dependence on agricultural employment, or small size of their operations, which may reduce viability and the capacity for adaptation. Indeed, at the regional level of analysis, 21 out of 24 areas cited abandonment of farmland, at a variety of scales and degrees of severity, as one of the main pressures on the environment. Agricultural adjustment may reduce the risk of land abandonment by maintaining the viability of the farm enterprise. Adjustment possibilities include adjustment of farming practices through technical or structural change, on-farm diversification, increased product value-added, or engagement with local and regional labour markets through pluriactivity (Dax *et al.*, 1995). To this list may be added alternative land uses including, most recently, the options for agri-environmental activities in the EU under Regulation EEC 2078/92 (CEC, 1992) or equivalent measures in non-EU countries. Agri-environmental measures were applied in 17 of the study zones.

Adjustment is context-dependent because it reflects the opportunities available. Locational factors have been found to be important to the development of on-farm non-agricultural diversification but less relevant for off-farm activities at a sub-regional scale (Edmond *et al.*, 1993). Other determining factors in the development of pluriactivity have been found to relate to farm structures and adjustment patterns, characteristics of the farm households, farm succession and the nature of potential labour markets (CEC, 1993). Certainly the incidence of pluriactivity differed between study zones. Some areas with high population densities, indicating the existence of large towns and settlements, and the likelihood of good transport links in the close proximity to farming areas, are found in Appenzell (zone 13) and Pays Basque France (zone 21). However, these areas demonstrated relatively low levels of pluriactivity: 35% and 17%, respectively (Table 2). In contrast, regions of extreme isolation, low current level of inhabitants and decreasing demographic trend such as the mainland Vardousia (zone 1) and Vindeln (zone 8) were found to have high levels of pluriactivity (e.g. 60% Vardousia). The variation found between the study zones highlights the multi-dimensional aspect of pluriactivity determinants.

Continued, or better, integration of farm households into the rural economy may successfully raise incomes and thus support an agricultural presence. However, where redirection of employment is not in the farm vicinity, not seasonally complementary to farm activities, or yields greater unit income, there may be an increased tendency for areas of the farm to become abandoned or intensified in order to accommodate changing demands on labour resources. Thus, whilst abandonment in its extreme form is associated with an inability to adapt farming and land management to social and economic pressures,

Table 2. Agricultural and demographic characteristics of study zones

Climate type	Zone	Predominant farming type	Average Farm size (ha)[a]	Farmers in working population (%)[a]	Population in employment (%)[a]	Population density (inhabitants/km²)	Direction of population change[a]	% of farmers who are pluriactive[a]
Dry	1	Sheep and goat farming/arable	Very small	50	35	8	Decreasing	60
Mediterranean	2	Vines, olives/sheep and goat farming	2–10 10–100[b]	60	60	59	Stable	20
	3	Dairy sheep and goats/vines/fruit trees	8–60 150–500[b]	21	39	13	Increasing	28
	4	Sheep farming/fodder crops	3–21	23	51	30	Decreasing	Widespread
	5	Arable/dairy sheep farming	Very small	13	51	54	Stable	Low
	6	Olives/irrigated horticulture/goat farming	9	47	40	65	Decreasing	n/a
	7	Olives, vines, almonds/sheep farming	5–12	42	33	27	Decreasing	36
Nordic	8	Dairy farming/cereals	21	6	78	2	Decreasing	Common
	9	Dairy farming/beef farming	25	13	34	14	Increasing	n/a
Eastern Alps	10	Sheep farming/dairy farming	10–30	4	66	26	Increasing	85
	11	Cattle and sheep farming	15	23	44	22	Decreasing	80
	12	Horticulture/vines	Small	13	78	69	Decreasing	60
	13	Dairy and beef farming	12	9	49	224	Increasing	35
	14	Dairy farming	16	10	40	94	Increasing	33
Western Alps	15	Dairy farming	22	3	46	22	Increasing	55
	16	Dairy farming/quality vines	10	7	46	36	Increasing	70
	17	Horticulture/dairy farming	5	4	49	52	Increasing	83
	18	Dairy and beef farming	25	12	45	17	Increasing	62
	19	Dairy farming	n/a	6	54	35	Increasing	30
Oceanic	20	Sheep and cattle farming	2–30	40	45	10	Decreasing	n/a
	21	Dairy sheep farming/beef farming	n/a	31	n/a	21–199[b]	Stable	17
	22	Dairy/meat sheep and cattle/cereals/forestry	34	32	43	13	Stable	26
Central Pyrenees	23	Beef farming	20	17	37	15	Decreasing	33
	24	Sheep and cattle farming	10–50	17	46	3	Stable	n/a

[a]From national records or census statistics.
[b]Two distinctive sub-zones.
n/a – not available.

there was evidence that forms of abandonment could occur as part of the process of adaptation itself. In zone 7 (Terra Quente) time required for pluriactivity was found to be contributing to farmers abandoning agriculture. In this region redirection of labour to other employment was also causing changes in management practices usually associated with intensification. Misuse of fertilisers, pesticides and herbicides producing environmental impacts, and unsuitable ploughing techniques causing soil erosion, are the result of lack of time and cost-saving efforts rather than adaptation to more intensive production techniques. In the Tyrol (zone 10) time spent off the farm in pluriactivity left less time for traditional labour intensive activities such as hand mowing with a consequent decline in these practices.

Given the range of contexts and forms of potential adjustment, it was not surprising that abandonment itself took diverse forms. Often it was partial as farmers ceased to use land associated with high costs due to remoteness, difficult access, poor quality land, steep slopes or high labour requirements, or where farmers' age and health prohibited use of land further from the farmstead (Vardousia, zone 1). This could occur within a unified landholding or where remote grazing was carried out on rented or community-owned land (prevalent in the Alpine or Pyrenean regions on the higher pastures). Walther (1986) identifies a much greater probability of abandonment of steep land in the Swiss Alps, rather than land near the settlement. This appeared to be a common pattern in other Alpine countries among the case-study zones. This also occurred where land was deserted from arable cultivation, often due to an inability to mechanise and reduce production costs (Basilicata, zone 5, Haut-Couserans, zone 23 and Haut-Sobrarbe, zone 24). Evidence from the study zones of various adaptation trends are summarised in Figures 2 and 3 where it is evident that different patterns of change were found for different types of farming system. In traditional grassland systems adjustment had frequently occurred, not by abandoning land, but by abandoning traditional practices of land management. This might be represented by spatial changes in grazing practices, for example, on alpine pastures where decline in shepherding has led

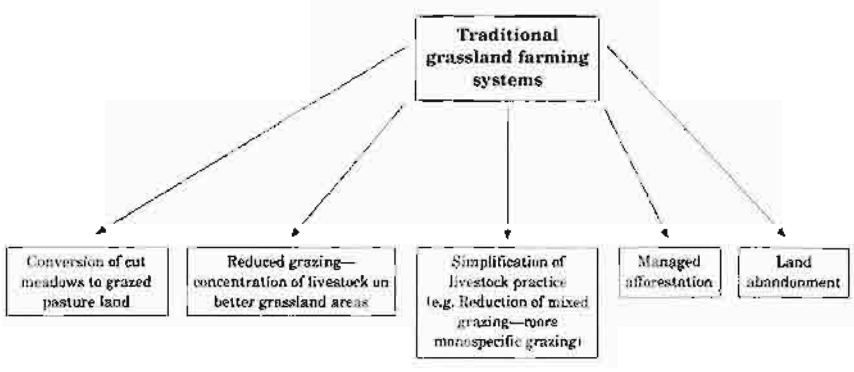

Figure 2. Adaptation in marginal grassland areas.

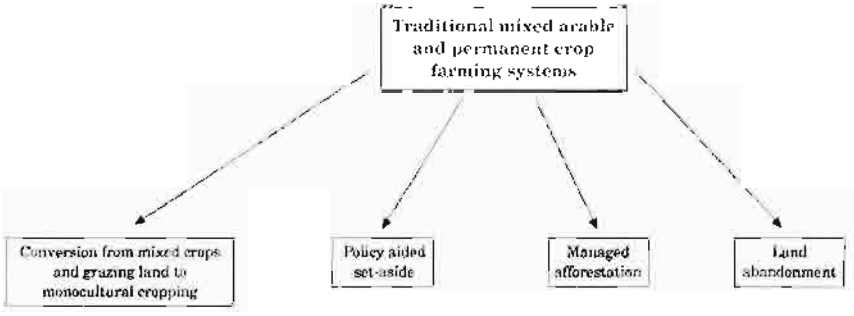

Figure 3. Adaptation in marginal traditional mixed farming.

to localised concentrations of stock around alpine huts, sometimes resulting in overgrazing, or structural changes where meadow management is substituted with permanent pasture. In mixed arable and livestock farming, predominant in the drier Mediterranean areas, changes in management practices generally involved specialization into monocultural cropping. Within both types of farming system there is the potential for loss of environmental quality associated with previous traditional systems. In addition, pressures to maintain farm incomes may result in an intensification of land use associated with abandonment elsewhere on the farm. Intensification tended to be focused on more accessible, higher quality land, typically closer to the farmholding representing a concentration or rationalisation of farming activities at the farm scale. Both the tendency for abandonment and intensification may have associated impacts on the environmental value of farmland and require further analysis of farm level development patterns to obtain more understanding of the interdependency between these polarised management responses (Gibon, 1997; Fillat *et al.*, 1998). A typical adjustment scenario was a mixture of abandonment and intensification on different parts of a holding or on land under different tenure arrangements. Such a strategy is not confined to mountain areas but is widespread, for example, in the dehesas of central Spain (Peco *et al.*, 1998). Adaptation in the form of intensification is agriculturally successful but, where it involves increased inputs or high stocking rates, it clearly has potential for undesirable impacts on the environment.

Table 3 shows the incidence of abandonment as well as the occurrence of agricultural intensification. Twenty-one out of 24 zones are suffering from some form of abandonment. This tends to be either a reduction of traditional farming practices, generally those associated with livestock practices such as transhumance or hay meadow management, or abandonment in its more extreme form—actual land desertion. Two-thirds of

Table 3. Abandonment of land or of traditional farming practices

Climatic type	Zone	Abandonment of traditional practices	Land abandonment	Biodiversity impacts of abandonment	Landscape impacts of abandonment	Soil and natural hazard impacts of abandonment	Intensification
Dry Mediterranean	1		A	Positive	Positive		
	2			*not relevant*	*not relevant*	*not relevant*	I
	3		A		Negative		
	4	A	A	Negative			
	5		A			Negative	B
	6			*not relevant*	*not relevant*	*not relevant*	I
	7		A	Negative		Negative	B
Nordic	8		A	Negative	Negative		
	9	A	A	Negative	Negative		B
Eastern Alps	10	A		Negative			
	11		A		Negative		B
	12		A		Negative		
	13	A	A	Negative			B
	14			*not relevant*	*not relevant*	*not relevant*	I
Western Alps	15	A	A	Negative	Negative		B
	16	A	A		Negative		B
	17		A	Negative	Negative		B
	18		A	Negative	Negative		B
	19	A	A	Negative	Negative		B
Oceanic	20	A	A		Negative		
	21	A	A		Negative		B
	22	A			Negative		B
Central Pyrenees	23	A	A	Negative	Negative		B
	24	A	A	Negative	Negative	Negative	B

A, abandonment; I, intensification; B, intensification in conjunction with abandonment

those regions suffering abandonment also demonstrate the phenomenon of better land in the region, or even at the farm level, being more intensively utilised to the extent of producing adverse environmental impacts. Where intensification occurs in conjunction with abandonment within the region, it is denoted by the letter B. In some cases this intensification was an attempt to improve agricultural conditions or structures through national regrouping of land (Spain, zones 20 and 22) or land improvements (Triglav, zone 11 and Valais, zone 17). In other areas it has been through increased stocking rates, often leading to overgrazing on better land, or replacement of mixed farming with monoculture cropping. In three of the 24 zones (Crete, zone 2, Penibetica, zone 6 and Oberallgau, zone 14) abandonment was not found to be a major feature of structural adaptation, and intensification alone has been found to be exerting environmental pressures. Comparison with other zones did not indicate that these zones had uniquely distinguishing characteristics. However, they were characterised by reasonably profitable land use, strong support from Regulations EEC 2078/92 and EEC 950/97, and intensification of production—all of which indicate an element of dynamism.

Environmental consequences of farmland abandonment

The European Commission (CEC, 1997a) groups environmental problems and impacts from agriculture into the following categories: landscape, air pollution and climate change, soil degradation, water pollution and hydrological changes, and effects on biodiversity. The interviews with key actors in the study zones coupled with evidence from policy intervention (e.g. under the Habitats and Birds Directives of the EU) indicated that the environmental impacts of the abandonment of agriculture related mainly to three of these categories. These are impacts on biodiversity (including habitats), landscape and soils. Included in the last category were natural hazards such as the risk of soil erosion and landslides. Risk of wild fires was also a potential natural hazard but these were specific to certain Mediterranean zones.

Beaufoy *et al.* (1994) and Baldock *et al.* (1996) outline a general model of the abandonment process in which a series of changes take place that may involve elements of simplification or modification of traditional practices, afforestation of previous agricultural land or physical abandonment of land. However, our case studies demonstrated that the sequential nature and direction, or scale, of these changes is highly variable and unpredictable due to local circumstances and influences. In the mountain zones where abandonment was taking place, the environmental processes usually involved encroachment of vegetation onto old field sites, loss of grassland areas to scrub and forest, and loss of woodland clearings. These effects were caused by the disuse of land for grazing or for small-scale arable cultivation, the latter generally being on very small farm plots. In some cases, extensification of grazing to a stocking rate inadequate for arresting successional processes was the source of the problem rather than actual desertion. The cessation of traditional meadow mowing practices in the alpine regions was found, in some instances, to be followed by reversion to natural scrub or woodland, or intentional conversion to pasture grass with a consequent loss of meadow flora and fauna. The latter modification is found to produce irreversible changes as steep slopes develop ridges associated with stock paths which make future mowing impossible. The additional consequence of these changes was loss of open space, either in terms of lost agricultural ground, or more usually, as a loss of landscape heterogeneity and mosaic features, which in many cases, represented a loss of cultural landscape.

Biodiversity

Biodiversity refers to the biological variability either at the level of species richness, ecosystem diversity and/or complexity, or genetic variation, and similarly may be assessed at these various levels. Measurement at the ecosystem, habitat or community level is probably the most suitable scale for determining the impacts of agricultural changes. These methods can be relatively rapidly applied and are reasonably well developed (e.g. European Corine habitat classification system) although further work

is needed to investigate the relationships between ecosystem functioning and species diversity (EWGRB, 1997). The identification of habitats, valuable in terms of species richness or rarity, and Red Data Book species within the study zones was thought to be an appropriate method of description compatible with nature conservation objectives. In the light of current concern over global rates of species extinction and the irreversibility of biodiversity loss, further losses of biodiversity, at whatever level, would appear undesirable. A high proportion of the study zones (18 out of 24) contained areas proposed for designation under the Habitats and Species Directive 92/43/EEC, many of which support Red Data Book species. Many of these have been found to relate to farmed environments (Bennett, 1997).

Indicating and interpreting changes in biodiversity is problematic because neither the processes involved nor the evaluation of impacts on environmental values are well understood. Temporal and spatial scales play a part in the environmental impacts of the abandonment process. Preliminary 'models' from Cernusca *et al.* (1996) of the effects on biodiversity in the Alps indicate that there is probably temporal variability in the direction of impact where regeneration of natural vegetation follows the abandonment of meadows and fields. In the early stages of abandonment biodiversity is likely to decrease as aggressive pioneer or dominant species invade or predominate grassland. In the medium term as scrub cover develops the spatial degree of biodiversity may increase but then tends to decline as the woodland canopy closes. This process reveals a dynamic pattern of impacts on biological diversity that is not yet fully understood. Indeed, Peco *et al.* (1998) consider that adequate models of biodiversity and landscape change do not exist. Abandonment also affects the remaining agriculture in that as one plot is abandoned this may make adjacent plots harder to manage through invasion of pests and weeds from the abandoned areas, or encroachment of scrub and shading from forest regeneration. However, there may also be positive effects of these adjacent abandoned areas as refuges for species which contribute to pest control (CEC, 1980).

Table 3 shows that negative biodiversity impacts were thought to be occurring in all but nine of the zones affected by abandonment. In only one region were the biodiversity impacts of abandonment seen as an improvement. The study in Vardousia (zone 1) found that the increase in forest cover had a positive impact by increasing forest species, especially enriching habitats for those species that serve hunting interests. In general species-rich unimproved grasslands and traditionally mown hay meadows are in rapid decline across Europe. This is associated with a reduction in grass cutting in favour of grazing or complete abandonment, but also from agricultural improvement of grassland and conversion of grassland to arable (Beaufoy *et al.*, 1994). In mountain areas with existing high forest cover, abandonment which leads to increased woodland may not be desirable in terms of retaining a variety of habitats. This is particularly the case in the mid-altitude areas (mayen) of the alpine regions where regrowth of forest clearings, used in the past *en route* to the mountain pastures, does not favour certain species which are dependent on the combination of habitats currently provided, for example in Vallee d'Aoste (zone 16). Reduction of time spent driving flocks to the higher pastures due to the use of motorised transport for farmers is leading to disuse of these traditional transitional areas. Where species-rich mountain meadows or pastures are replaced with scrub or trees, this may represent a decrease in biodiversity. Haut-Jura (zone 19) contains distinctive woodland meadows that are valuable to black grouse (*Lyrurus tetrix*) and hazel grouse (*Bonasa bonasia*), as well as grazed calcareous grasslands and dry and wet meadows with rich biodiversity. These are currently threatened by regeneration of scrub and undergrowth in the most remote locations, but also by intensification where they occur near farmsteads.

In regions of extensive forest cover relative to agricultural open ground, such as the Scandinavian zones, both abandonment of traditional arable farming in favour of more intensive methods, and land abandonment itself have both resulted in biodiversity losses due to disappearance of habitats. In North Savo (zone 9) there has been a decline in the grey partridge (*Perdix perdix*) and the corncrake (*Crex crex*), as well as several species of butterflies and threatened vascular plants associated with agriculture. The reduction of labour intensive traditional

practices is as valid a threat to biodiversity as physical land abandonment. In the Tyrol (zone 10), there are areas of distinctive and traditional agroforestry where grass is hand-mown under the canopy of mature forests. Although this practice has been supported by local, ecological programmes for the last 20 years, interest and commitment of farmers has recently diminished and these practices are now threatened with abandonment. Conversely, in other areas when more intensively managed land areas such as improved grassland are deserted there may be an increase in species as other colonizers move in (Baldock *et al.*, 1996). In the Picos de Europa (zone 20), red partridge (*Alectoris rufa*) and grey partridge (*Perdix perdix*) have lost much of their necessary habitat through loss of hedges, copses and field margins as a result of regrouping of land which was part of an attempt to rationalise small-scale farming in Spain in 1986. It is possible that abandonment of land parcels in this context might reintroduce habitat diversity.

Landscape

Biogeographical characteristics of mountain areas in combination with small-scale and non-intensive agriculture have also lead to landscapes of wide diversity. This has often produced mosaics of landscape features reflecting traditional mixed farming management. Landscape preservation of areas such as these may be increasingly important as landscape becomes more uniform as a result of the globalisation of economic influences and social trends which are bringing European cultural and traditional landscapes under threat (Meeus *et al.*, 1990). A criterion on which to evaluate landscape change might be the increase in homogeneity or heterogeneity at various spatial scales (Di Pietro and Balent, 1997). In either case, agricultural abandonment may lead to a change in either direction, depending on the landscape context in which the changes occur. In Vindeln (zone 8), there has been a reduction of arable land of 46% since 1951. Former fields have been transformed into forest land. In an already highly forested area (78%) this represents increasing rarity of open space. This was perceived as symptomatic of increasing rural decline in the area and thought to have a depressing effect on the remaining inhabitants. These perceptions can contribute to decline and out-migration of these areas. This type of self-perpetuating cycle was also found to be the case in Lozère, France (Giuheneuf *et al.*, 1996) and Canada (Smith *et al.*, 1991).

Many landscapes developed over long time spans are threatened by abandonment. In the Finnish zone, national heritage landscapes created by traditional slash and burn cultivation carried out in previous centuries are suffering from decline which may worsen in the next decade as further structural change occurs driven by the fall in net agricultural income of 14% in Finland since EU accession. Equally traditional, although of a different type, highly distinctive landscapes have developed in Alpine and Pyrenean regions through centuries of agricultural land use. The areas of most obvious landscape change due to abandonment, in this setting, have been found to be the middle mountain slopes (Vallee d'Aoste zone 16, Beaufort zone 15, Appenzell zone 13, Haut-Couserans, zone 23, Haut-Sobrarbe, zone 24). This has resulted, not only in loss of open pastures and clearings as scrub and forest regenerate, but also a loss of characteristic decentralised farm settlements as farms amalgamate or are allowed to run down. In the Pyrénées similar changes may occur as traditional transhumance declines (Pays Basque France, zone 21) and where there is scrub invasion on underused land (Pays Basque Spain, zone 22). In contrast, in the Mediterranean zones tree growth was perceived as a beneficial change, in Vardousia (zone 1) by enhancing landscape, and in Terra Quente (zone 7) to avoid the dangers of soil erosion related to abandonment. Nevertheless, account must be taken of the use of more fire resistant species, management of undergrowth to avoid increasing fire risk and the stages of planting and harvesting which can increase soil erosion if mismanaged. There is, however, a consideration to be applied to all landscape assessment: landscape preferences are strongly affected by cultural and social interpretation of the physical changes (Guillot *et al.*, 1998).

Soils and natural hazards

In the case of natural hazards the same pattern of temporal variability can be seen.

Slope stability is of particular importance in the Alpine regions with landslides and avalanches threatening human settlements, and soil erosion having detrimental effects on localised agricultural land and natural habitats. Neglect of mown or grazed alpine pastures leads to the build-up of biomass of vegetation which in the winter months forms a mulch which greatly increases the risk of snow-slides, avalanches and associated landslips (Cernusca *et al.*, 1996). In the short-term, abandonment thus poses an increased risk of natural hazard yet over longer periods, as scrub and trees encroach, this risk lessens considerably and areas may well have greater slope stability than under previous agricultural usage. Fire hazard in the drier Mediterranean regions, likewise, may increase initially as coarse and dry grasses follow the abandonment of arable or pasture areas (Gonzalez Bernaldez, 1991). As tree cover follows and influences ground vegetation, the risk of fire may decrease although this process may involve time periods in the order of 50 years or more. Not only does fire pose a threat to natural and agricultural flora and fauna but interacts with erosion processes in dry climatic zones. When fire interrupts the successional process then a protective scrub cover isn't formed and sheet wash erosion may result in loss of productive top soil (Garcia-Ruiz *et al.*, 1991). This pattern of soil and vegetation deterioration can ultimately lead to irreversible desertification in arid zones such as dry Mediterranean areas. The increased risk of natural hazards as a result of abandonment of agricultural practices or of land desertion emphasises that active management of abandonment may be beneficial in maintaining or reinstating environmental stability (Fernandez Ales, 1991).

Mismanagement of the soil can also result in significantly increased rates of soil erosion and in arid climates may lead to desertification, a process whereby soil becomes irreversibly degraded with permanent loss of vegetation and productivity. Protection of soil from erosion, and in some cases desertification, is a serious concern in dry Mediterranean areas where soils are thin and fragile and where vegetal cover tends to be sparse. Abandonment may increase the likelihood of soil loss when terraces are unmaintained (Trentino, zone 12). In some of the dry Mediterranean study zones (Terra Quente, zone 7, Basilicata, zone 5) the impacts of abandonment were strongly accelerating erosion of the soil. The Portuguese zone is nationally classified as a high-risk desertification area, and therefore is particularly vulnerable to the effects of soil loss. In all climates the retention of vegetative cover on the soil is an important factor for maintaining soil stability, although in arid zones this is complicated with the increased fire risk associated with growth of coarse and dry grasses following abandonment.

Contextual interpretation of abandonment

Whilst increased risk of natural hazards is unequivocally undesirable as a consequence of abandonment, both because of its impact on natural resources and the risk to inhabitants, the interpretation of biodiversity and landscape changes is less self-evident. The context in which land-use change occurs will be relevant; hence the existing range and density of species or landscape features will, in part, determine the interpretation of change. Abandonment may increase local landscape homogeneity but add to heterogeneity at a regional level, thus increasing the landscape grain size within a region, as productive and non-productive areas become more differentiated (Baudry and Bunce, 1991). Likewise, temporal and spatial factors play a part in the successional process. At a field level, biodiversity may decline in the short-term as aggressive species colonize but may increase over longer time periods as ecological complexity increases (Baudry and Bunce, 1991).

The process of adaptation to socio-economic pressures was, in the majority of cases, predominantly that of an abandonment/intensification phenomenon, with abandonment or intensification alone being features of a minority of the zones. At a regional level, the impacts appear to be similar in that the direction of change is perceived as environmentally negative, with the exception of Vardousia (zone 1). The western Alps and Nordic zones show a consistency of biodiversity and landscape impacts whereas other areas demonstrate a more variable pattern. It is of interest to see whether contextual factors, such as the existing land cover, can

explain these differences. Table 1 gives the percentages of different land-cover types in each zone. Although data are incomplete, they provide an interesting regional context in which to assess the effects of abandonment and go some way to explaining differences between study zones. Comparing Tables 1 and 3 reveals that all but one of those zones citing negative landscape impacts have an UAA of less than 40%, usually with an associated high percentage of forest cover. In mountain regions, especially the Alps, much of the land is rock or other completely unproductive land leaving an even lower proportion of the land area available for agriculture. Low UAA figures correspond to those zones which cite negative landscape impacts resulting from land abandonment. The Tyrol (zone 10), where abandonment relates to the cessation of traditional practices rather than extensive physical land abandonment, does not demonstrate negative landscape impacts. It is interesting that in other abandoned zones with a high UAA (Basilicata, zone 5, and Terra Quente, zone 7) there has been no identification of negative landscape impacts. In these cases an increase in woodland could be environmentally enhancing by increasing the variety of habitat and adding to landscape heterogeneity. Thus, at a regional level, similar effects of the abandonment process may depend on contextual factors such as existing land cover patterns as to whether they are interpreted as undesirable or not in terms of these defined parameters. Farina (1991) suggests the landscape meso-scale (farmland communities) is the appropriate one on which to manage and maintain landscape mosaic due to the different historical utilisation of land and of the differences in the process of biophysical change following abandonment.

Regulation EEC 2078/92 and equivalent policy measures

Mountain areas in the EU receive support for agriculture and rural development from a range of policy measures. Whilst they undoubtedly have an important influence on the extent and location of land abandonment, a full examination of their influence is beyond the scope of this article. We concentrate on the main EU policy measure for modifying the environmental impacts of farming (Regulation 2078/92). This is applied at a national or regional level in most countries although the extent and remit varies considerably. Although it has a broad scope for environmental protection and enhancement, it can be applied specifically to problems of abandonment through elements of the aid scheme such as: use of farming practices compatible with environmental protection, maintenance of landscape, rearing endangered animals (Article 2.1.d), up-keep of abandoned land (Article 2.1.e), 20 year set-aside (Article 2.1.f), organic farming (Article 2.1.a) and training and demonstration for farmers (Article 2.2.).

Despite only recent implementation in most countries, it is possible to make some preliminary assessment of the impact of 2078/92 in ameliorating the environmental consequences of land abandonment and the loss of traditional farming practices. Information on the application and effectiveness of the policy are analysed and summarised in Table 4. Agri-environment policy has been applied in quite different ways by different Member States (Whitby, 1996) and it was therefore thought to be appropriate to classify zones by country, rather than climatic zone, in this analysis. The most relevant national programmes are identified for each zone affected by abandonment where 2078/92 has been applied. The effectiveness of these programmes is assessed through factors that create obstacles or incentives to uptake, and the programmes' relevance to environmental consequences of abandonment. The factors that exert a negative influence on uptake of the measure, or on the environmental parameters, are marked by bold, italic type and blank sections denote unavailable information.

Uptake of programmes also varies considerably across the zones. Some payment schemes exhibited a high degree of adaptation to regional and local environmental priorities, such as the maintenance of mown meadows and support for other traditional practices. Effectiveness in abating the identified impacts of abandonment tends to be positive, although this relates rather more to the potential of policy programmes, as there were few cases where hard evidence of conservation benefits of the policy could be provided.

Table 4. Application and efficiency of regulation 2078/92 in zones affected by abandonment

Country	Zone suffering abandonment	2078/92 Applied	Main types of programme relevant	Obstacles (bold type)/ incentives to uptake of specific programmes	General obstacles (bold type)/incentives to uptake of 2078	Effectiveness in regard to abandonment issues (biodiversity, landscape and soil erosion)
FRANCE	3 21 23	Yes	Grassland premium (prime a l'herbe)	• Solved problems of collective land • Requirements easily met • ***Payment too low*** • ***Indirect encouragement to increase farm size***	• ***Complicated administration of projects***	• Helps maintain open landscape through farm support
	15 18	Yes	Clearance of overgrown land and maintenance of pasture	• ***Payments too low to fully cover costs and effort*** • ***Lack of available labour*** • Highly targeted to declining areas	• ***Lack of precise ecological management knowledge***	• Limited help in maintaining open landscape
	19		Late meadow mowing and pasture maintenance	• Payments for these programmes are complementary with each other	• Improves environmental awareness of farmers	• Helps maintain meadow and grassland biodiversity
			Grassland premium (prime a l'herbe)	• Requirements easily met		• Helps maintain open landscape through farm support
ITALY	5	Yes	20 year set-aside for cereals	• ***Rigorous requirements hard to meet***	• ***Maladministration-long time lag in receiving funding***	• ***Increases erosion as soil is left bare***
	16	Yes	'Alpiculture' Support for traditional alpine pasturing	• Requirements easily met		• Funding of traditional practices helps maintain alpine pastures
			Grassland premium with manure management	• High levels of payments		• Helps maintain slope pastures
			Traditional arboriculture			

(Continued overleaf)

Table 4. *(Continued)*

Country	Zone suffering abandonment	2078/92 Applied	Main types of programme relevant	Obstacles (bold type)/ incentives to uptake of specific programmes	General obstacles (bold type)/incentives to uptake of 2078	Effectiveness in regard to abandonment issues (biodiversity, landscape and soil erosion)
SPAIN	20	Yes	Organic agriculture	• ***Capital investment needed to fence areas*** • ***Fragmented farm plots*** • Requirements easily met		• Helps maintains traditional agricultural practices, conserving biodiversity and landscape
			Clearance of over-grown land			• Helps maintain open landscape
			Set side	• ***Inappropriate to zone with few intensification problems***		
	22	Yes	Conservation of endangered breeds		• ***Lack of diffusion of 2078***	• Helps maintain traditional livestock species which are beneficial to the zone
			Conservation of mountain pastures		• ***Lack of interest by farmers***	• Helps to maintain open landscape and traditional pastures
SWITZERLAND	13 17	Similar measures	Environmentally sensitive integrated production		• High support payments	• Extensification aspect requires more land and may help reuse abandoned areas
			Organic agriculture	• ***The whole farm needs to be in scheme***	• ***Inappropriate to zone with specialised cultivation***	• Improves biodiversity
			Free range cattle			• Extensification aspect requires more land and may help reuse abandoned areas
PORTUGAL	7	Yes	Traditional olive growing	• Complementarity with CAP payments		
			Traditional almond growing	• ***Payments too low to compensate for loss of CAP support***		
			Organic agriculture	• Requirements easily met		

Table 4. (*Continued*)

SWEDEN	8	Yes	Preservation of open arable landscape		• High levels of payment	• Helps maintain open landscape
			Preservation of species-rich hay meadows and pastures		• ***Complicated and overlapping administration***	
			Organic agriculture		• ***Contradictory support with CAP***	• Maintains open landscape due to more land used
FINLAND	9	Yes	General environmental protection and enhancement programme	• High levels of payments • Replaces previous support		• Maintains open landscape by income support
			Organic agriculture			
AUSTRIA	10	Yes	OPUL – Traditional hay mowing	• ***Premium may be too low to compensate for effort involved***	• High general levels of payment • Replaces previous support	• Helps maintain meadow species
			Organic agriculture	• ***Some capital investment needed*** • ***Insufficient organic markets*** • Requirements easily met		• Helps maintains traditional agricultural practices, conserving biodiversity and landscape
SLOVENIA	11	Similar measures	Manual mowing of mountain meadows			• Helps maintain open landscape and meadow species

Bold, italic type indicates obstackes to programme update

When uptake is low or minimal, the environmental benefits are likely to be small in terms of areal impact, even if the measure is effective in meeting objectives. Where uptake is at higher levels, the environmental gains will depend on the objectives of the specific measure and its ability to deliver these. Where the measure is broad-based or horizontally applied, such as the grassland premium in France, General Agricultural Environment Protection Scheme, Finland and OPUL programme, Austria, the aid is relatively untargeted and may not provide great direct environmental benefits. Its principal impact is as income support which may have indirect benefits through the maintenance of a farmed landscape. In other cases, where payments are more specifically directed and have more demanding requirements, for example organic cultivation or support for traditional alpine pastoral practices, greater environmental protection or enhancement can be expected. However, in many of the zones (zones 7, 10, 16 and 20) the current farming practices are so similar to those required by the programmes, that these farming systems appear to be well suited to meeting the environmental objectives of 2078/92 programmes at the same time as allowing the possibility of enhancing farm income. Although this may not bring any net environmental gains, it is a means of maintaining the current environmental assets produced by low intensity farming while lessening the likelihood of farm adaptation and the possibility of further intensification.

In some instances policy has been well conceived. Traditional olive growing in zone 7, Terra Quente has had high uptake due to the complementarity of the measure with mainstream CAP support and has helped avert either abandonment or intensification of these practices. Likewise, zone 19, Haut-Jura, France has well-integrated programmes that allow some degree of accumulation of payments, allowing an increase of farm income, thus encouraging continued farming in the zone. Despite these positive elements there remain severe obstacles to successful implementation of 2078/92. The shortage of labour in many mountain zones is often an obstacle to policy implementation particularly for those practices or requirements that are particularly labour intensive such as scrub clearance. This cannot be dealt with by agri-environmental policy alone, but requires integration with other sectors. Elsewhere, (for example, Picos de Europa, zone 20), there was a failure to account for capital investment requirements in the form of fencing in order to meet the requirements of programmes such as organic livestock rearing. In many cases payments for agri-environment practices, although raising some interest, were generally found to be unattractive to farmers because of the high opportunity cost incurred in the loss of other CAP payments. The lack of well-defined environmental objectives, and lack of awareness by farmers of those objectives, did not encourage a positive response to policy uptake. It has been established that, where farmers are facing exposure to environmental policies for the first time, their understanding and sympathy for the environmental objectives of policy may be very limited (Beopoulos and Louloudis, 1997).

Discussion

Abandonment of agricultural land and of traditional framing practices is continuing to occur in the mountain areas of Europe. While the socio-economic driving forces are ubiquitous, the environmental impacts are spatially diverse. This diversity reflects not only variation in the type of abandonment and whether it is associated with intensification, but also variation between regions in the characteristics of the environment and its sensitivity to changes in land use. In many cases there is clear evidence of negative effects of abandonment across the spectrum of impacts investigated. However, environmental indicators are not well developed for biodiversity and landscape change, nor are interpretations of change always unambiguously positive or negative. Impacts on biodiversity and landscape are especially difficult to interpret and effects may be compounded by the choice of measurement. For example, if diversity is taken as a single criterion, measured for example by a Shannon index (Pielou, 1977), then abandonment may initially increase habitat and landscape diversity as abundance of components increases, but progressive abandonment would ultimately reduce diversity as certain elements dominate the habitat or landscape. However,

use of a natural capital measure for valuing environmental assets could lead to the conclusion that abandonment of any high nature value farming land would result in a depreciation of the capital stock.

In responding to land abandonment two different roles for policy can be proposed. The first concentrates on the prevention of abandonment. Sectoral and structural measures reduce the underlying pressures that lead to abandonment although it is well established that they can also encourage less labour intensive farming and the uptake of technology, both of which may lead to some change in land management. In contrast to current targeting criteria for structural measures, which relate to socioeconomic disadvantage, adopting a firmer environmental perspective would call for the spatial targeting to incorporate the environmental impacts. Here the concept of environment would include the cultural and heritage capital at risk. This would develop the case made by Baldock (1998) for protecting high nature value farming, by extending the concept of environment to include not only all ecosystem services but the services provided by cultural and heritage capital.

However, structural policy at regional level is a blunt instrument for addressing environmental issues. Agricultural policy, intrinsically linked to land management, may offer a more appropriate framework as well as allowing for the necessary farm-level measures required for the reduction of abandonment. However, it was clear from the study that different CAP measures often transmitted conflicting signals to farmers—some stimulating agricultural change and the adoption of technology whilst others were directed at protecting the environment from change. Some scepticism has been expressed about the possible environmental benefits of 2078/92 due to this lack of integration with other CAP measures (Brouwer and van Berkum, 1996) and the small proportion of the European agricultural budget that this measure receives in comparison to other agricultural policy measures (Bauer, 1997). The continuing degradation of environmental capital in many of the study zones indicates that current policy measures are not entirely successful in ameliorating damage. In some areas agri-environmental measures have not been applied or give limited additionality. Nevertheless, the present study found that many of the 2078/92 programme elements were relevant to the issue of abandonment and should produce environmental benefits if various obstacles to low uptake can be resolved. The new Rural Development Regulation (1257/1999, CEC, 1999) provides a framework for action in less-favoured areas (including mountain areas). Compensation may be paid to ensure continued agricultural land use, thereby contributing to the maintenance of viable rural communities; to maintain the countryside and to maintain sustainable farming. There are also measures to support forestry and specifically sustainable forest management, the maintenance of forest resources and the extension of woodlands. The regulation provides an opportunity to address many of the abandonment issues raised in this paper. However, with Member states contributing 50% of the finance, prioritisation will be essential. There will also be a need for careful local and regional application and adaptation of measures. The climatic and contextual diversity of areas shown to be experiencing abandonment is such that strategies effective in one area may not necessarily produce environmental benefits in another.

A second and complementary approach to abandonment would concentrate, not on measures to prevent abandonment, but on measures to manage abandoned land. Given that land will continue to be abandoned, resulting in loss of environmental capital which in some cases may represent irreversible changes, management of such land to minimise environmental damage remains an option. This might be in terms of managing successional processes to encourage certain outcomes that contain greater conservation value than might otherwise be the result, or which lessen the likelihood of an increase in natural hazards. For example, introduction of tree species on abandoned areas in the dry Mediterranean could help prevent erosional problems, and reduce fire hazard associated with scrub stages. However, this type of management needs sensitive application and must include reasonably fine-scale heterogeneity in order to provide conservation benefits (Fernandez Ales, 1991)—a radically different approach from current afforestation programmes. This is relatively new territory. Some measures under 2078/92

(e.g. long-term set-aside) are beginning to address the issue, although experience in the dry Mediterranean mountains (Basilicata, zone 5) shows that these must be carefully targeted and appropriately applied if measures are to provide environmental value. The scale of the problem in relation to currently abandoned land and areas identified as at risk suggests that highly targeted programmes to reduce natural hazards, to protect soil and water resources, and to protect or enhance biodiversity will be required. Management of abandoned land requires incentive structures and this will pose significant challenges for future policy design in order to produce environmental benefits without incurring excessive costs. One clear external benefit is the provision of employment and income to existing farmers in such land management programmes, although the success of this approach would also be influenced by policy in other sectors which affects the wider context of socio-economic and agricultural conditions in mountain areas.

Abandonment of agricultural land and traditional farming practices is evident across a wide range of mountain areas in Europe. Whilst assessment of the environmental consequences is not straightforward due to measurement, interpretative and contextual factors, some loss of environmental and nature conservation value is likely to follow these changes. Management strategies and policies to ameliorate or prevent further decline in environmental value need to be developed and successfully applied to offset the impact of continuing agricultural abandonment.

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Appendix 1

Authors of 24 case-studies

Zone number	Zone name	Authors of case-studies
1	Vardousia	Professor Nikolaos Stamou and Vaios Blioumis, Aristotle University of Thessaloniki, Greece Dimitri Katsaros, Institute of Mountainous Rural Economics, Karpenisi, Greece
2	Juchtas-Stublas Mountains	Professor Nikolaos Stamou, Aristotle University of Thessaloniki, Greece Professor Athanasios Christodoulou, Aristotle University of Thessaloniki, Greece
3	Eastern Pyrennees and Massif Central	Jean-Paul Chessany, INRA ESR Montpellier, France Marc Dimanche, SIME Montpellier, France Bernard Roux, Parc National des Cévennes, INAPG Paris, France
4	Abruzzo	Dr Manuela Cozzi, Associazione Regionale Produttori Ovi-Caprini, Italy
5	Basilicata	Professor Francesco Contò, Centro Istruzione Assistenza Technica Agricola, Italy
6	Penebitica, Andalousie	Dr Ruiz Aviles, Junta de Andalucia, Centro de Investigación y Desarrollo Agriario, Cordoba, Spain
7	Terre Quente, Transmontana	Livia Madureira, Departamento de Economia e Sociologia, Universidade de Trás-os-Montes e Alto Douro, Portugal
8	Vindeln	Ulf Wiberg and Monica Johansson, Department of Social and Economic Geography, Umea University, Umea, Sweden Erik Sondell, Centre for Regional Science, Umea University, Umea, Sweden
9	North Savo	John Sumelius, Stefan Bäckman and Asko Miettinen, Agricultural Economic Research Institute, Department of Economics, University of Helsinki, Finland
10	Tyrol Oberland	Thomas Dax and Georg Wiesinger, Bundesanstalt fur Bergbauernfragen (BABF), Vienna, Austria
11	Triglav	Tomaz Cunder, Kmetijski Institut Slovenije, Ljubljana, Slovenia Marija Markes, Triglave National Park, Bled, Slovenia
12	Val di Cembra, Trentino	Dr G. Nicolini and Elena Piutti, Centro di Ecologia Alpina, Viote del Monte Bondone, Trento, Italy
13	Canton D'Appenzell	Erwin Stucki, Institut d'Economie Rurale de Zurich, Switzerland J. Wyder and P. de Giorgi, Groupement Suisse pour les régions de montagne (SAB), Brugg, Switzerland Gabriela Eschler, ETH-IAW, Zurich, Switzerland
14	Oberallgäu	Michael Köbler, Federal Institute for less-favoured and mountainous areas and Chair of Agricultural Economics, Technical University of Munich, Germany
15	Beaufort, Savoie	Phillipe Fleury and Didier Curtenaz, GIS Alpes du Nord, SUACI Montagne, Chambéry, France
16	Vallee d'Aoste	Claude Duverney, Mr. Bassignana, C. Francesia and C. Jacquemod, Institut Agricole Regional, Aoste, Italy
17	Canton du Valais	Pierre Rognon and Erwin Stucki, Institut d'Economie Rurale de Zurich, Switzerland
18	Vercors	Phillipe Charretton, Cemagref, Grenoble Division, E.P.M., France
19	Haut-Jura	Laurent Barbut, ASCA, Paris, France
20	Picos de Europa	Amaya Arbulu and Marco Saenz de Buruaga, Consultora de Recursos Naturales S.L., Spain
21	Pays Basque France	O. Clément, INRA, Station d'hydrobiologie, St. Pée-sur-Nivelle, France
22	Pays Basque Spain	J. Gutierrez Lazpita and Clara Icaran Souville, IKT, Arkaute, Vitoria-Gasteiz, Spain Eugenio Ruiz Urrestarazu, Universidad del Pais Vasco, Spain
23	Haut-Couserans	Annick Gibon, INRA, Unité de Recherches sur les Systèmes Agraires et le Developpement, Castanet Tolosan, France
24	Haut-Sobrarbe	J.P. Martinez-Rica and F. Fillat, Instituto Pirenaico de Ecologia (C.S.I.C.), Saragosse, Spain

The role of policy in influencing farm household behaviour in european mountain areas

This paper is a result of international empirical work of a group of researchers from different disciplines within the Arkleton Trust project « Rural change in Europe... » within the periods from 1987 to 1991[1]. Contributions were supplied from :

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Thomas Dax (Salzburg and Styria, Austria)
Vera Herrmann (Euskirchen, Germany)
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Persée creative commons

Influence des politiques agricoles sur les comportements des ménages d'agriculteurs[2]

1. Cadre

*Fruit d'une étroite coopération entre les équipes du Groupe « Montagne » de six pays d'Europe de l'ouest, cet article a pour objet de mettre en évidence l'impact des politiques agricoles nationales et européennes sur les ménages d'agriculteurs dans les zones montagneuses d'Europe. Il s'inscrit dans le programme de l'*Arkleton Trust *qui étudie les transformations du monde rural et l'adaptation des agriculteurs à ces transformations.*

2. Difficultés actuelles du secteur agricole

L'agriculture européenne traverse actuellement une période de grands bouleversements structurels. Le déclin du secteur agricole se traduit par une diminution marquée du nombre d'exploitations, du nombre d'emplois de ce secteur (5 %) et de sa contribution au PNB. La stagnation des revenus agricoles et l'attrait d'autres secteurs aux conditions de travail moins exigeantes ont poussé de nombreux agriculteurs à abandonner ce secteur. Ceux qui restent le font par choix et ont du s'adapter aux transformations.

1. Arkleton Research. Agrarian change and farm household pluriactivity in Europe : second research report for the Commission of European Communities on structural change, pluriactivity, and the use made of structures policies by farm households in the European Community. Volume I : European analysis. ATR/90/19. Arkleton Trust (Research), Enstone, Oxford, UK 1990.

2. Traduction et synthèse réalisée par les étudiants en DESS de traduction spécialisée de l'Université Stendhal de Grenoble III, sous la direction d'Elisabeth Lavault.

Les politiques agricoles nationales et européennes ont ajouté à ce contexte défavorable des effets à plus court terme : contrairement à ce qui était attendu, il semble que les disparités au sein même du secteur agricole se soient accentuées selon la taille, la diversification des revenus dans l'exploitation, et la zone d'implantation — favorisée ou défavorisée. De plus, la concurrence au sein du marché communautaire et les disparités dans l'aide financière apportée par les états ont renforcé les inégalités régionales.

3. Evolution et effets des politiques agricoles

Depuis 40 ans, les politiques agricoles étaient axées sur des problèmes spécifiques (amélioration foncière, aide à l'installation), dont le choix dépendait des partis au pouvoir, puis, des orientations de la CE, sans véritable orientation à long terme.
C'est à la fin des années soixante que l'apparition des excédents et le début de la stagnation des revenus agricoles ont conduit à une nouvelle définition de la politique agricole, fondée sur le principe de viabilité, qui privilégiait les exploitations familiales des zones favorisées et à forte production, au détriment des autres. Les fermes jugées non-viables ne bénéficiaient que d'une aide sociale encourageant principalement la reconversion des agriculteurs vers d'autres activités.
Cette politique productiviste, combinée à la politique traditionnelle des prix, a eu pour effet l'augmentation des disparités et des excédents. Dans les années 80, les aides aux agriculteurs ont été réduites, suite à la remise en cause du bien-fondé de l'aide publique dans plusieurs pays. Dans le même temps, une nouvelle conception de l'agriculture est apparue, mettant l'accent sur la sauvegarde de l'espace et l'entretien de l'environnement rural, d'où un regain d'intérêt pour les exploitations pluriactives qui sont maintenant soutenues dans presque tous les pays du moment qu'elles dépassent une certaine taille. Cependant l'augmentation de l'aide à ces exploitations pluriactives dans les zones défavorisées est généralement arrivée trop tard pour compenser l'effet des marchés, ou d'autres effets, comme ceux de la fiscalité, de la loi foncière, des lois sur l'environnement, ou encore de l'offre d'autres emplois plus attrayants sur le marché du travail.

4. Problématique, hypothèses de travail et enquête

Le but de la recherche est d'analyser comment la politique agricole est interprétée et appliquée par les ménages d'agriculteurs en examinant les comportements dans différents types d'exploitations. Trois modèles d'adaptation sont définis : la professionnalisation (apport

accru de ressources à l'exploitation), le maintien de l'exploitation en l'état, le désengagement (retrait des ressources). Le Groupe « Montagne » a choisi d'étudier les ménages correspondant aux 1ère et 3ème catégories, et d'adopter une approche générale fondée sur les « types de comportement », qui vise à analyser les actions du point de vue des acteurs.

L'hypothèse de base est que les comportements sont liés à la perception que les exploitants ont d'eux mêmes et des possibilités qui leur sont offertes. Elle s'appuie sur le concept « d'habitus » créé par P. Bourdieu. Les sept hypothèses qui en découlent se résument ainsi :

Si la politique structurelle est parfois déterminante dans les changements de comportements (exemple des quotas), son interprétation et son utilisation varie selon les exploitations. D'autres facteurs, tels que les ressources propres du ménage ou les objectifs personnels de l'exploitant, semblent avoir plus de poids. Par exemple, le choix pour un ménage de maintenir une petite exploitation en zone de montagne peut s'expliquer par le choix d'une vie proche de la nature.

La politique de modernisation, très appliquée, a surtout contribué à renforcer des décisions déjà prises. Cependant, le manque de souplesse des mesures d'aide à l'investissement a parfois entraîné l'aggravation des difficultés financières des ménages, voire l'abandon de l'exploitation. Les indemnités compensatoires ont des effets qui varient selon leur montant : au mieux, elles permettent la survie d'exploitations jugées non viables, au pire elles découragent les initiatives et la diversification vers des productions ou des techniques nouvelles. Les nouvelles mesures (qui poussent à la diversification et au gel des terres) portent atteinte à la sensibilité des agriculteurs et risquent d'entraîner le départ de ménages traditionnellement attachés à la terre, et l'arrivée de nouveaux exploitants d'origines différentes. Il ne faut pas non plus négliger le retard culturel et le poids de la bureaucratie qui privent parfois l'agriculteur de l'accès aux mesures de soutien.

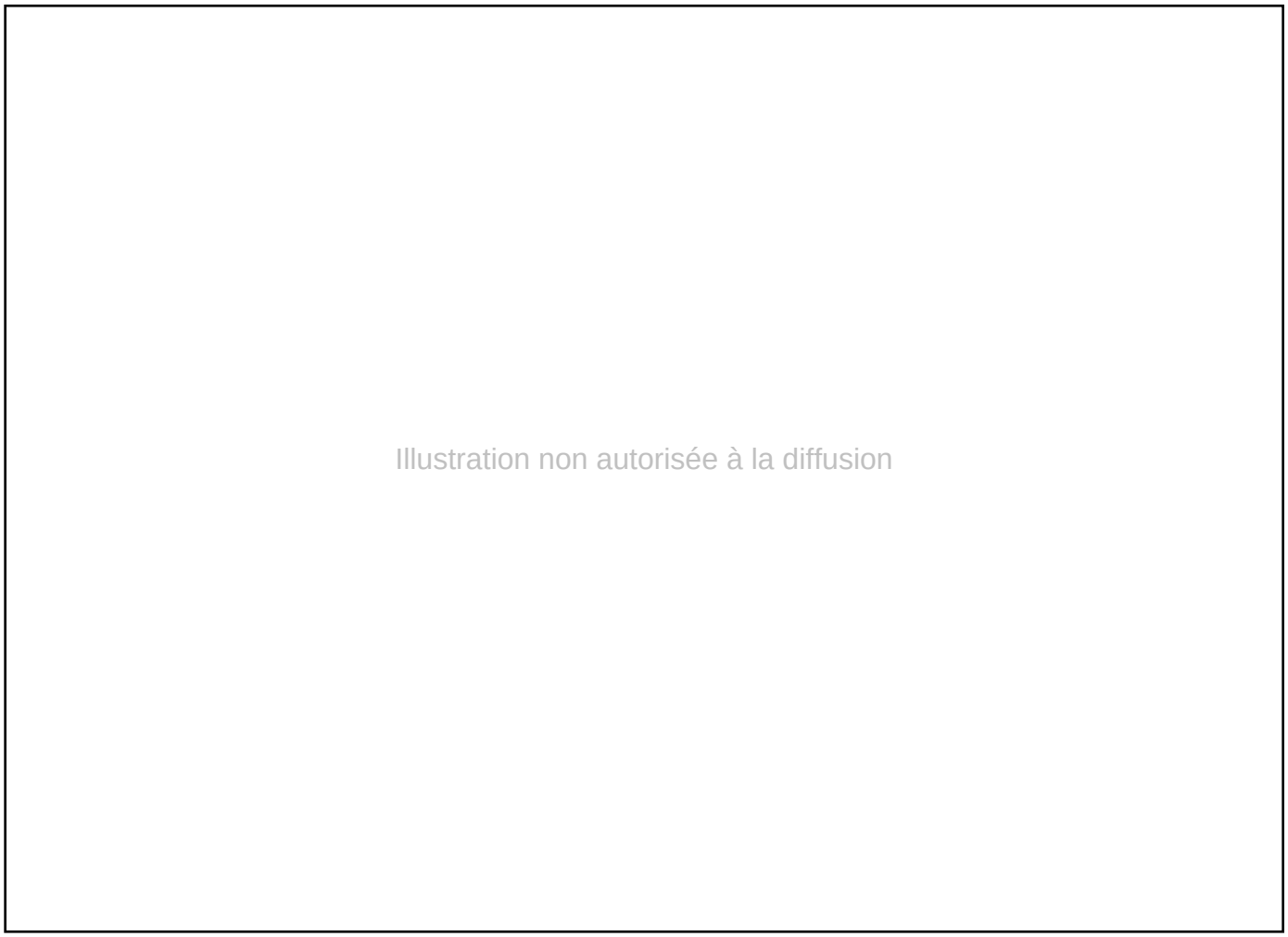
Quatorze études de cas sont présentées, trois exploitations de petite taille, les autres de taille moyenne ou grande. Elles ne constituent pas un échantillon représentatif : l'objectif est de montrer les différences entre les comportements-types et les comportements atypiques dans une même région. L'analyse de ces comportements varie selon les régions, ce qui est typique dans une région pouvant être considéré comme innovant dans une autre. L'accent est mis sur les exploitations qui sont en train de changer leur situation professionnelle, et surtout de la diversifier.

5. Conclusions

L'analyse des cas montre bien que l'effet des politiques agricoles doit être étudié en tenant compte des réactions individuelles de chaque

ménage d'agriculteurs. Celles-ci résultent d'une interaction complexe de différents facteurs subjectifs et objectifs. Sans aller jusqu'à proposer une politique à l'échelle de l'individu, on constate le besoin d'une plus grande souplesse et d'une adaptation aux cas individuels, étant donné les difficultés actuelles, l'échec de la politique productiviste et la multiplicité des options offertes maintenant aux agriculteurs.
En ce qui concerne les comportements, pour ces exploitations qui sont toutes situées en zones de montagne ou en zones défavorisées, il faut souligner l'importance des possibilités de mise en location des terres qui ont facilité l'adaptation, que ce soit le démarrage ou l'abandon d'exploitations. La vente est une autre solution, plus liée au marché foncier qu'à la politique structurelle, et elle profite souvent aux agriculteurs productivistes qui restent.
La diversification des activités agricoles est une autre réponse des exploitations pour remédier aux quotas laitier et à la réduction des cheptels. La fabrication de produits de transformation (fromage d'appellation contrôlée), le développement du tourisme à la ferme, les solutions plus classiques de regroupement en coopérative et de production de qualité attestent de cette diversité, qui s'accompagne de l'orientation de plus en plus marquée des ménages vers la pluriactivité, parfois provisoire, et toujours étroitement liée au marché local de l'emploi. Le travail de l'épouse à l'extérieur de l'exploitation, dû à son désir d'autonomie et d'épanouissement personnel, a fait de l'agriculture une activité de plus en plus individuelle.

Comme prévu, la rigidité des mesures de modernisation les rend de plus en plus dépassées. Il semble nécessaire d'adopter une politique plus souple qui intègre la diversification des activités agricoles et la pluriactivité au sein de l'exploitation pour pouvoir maintenir de jeunes ménages dans les zones de montagnes.
Les paiements compensatoires, déterminants lorsqu'ils sont élevés, sont souvent moins avantageux que les possibilités de pluriactivité. Ils ont souvent un rôle de tampon, mais ils sont insuffisants pour assurer la stabilité et la reprise de l'exploitation par la jeune génération, d'autant plus que leurs contraintes (soutien limité à certains types d'élevage) favorisent les comportements traditionnels.
Enfin, les agriculteurs acceptent mal les nouvelles mesures, comme le gel des terres, qui leur paraît un gaspillage de ressources contraire au bon sens, et atteint leur sensibilité, ce qui est particulièrement grave dans les zones qui ont déjà tendance à se dépeupler. Une solution mieux acceptée est d'allier les compensations à la gestion de l'espace et à l'entretien des paysages.



Carte de localisation des aires étudiées.

Introduction

The aim of this paper is to examine the role of European and national policies in influencing farm households' behaviour in the mountain areas of Europe. In the approach farm households according to their objectives, opportunities and constraints.

In the first part of the paper there is a short description of current policy development and an assessment of its possible influence on structural change. There are also some theoretical remarks about the potential influence of policy on farm households' decision making. At the end of the first part some hypotheses are stated.

The second part of the paper illustrates these issues by presenting some typical cases of reactions and adjustment of farm families in various regions.

After that hypotheses are reviewed again in the light of the cases presented, and of the particular regional context, and some general conclusions are drawn. These conclusions take account of findings from other parts of the Arkleton project.

I. Policy development and policies'influence

1. Sectoral differentiation processes

European farming is currently in the middle of tremendous structural changes. This is happening on two, inter- and intra-sectoral levels. From the inter sectoral point of view, agriculture is becoming increasingly less important. For decades, the number of farms decreased annually by about 2 to 3 % ; at the present time, the decline in the number of farms is speeding up, to perhaps twice as fast. As a consequence of this, the percentage employed in agriculture in Central Europe ranges from 18-2 % , and the share of the contribution to the gross national product from agriculture is in some countries negligible.

Stagnation in farming incomes, disparities in labour returns between agriculture and non-agricultural activities together with expanding non-agricultural labour markets, have encouraged the decision to leave agriculture in the 1980s. Only the lack of off-farm opportunities and the status and the expressive enjoyment of being a farmer run counter to these forces. As a consequence of this, the values and standards of farmers, and their strategies for adapting to structural change, have undergone a transformation.

However, these influences have more of a long-term effect, and are not sufficient to explain the pace of structural change in agriculture which has occured in recent years. But they form a fertile soil for more rapid changes provoked by factors having a short-term effect. Such immediate triggers include, in particular, measures of European and national agricultural policy.

The trend towards a decreasing agricultural sector is accompanied by growing intra-sectoral differentiation processes. Existing structural and developmental inequalities in Europe have not been reduced — as demanded by EC decree. Indeed, it is possible to identify increasing disparities in income and in development opportunities between :

— agricultural holdings of differing size and enterprise mix,
— monoactive and pluriactive farm households,
— locations in favoured and less-favoured areas.

These differences can only partly be attributed to the direct influence of structural policy. The horizontal EC market and price policy has had a far stronger effect on development than the structural policy itself and this has acted to reinforce the wide European differences in regional conditions. In addition, it is evident in all European countries that agricultural policy goes far beyond any mere catalogue of agricultural policy measures. National differences in the level of financial support have probably been a more important factor in maintaining regional disparities than national differences in the structure of support measures.

2. Long-term changes in the range of farm-related measures

The development of intra-sectoral differences in European farming has been closely connected with long-term adjustments in agricultural policy priorities. During the past forty years, emphasis has been placed partly upon specific problems (e.g. land-consolidation, less-favoured areas programme) influenced considerably by national agriculture ministers and their party programmes, together with — from the beginning of the sixties — an increasing link with EC developments. It is difficult to identify any long-term, consistent line of action.

So long as there were no market surpluses and farm incomes rose at the same rate as producer prices, the differences between mono-active and pluri-active farming, or between favoured and less favoured areas were largely irrelevant from the policy makers' point of view. Agrarian policy was limited to (and financially dominated by) market and price policy, backed up by the traditional means of structural support, such as settlement and land consolidation.

A clearer differentiation in structural policy did not begin until the end of the sixties, with the appearance of market surpluses, increasing scarcity of funds and a slowed increase in farm incomes. Through the orientation of agrarian structure support towards the principle of « economic viability », clear support preferences were established for family farms with large produc-

tion capacities and located in favourable areas. For « non-viable farms », social assistance was offered in the first instance in order to cushion farmers' adjustment and to reduce the pressure caused by structural change. Social assistance measures included the intensification of advisory services, the promotion of professional qualifications, retraining measures, leasing premiums, etc. Pluri-active farm households were essentially regarded as « non-viable » at this time, and many were thus excluded from investment support funds.

In combination with traditional price policy, this productivity oriented policy of investment support increased income disparities within agriculture, and provoked rapidly rising surpluses. Nevertheless, the restrictions on support to farmers which have been imposed since the beginning of the eighties were only partly a consequence of the heavy financial burden. In view of the many problems in rural areas, there was in some countries at this time more open discussion as to whether public financial aid should be granted primarily with regard to economic allocation aspects, or more strongly in accordance with social criteria and widened social objectives. In other countries, simultaneously, these restrictions conformed to a general policy of reducing public expenditure and promoting the free market.

In the majority of European countries it has been recognised in the meantime that agriculture — above and beyond its traditional role of food production — has become increasingly important with regard to the provision of public goods — maintenance of natural living conditions, care of the natural environment, maintenance of the entire rural sphere. In this context, it is advantageous that measures which reduce environmental pressures also favour a reduction in the pressure upon agricultural markets.

This is one reason why there is now renewed consideration of the achievements of pluriactive farming. Whereas households with multiple job-holding were largely excluded from structural support in the past, there has in the eighties been an increased effort to achieve equalization. Except where EC regulations are expressly tailored to mono-active farms, all farms above a specified minimum size are nowadays usually included — in Germany and Austria, for example — in the agricultural support programmes.

But in the majority of cases the widening of support in the less-favoured regions for pluri-active farm households has come too late. Experience shows that the influence of past structural policy on farm change and on rural areas has probably been overrated. The structural side-effects of market and price policy have in the main been much stronger.

In addition, the fact is often overlooked that policies affecting agriculture go far beyond the realm of specific agricultural policy. Regulations in fiscal law, the law of tenure, environmental law, commercial law, etc, are also of considerable influence. The additional effect of the supply of opportunities for skilled work or attractive training or professional qualification measures has been adequately confirmed in the past.

3. Patterns of behaviour and use of policy

This contribution attempts to show how — and to understand why — policy, is interpreted and used (or not used, or misused) by farm families. To do this it is necessary not only to examine different policy measures but also to look at the variations in patterns of behaviour amongst different types of households.

According to the 2nd Research Report to the EC (Arkleton Research 1990), our global objective is « seeking to understand the movement of resources into and out of farming »[2]. Such « movements » are typologized in the report into three patterns of adjustment : professionalisation (« into »), stable reproduction (« no movement »), disengagement (« out »). The authors of this paper[3] broadly agree with this typology, but with some reservations. We prefer instead to seek to understand actions from the point of view of the actors themselves.

Our basic hypothesis is that the perceptions households have of themselves and of opportunities, resources and constraints available to them, sustain their behaviour and act as filters : some households may perceive opportunities which are neglected by other households.

P. Bourdieu's concept of « habitus » (1979)[4] can be very useful here. Habitus is a « matrix of perceptions, appreciations and actions » which is shaped throughout the education and experiences of an individual. Although the life of each person could be very different, similar experiences will lead to similar habitus. The

2. Arklelon 1990, page 92.
3. See specially M. Shuchksmith and R. Smith, V. Hermann and P. Uttitz, E. Saraceno in the volume II of the Report : study area analysis.
4. Bourdieu P. (1979), Distinction : A Social Critique of the Judgement of Taste (trans. published by Harvard University Press, 1984)

conjunction of the habitus with situations or events experienced by individuals leads to social (patterned) practices. People with the same habitus will tend to have the same pattern of behaviour.

Habitus can thus be seen as an « incorporation » of social structure in each individual, integrating also the position of the individual in that structure. It acts as a filter in the perception of what is possible and leads the individual to « refuse what is refused and accept what is unavoidable »[5]. The same idea is found in Crow's comment of Pahl's work : « Social structural conditions work to « allow » the emergence of particular household work strategies and to discourage others »[6]. Pahl adds : « However the way that households get the work done does provide some scope for choice and innovation »[7], although the concept of « cultural lag » may explain a varying scope of choice : the poorest households may be « forced to accept » rather than « choose » a given behaviour[8].

These considerations lead to the following hypotheses which will be tested later in this paper :
1) It appears that structural policy measures are not main determinants for structural change. They are mere resources among others available to farm households who interpret and use them in different ways according to their « pattern of behaviour ».
2) Furthermore the material resources of the farm and the household, as well as personal goals and expectations, seem to be more relevant than external resources. Nevertheless, an external constraint such as a price/quota policy or restricted labour market possibilities may also be very important (external factors may appear more relevant in comparative analysis).
3) One aim of agricultural policy in mountain areas is to keep people on the land or in the region. And one major criterion in any household's decision to go on farming is to get a fair return from their activity. But what is a « fair return » varies from one household to the other : the degree of expressive satisfaction of one's own goals and expectations has to be taken into the « equation ». A household running a small farm may valorize values such as proximity to nature and independence in just the same way that innovative professionalisers may valorize diversity of work or entrepreneurship as much as economic yield.
4) It seems that modernisation policy has been particularly effective, in the sense that it has been widely adopted. But these measures probably contributed more to reinforcing decisions and eventually to increasing the intensity of change rather than to

5. Ibid
6. Crow G. : The use of the concept of « strategy » in recent sociological literature. In Sociologie, vol. 23, N° 1, February 1989, p. 8
7. Pahl R.E. Divisions of labour. Basi Blackwell, Oxford, 1984, p. 327
8. These theoretical concerns, merged to the project's reflexions so far (theory task group report, working group on strategies at the Braemar review meeting) were also summarized in a model proposed by Hermann V. and Veulhey F. Questions on attitudes in the final survey : theoritical and practical approaches. Unpublished paper, 1991.

provoking decisions which would not have been taken anyway. Furthermore measures directed to modernization are often not adapted to the needs of farm households (flexibility on the scale of investment, investment spread over time, farmer's freedom of decision) : that leads some farmers to renounce such measures (and sometimes renounce to farming) or perhaps to contract heavy debts, making new adaptations difficult and increasing the vulnerability of the farm.

5) Compensatory allowances seem to have a different effect in keeping people in farming according to the amount paid (e.g. High amounts contribute sometimes to survival of non-viable monoactive farms. These payments are necessary in the medium term but should not be sustained beyond one generation). Lack of flexibility in productions that are supported hinders entrepreneurship and diversification of activities out of the usual track (access to pluriactive farmers, support of experiences with new crops or with innovative livestock breeding) and thus reinforce farm enterprises within traditional modes of behaviour.

6) New policies (diversification, set aside...) do not take into consideration personal goals and expectations of farm households and even conflict with their own notion of « being a farmer » (independent, hard worker, food producer). By challenging this self image they generate a motivational crisis in the reproduction of the family farm. This may bring a greater shift in the people farming the land, traditional farm families being replaced by new entrants, from other backgrounds, more oriented towards new functions of agriculture.

7) Knowledge, as well as capacity (and will) to fulfill requirements and to manage the bureaucratic aspects of applications may be relevant in some cases. Thus the use of policy measures also depends on the cultural lag of farm household members and on the efficiency of extension services (and other informers) in facilitating the access to policy measures to any farmer.

II. Farm household behaviour : selected cases

Actions of household members of farm families rely on a wide set of reasons, not only reflecting capital assets and ressources of the household but also very personal motivations and aspirations. The following 10 case descriptions of farm households contacted repeatedly throughout the 5 years of our study are intended to show actual examples of reactions and adjustment of households. The main discussion deals with shifts of labour allo-

cation, together with their circumstances and « reasons », the role of (agricultural) policy measures as seen by household members and their attitudes and value patterns towards farming, diversification and off-farm work.

Of course,the great variety of different actions of households can only be suggested and indicated through these case studies : it cannot be covered completely. The choice of the cases presented is deliberately not a representative one : farm households with small farms who are often withdrawing from farming are numerous but here are represented only by a few cases. This is because the main purpose of this representation is to stress differences between households with « typical » patterns of behaviour within the study area from which they have been taken or households with remarkable action patterns, clearly different from those of the majority of the study area. As the usual farm work and para-agricultural work opportunities might be very different between study areas, so the interpretation of the households' actions will be different from study area to study area too. What is a wide-spread pattern of behaviour in one region, might be an innovative way of adjustment in the totally different situation of another region. The selection of cases presented in this paper therefore primarily looks at households changing their work situation and especially at those diversifying it.

Each case description offers a thorough look at policy consumption in that single case. Though consumption and the relevance of measures may vary, to a great extent it is perceptions of policy measures and the way in which measures have been taken up or not taken up by the households, that are of greatest interest in these descriptions. The values and attitudes of the households revealed through their pen-picture may offer some hint for understanding the actions of these households (with or without the use of policy measures).

The case descriptions start with two cases of small size farms. In some study areas this group is the majority of the farms. The presentation of some of them should reveal that also in this group very different ways of adjustment might occur. All the remaining cases give descriptions of households with medium or large size farms. Some of these act on a rather classical path, others are diversifying their activities and the last two cases disengaging from farming (though they had considerable farming resources).

Selected cases

A. Small size farms (ESU)

Household A : A traditional « worker farmer » with reduction of farming activities

Study area : Austria South-East Burgenland

This farming family is fairly typical in combining a distant off-farm job (to which the farmer commutes weekly) with a small farm unit in southern Burgenland. The farm occupies about ten hectares, half of which is forest. This size is about the regional average. The farm is managed by a couple (both around sixty) who work the farm alongside the main off-farm job of the man in Vienna.

Like many men (and many farmers) from that area he has been is forced to commute all his life to Vienna, spending only weekends and holidays at home in southern Burgenland. Although his wife is not happy with this lifestyle, after being used to it for so long, she expresses the view that « It would have been a real burden if we have not had enough money ».
For the woman this meant that she had to do all the main daily jobs on the farm. Recently the farm has been much simplified. It no longer has cattle and the two remaining pigs mainly serve for self-consumption. Machinery investment necessary for crop production has been undertaken without any credit support : the money came instead from off-farm earnings. The farmer says that he has always known that the farm makes no money. Investment was not undertaken for profit reasons but mainly to reduce the burden of work. The farm manager never considered giving up the farm because he wanted to return to work it when he retired.

Although the farmer is highly involved emotionally in farming, other important values expressed by the farmer are atypical of this farming sector and derive far more from a worker's perspective. For example, his investment priorities favoured the house against the farm buildings. Furthermore, the farmer is keen to spend money on exotic holidays far away (India or Africa). Thus his self-fulfilment is not bound to the farm.

Agricultural supply measures had no effect on the development of this farm. Premia for turning agricultural land into an ecological reserve were accepted because it allowed a reduction of the burden of work. The « non-use » of other support measures also derives from the high off-farm income which disqualifies him from most of the support measures.

The reduction and simplification of farming activities can mainly be considered therefore as the result of his aim of reducing the work burden for his wife and for himself in his retirement. As with many other small farms in that area, stability is the major general goal. But in reality, his case reflects far more a clear withdrawal from farming as the

best long-term strategy. He even agrees that the sons should eventually sell the farm and make something better out of the sale of the asset.

Household C : The pluriactive disengaging widow

Study area : Italy, Udine

The farm is medium-small (8,16 ha), mostly grassland, and only half a hectare is owned. The rest is an inherited lease. The present farmer is a woman who became a widow in 1984. Her late husband used to work full-time in a nearby steel factory, while she worked full-time on the farm with her parents-in-law. They had two children (boys) who were in school then and are now both working. She realised she could not live on farming alone and accepted a job in the same factory where her husband used to work. She thus became pluriactive. As she could not cope anymore with farm work, she decided to change from milking cows to raising suckling cows because it allowed a more flexible working schedule. Since then she has encouraged her children to find off-farm jobs. She released about 1 ha of formerly leased land and she has reduced the number of cattle from 10 to 6. Her father and in-laws help with the animals and the wine, and share some machinery. She has a good network of parental solidarity which has allowed her to be pluriactive.

She considers farming to be an important contribution to income (about 20 %), which has become less important with the work of her children.

Policy use is quite low and unattractive given her situation. She is still a member of the Farmers Association and she received a grant to fix farm buildings after an earthquake. She dœs not receive compensation and thinks it would make no difference to her pluriactivity. She thinks no policy measure could match her off-farm job and thinks her two sons are much better off with a non-farm job.

This case shows the impotence of policy to solve a situation based on pluriactivity. Aid was available to modernise but being a leaseholder and needing a steady income to replace that of her husband, she was compelled to look for an off-farm job. Direct payments were too low to make farming more attractive. Her « demend » for policy was low both before and after her husband's death.

Household F : Productivist type of farm household

Study area : Germany, Freyung-Grafenau

The F family are Mr and Mrs F and one child. Three retired people and one other relative live in a separate household. The family operates a relatively specialised dairy farm with 60 milk cows and with a quota of 244,00 kg — which is very large scale in Freyung-Grafenau where the average farm has 8 cows.

Mr F points out that he has already been a skilful trainee at the agricultural school (Landwirtschaftsschule) and that his father has already run a relatively large farm. He adds that right from the time when taking over the farm in 1977 he has tried to obtain « the maximum out of it » and that « the two main levers are producer prices and quantity ». Consequently, he has concentrated on the most profitable crops and has cultivated them intensively. Farm operations have become increasingly specialised and livestock production is more and more based on low labour-input slurry-based husbandry systems and on the purchase of feed concentrates. The overall development of the farm is characterised by increases in capital-intensity and scale while production is still being geared to current product markets. Since 1986/87 farm size has nearly doubled. The availability of additional land resources and milk quota is however still a key question.

When asked why he farms more intensively than his neighbours, Mr F explains that sufficient feed has to be produced on a small area, compared with herd size. He adds that the considerable milk quota he has received justifies the high level of intensity in land use. With more and more land becoming available in the area because of other households giving up farming the level of fertilizer use will be decreased in the next few years, « which will also reduce costs ».

Mrs F was working at the district council until she became pregnant. At present she is on maternity leave and receiving a corresponding family allowance (Erziehungsgeld). She insists that it would be possible for her to start working at the district council again and that she alone would earn nearly as much as farming contributes to the household income. Mr F, however, argues that she is needed to run the household and that he has « no spare time to assist with housework and child raising because the management and running of the farm is a full time job » (but he likes it).

Mr F cannot imagine receiving regular direct transfer payments. He dœs not understand regular producer price support as a similar form of subsidy. However, measures relating to the improvement of social security among farm families, the compensatory allowances (EC Directive 75/268) and programmes in support of more environment-friendly farming are accepted because they are not seen as forms of transfer payments.

Without support from investment-related programmes, Mr F believes that increase in the scale of farm operation would have only been a littlebit slower. Available financial support alone did not trigger any investments.

Farm tourism, direct marketing, organic farming, pluriactivity and income combination are not seen by Mr and Mrs F as suitable for « full-time farmers ». The set-aside programme is in the F's eyes a waste of natural resources ; it is diametrically opposed to their understanding of the task of « cultivating the land ». Mrs F appears slightly more open towards pluriactivity. Her parents had not much to do with agriculture, she had a non-agricultural training and she has already been off-farm employed and so has a broader value orientation.

In this area, only a minority of households — such as the F's — now rely exclusively on farm income. But, these households are totally committed to farming. Farming is « a way of life » for them. The abondonment of farming is, as a result, only considered when the problem of succession arises.

Household G : Productivist professionaliser

Study area : UK, Grampians

This is a very interesting case because it illustrates many recurring features concerning the importance of the genetic tie, the role of women in agriculture, attitudes to diversification and how these often seem to conflict with the desire to remain a « good farmer ».

The farm itself is a large, tenanted, upland farm with a mixed regime of cattle and sheep. The tenancy is owned by a couple in their 70s who farm in partnership with their son and daughter-in-law and their grandson and his wife. Unusually, three generations are present.

The respondent, the daughter-in-law, is not from an agricultural background but has thrown herself wholeheartedly into the role of farmer's wife. In order to deal with the farm paperwork she attented classes in accountancy at the local shool and gained a pass at higher level. She became very involved in the Scottish National Farmers Union and her proudest achievement is that she is the first woman president of her local branch. In addition, Mrs G lets out the farm cottage to tourists and has recently started a successful bed and breakfast business in the farmhouse. However, these activities are seen as subsidiary and distinct from the family's farming. Their main concern is to produce quality livestock which will fetch high prices in the local markets and win cups at shows. The family is exceedingly proud of its collection of cups. Mrs G echœs the theme of local quality produce in her for tourist accomodation enterprise : quality is all important to her.

The only policy payment the G's receive is LFA compensatory payments : these are headage payments related to the number of hill sheep and cattle, and these are crucial to the farm's survival. This is the principal policy issue seen to be affecting this household.

If farm prices were to fall substantially the G's would not be prepared to diversify further. Within the family there is an ambiguous attitude towards diversification. While the family are pleased with the success of the tourism venture this is seen very much as « women's work » and nothing to do with farming. The male members are extremely antagonistic towards diversification on the farm itself, and Mr G is adamant that anything to do with tourism be confined to the house which is physically separate from the farm.

Off-farm employment is only really an option for Mrs G, with her accountancy skills and SNFU experience. Mr G would have difficulty in obtaining off-farm employment since he left school at 15 and has no trade, craft nor training of any kind. Instead, the G's would rely on the quality of their livestock production to support themselves, with the grandparents retiring from the farm.

B. Medium-large, diversifiers

Household I : The faintly shifting pluriactive

Study area : France, Savoie

Mr I is 54 and his wife is 41, they have five children : the only son is 18 and the four girls are younger (16, 13, 11, 9). He is a native and took over the holding from his parents in 1972. He married at the same time to a young lady who came from the town and taught skiing with him in a nearby resort. The local labour market is poor : declining manufacturing industries and a slowly increasing tourism industry. This mountain farm is at an altitude of 1500 m. There are some future prospects for the development of a local resort, however.

When taking over the farm Mr I increased the flock from 30 to 120 ewes, which was large enough to provide a decent income by that time. They had a house built and a new stable, they also contracted various loans to help modernise the machinery. Strong efforts have been made since taking over to improve the main product of the flock : meat. But the nominal price of meat has merely kept steady over the last 20 years while costs more or less doubled. Although strong inflation made it cheap to borrow money for investment, these circumstances were very negative in terms of the household's agricultural income.
When he took over the farm Mr I increased the winter ski teaching activity (in which he was well practised) in order to expand the sources of finance. This increase was somewhat contradictory to the improved sheep raising techniques which resulted in heavy constraints on his working schedule. For example in early spring, lambing time is also the most active period for ski teaching. Efforts were made to manage the lambing period in order to concentrate them on weeks which fall outside holiday periods.

Mrs I stresses that beyond the narrow income generated by this mix of farm and snow activities by her husband, she wants to have a job of her own. During the first ten years of their marriage she had a lot to do with child caring, she also took part in a number of local training activities in connection with a sheep producers union. Some years ago the couple decided to sell the whole flock and to buy a shop in the village (bar-tobacconist) but it did not to provide a better income. Luckily they were able to sell it a year later and to resume sheep raising. More recently they have bought a clothes shop in the nearby resort where Mrs I spends four months in the winter, living with the children in

a flat. The three recent years have not been very successful because of the lack of snow. Now they have to consider whether they should sell the shop. Their main income sources are the income from ski instruction, sales of farm products, compensatory allowances and social transfers justified by the large family.

The parents are somewhat concerned with the son being interested in taking over the farm in the future. He already takes part in the summer alpage activities (including cheese making) and is having agricultural training.

In conclusion, it seems that it is not possible to make a decent living for a family out of a medium-sized holding, even if it is well managed and despite support from agricultural policy and inflation making it easier to repay loans. In a poor labour market location, activities additional to farming are difficult to set up and remain fragile. Whilst farming may remain a core activity, it requires a lot of energy and large financial resources. The only motivation which pushes strongly enough to consider risk taking, by setting up a new job, is the need for autonomy felt by the farmer's wife. Pluriactivity is therefore essential to provide the family with a decent income but is also sought by the household for non-pecuniary reasons.

Household J : Para-agricultural diversification

Study area : Switzerland, Chablais

Mr J is 27 years old. He got married in 1989 after taking over the farm. His wife is 30 years old and they have a one year old daughter. The wife stopped her off-farm job after marriage in order to dedicate time to the family and the farm, which is run as a common business.

The main farm is located in the Chablais mountain area 1000 m above sea level and is wholly rented (14 ha of meadows). The building and 50 % of the land belong to the father. The son will inherit it. Other meadows are hired from a third party. An alpage for 45 cows is rented from the local community, with a quota of 20.000 kg of cheese, and this is run together with the father. They keep 16 cows in winter, with a quota of 40.000 kg. The machinery is new.

Both husband and wife used to work before marriage, she as a secretary, and he as a parking attendant in a ski resort as well as on the farm for pocket money. When they married, both decided to live on the money earned from the farm. Before starting at an agricultural school (for which you have to be 18), he followed a public business course : « it's useful for the management of the farm and it's good to have another skill ».

Most of the changes that have occured in the last decade improved the farm. Mr J wanted to succeed, but not at any price. He wanted to make a decent living out of farming, and only farming, or to abandon it. This meant having more cows, so more land, a big-

ger building to house the cattle and store the hay, and a good level of mechanisation to do the work more quickly and to make it less of a burden.

A new farm was built in 1986. The parents and the son designed an enlargement to the existing building, contiguous to the house. They asked a local builder for an estimate. Then they made another design incorporating grant-aid. They calculated that with the same paid-in capital, plus grants, they could have a separate, bigger and better equipped building. So they applied for the grants and contacted a foreign company to do the work cheaper. Grants took up 65 % of the cost, plus 15 % covered by a no-interest loan.
In the same year, they rented a 4,5 ha meadow from a retiring farmer. The meadow was far from the main farm (it takes time with a slow hay transporter), but there was a 15000 kg mild quota on it. Nearby land would have been available, but with no quota. This would have wasted time and brought higher production costs. But Mr J thinks his milk quota is still too low. He believes it dœs not allow him to make as good a living as he would like. Modernisation brought him extra quota but not as much as he expected.

Mr J and his parents would have preferred to run the farm together in a formal association, but they soon realised that they would earn less that way : compensatory allowances are high (SF 760 in mountain area III in 1991) but to a ceiling of 15 animal units, which makes about SF 11400 per year. By splitting the farm, each one could receive the maximum. Another reason was their different attitudes towards farming, the son being more oriented towards modern techniques. The division of the farm was possible because the father owned a small mid-mountain farm higher in the valley where they used to go only in spring and autumn. So Mr J's parents moved there after their son got married and took over the farm.

In 1989, Mr J also started to rent a bigger alpage (prior to this, they could only take heifers onto the alpage they rented), with a capacity for 45 cows and where they make cheese (matured and commercialised by a local, dynamic cooperative). According to Mr J, that is what makes the farm viable : costs of production are lower and making cheese adds value. But milk quota is exceeded by 30000 to 40000 kg over the quota in 1991, and the price was reduced by 20 % . In the second year, Mr J decided to make more cheese and commercialise the excess through direct selling (tourists and acquaintances) which is more or less illegal and unfair towards the cooperative. Mr J recognises that it was not a solution : « One can hide it one year, but it's not possible in the long term ».

Now Mr J feels somewhat awkward : « They give the money to build a farm for milk production, but they refuse to give the quotas to make this investment profitable ». Unwillingly he is forced to find new side-lines. He made calculations for beef production and found it unprofitable, and the farm structure is not adapted to it. But he says he will keep on farming and will have to find a solution.

Household K : Innovative professionalisation and para-agriculture

Study area : Germany, Euskirchen

Mr and Mrs K own a farm of about 47 ha. The farm is located in the Voreifel, part hilly and part plain, but still a less favoured region. Their agricultural production is based mainly on market crops, ie rape, barley and rye, and on poultry and hen-keeping. Hens and poultry are kept free ranged, and the products are marketed directly.
Mr K was born en 1932, the son of a farmer. He got an advanced training in agricultu-rebefore he became manager of an estate located in an area of intensive agricultural production about 150 km from his home. He married in 1964. His wife was a bookseller and she did not have any farming knowledge ; she stopped working in her profession after the marriage. The couple have two daughters. In 1967, after Mr K's father died, he quit his job and took over the family farm. He modernised and intensified production which was based primarily on fodder and livestock production in those days. In 1983 the farm couple started poultry and hen-keeping and started marketing their products directly. Two years later they gave up pig raising because of falling prices.

In 1987 their youngest daughter, after returning from Canada, where she had spent a year as an au-pair within a farm household, decided to take up an agricultural training and to succeed her parents later. Now she has just finished her primary vocational education which included training on a dairy farm. She will carry on with her education and study advanced agriculture. The older daughter left the household some years ago when she started to study sports.

Tasks and responsibility are divided within the family : general farm work (including machine repair) is done by Mr K and his daughter, direct marketing and housework by his wife. But all family members confirm that « everybody knows everything » and « farming is a family business ». They intend to continue para-agriculture and to search for intra-sectoral pluriactivity to maintain the farm and to secure the family's income.

The K family receive compensation payments for less favoured areas. They are aware that these are a kind of direct payment and think that they should be enlarged ; for example for environment protection or for ecologically sound farm production. They also participate on the extensification programme. Here they are obliged for five years not to grow wheat but rye. Therefore they receive a restitution (300 DM/ha) which does not really compensate for crop failure and lower prices but « at least one has to start in stopping surplus production ». This is why they are trying to get a contract with a backing company to deliver rye which has been produced without the use of pesticides. Contract farming is a new element in the K family's strategy to enlarge and ensure the economical basis of the farm.
The couple have not asked for support from investment-related programmes because « there was no need ». They applied for participation within an environmental measure (Ackerrandstreife-programm) but have not yet received an answer. This is one of the

reasons why they assess agricultural policy as not very effective. They also complain about the « famers' deprivation in the political arena » and fear further disadvantages for German farmers in connection with the European Single Market. Anyway they believe in their abilities and in the continuity of their farm.

Household L : Diversification of household activities by expansion of on-farm tourism

Study area : Austria West

Family L is an example of combining mountain agriculture with farm based tourism, a business typical for Alpine western Austria. The farm unit is of mountain farming Zone 2, which means that it faces a medium degree of impediments.

The household consists of the farmer (50 years old), the spouse (39 years) and the two sons (19 and 20). The farm consists of a property of 50 ha, all grassland and alpine pastures, as well as of rights to timber in forest equivalent to 11 ha. The farm unit can be considered as medium-sized for the Salzburg area. The farm's main business is cattle breeding with 12 milking cows and 25 young bulls. The number of cattle was increased by one third in 1978 by a takeover.

The dwelling house dates back to 1687. In 1979 general improvement and change of the house had been undertaken. Strong efforts were made to preserve the substance and shape of the old house. The farm building is very attractive and is typical of the architecture of traditional farm buildings in Alpine Salzburg. Renovation was difficult and cost intensive. Two apartments, one high quality guest room and two normal guest rooms have been created. There is still one considerable part of the house to be renovated. The farm building is also 300 years old and is currently kept in good condition and has been improved. Further property belonging to the farm consists of an Alpine hut and another dwelling house. Both have been rented to tourists on a long term basis. A further important source of income for the farm is a gravel pit which is rented out to a local entrepreneur for excavation.

The farm operator inherited the farm from his parents. He has a basic school education as well as professional education in agriculture. Besides his work on his farm he is manager of a large hunting district in the valley. His wife also comes from a farming background and attended an agricultural school. Prior to the marriage she worked for one year in a hospital and one year in a large hotel. The intended successor is the oldest son. He finished professional training in agriculture and works near the home as a ski-instructor. The youngest son is attending a commercial school. All the men of the family are passionate hunters.

The main source of income for the family is still agricultural production. The farm has a milk quota of 54000 kg, obtained by permanent surplus delivery. In addition to that

15000 kg milk from Alpine pastures (not considered in the quota), is supplied. As a professional and organised cattle breeder he gets a good price for young cattle. They do not own any forest within the farm unit but rights to timber are appreciated as a good contribution to income.

Because income from the gravel pit is slowly becoming exhausted, the tourism business and cattle breeding have been intensified. A lot of processing of farm products is done by the woman, eg making farm cheese and butter or baking bread for self consumption and for tourism business on the farm.

The farmer considers tourism an excellent source of income for the future, but development should proceed conservatively. For preserving the natural resource, tourism intensity should be limited. Farmers may participate in different ways with tourism development, with farm orientated activities (letting of rooms and apartments), and by taking jobs in the non-farming sector, eg working as landscape cultivators.

The farmers is well informed about the supply of agricultural support measures. With the renovation of the house, supported credits have been used. Because of the high investment, support from policy measures has helped considerably. Supported credits have also been used for renovating the stable and for the building of the apartment for letting. The woman expressed the view that apartments are the far better and more convenient alternative, when compared to the traditional « holiday on a farm » with bed and breakfast. She can manage the work involved with renting apartments. She complained that such experience is not covered by the extension service. Direct payments for mountain farmers as well as cutting premiums for grassland are considered good initiatives. The farmer regrets that it is not possible to provide adequate income out of farm products. High quality products should be reawrded with a high price, he feels. Mountain farms working under high impediments should be supported in the direction of extensification (eg breeding suckling cows instead of milk delivery).

C. Medium-large disengagers

Household M : Disengager (forced)

Study area : UK, Grampians

Mr M's case is one of the most dramatic instances of change. At the time of the early 1990 interviews, Mr M was a full-time farmer, with a medium-sized (70 ha), mixed arable/livestock holding. During 1990 he sold the 65 ha he owned and became a full-time joiner, while continuing to rent the other 5 ha which he farms as a hobby.

Mr M was a traditionally minded local farmer who attaches great importance to the ideal of family farm. His family had owned the farm for many years. The reason he sold his

farm was because he was in financial difficulty. The farm had invested through a modernisation and improvement scheme for which the farmer had had to borrow heavily. When interest rates soared in 1988/89 he found he was struggling to keep up with his repayments. One response to this was to register for set-aside, as a precautionary measure in case his position worsened, but in the event he did not set any land aside. His main « strategy », however, was to reduce stock slightly as a short-term measure, in the hope that interest rates would soon fall again, and to try and « stick it out ». Instead, his situation deteriorated further, so that when a neighbour expressed an interest in buying his land he decided to sell it.

Mr M is a skilled carpenter and had no trouble finding his present job with a local firm. He says that the relief of knowing that he has a regular income and no overdraft is tremendous. He now finds that working on his smallbolding is pure relaxation, and he feels he has found the best combination of both worlds.

Mr M's case is one in which the active use of modernisation and improvement policy led him into financial difficulties which resulted in his eventual disengagement. However, it is clear that this way out depended upon both the externally-derived opportunity offered by a neighbour's wish to purchase his land and on the occupational mobility of Mr M himself, which is atypical of farmers in the area. Most farmers would probably still be attempting to « stick it out » because of their fear of proletarianisation if they gave up farming.

Household N : Unsuccessful farming

Study area : Germany, Euskirchen

The N family lives in the Eifel, a hilly, relatively remote, disadvantaged region. The family farms 20 ha ; half of the land is rented. The main area of production was once dairy products and bull fattening. Nowadays the latter is the main source of agricultural income.

Mr N was born in 1933, the son of a farmer. He has had a non-agricultural education and has been a joiner for about 30 years. In 1957 he married a farmer's daughter from the neighbourhood. Mrs N has no formal education. The couple have four children. In 1966 Mr N officially took over his father's farm. He continued off-farm work on a full-time basis while his father and wife shared responsability for the running of the farm. Later, in 1978, when his father died and his wife fell ill, he was forced to stop off-farm work. For about two to three years the couple had been monoactive but due to low income they had to look for additional financial resources. This time it was Mrs N, now recovered, who took off-farm work as a nurse assistant. It was just luck that she got this job although she was not trained for it.
Mr N considered farming as hard work in those days and needed his sons' help. In 1984, when the milk quota was introduced he had to reduce milk production (to

30000 litres per year). An application to receive an exception to the rule because of undue hardship (Hartefallregelung), was turned down because of the off-farm income of Mrs N. Later, they participated in the 1990 milk-repurchasing-campaign of the Federal Government which provided a payment of 1,60 DM for each litre of milk given back.

Within the last few years Mr N has started joinery work again, on an occasional, and according to tax legislation, more or less illicit, whereas Mrs N retired from work.

The family receives compensation payment for less favoured areas which are considered to have geographical disadvantages. They also receive socio-economic compensation payments and bull premia which are regarded as payments they would rather not qualify for. Nevertheless, further direct payments, such as compensation for reduced profits because of low prices or environmental controls, would be acceptable. The same applies for restrictions in production and rewards for maintaining the landscape as a contribution to environmental protection.

The family focused on policy restrictions in regard to both agricultural and non-agricultural implications which hindered farm development. So they never have been supported by an investment-related programme and have failed in their efforts to maintain the original milk production because of the additional off-farm income. Mr N even regretted that he had stopped his off-farm work and he showed understanding for his sons' refusal to succeed in farming, although he always liked farm work and wishes somehow to continue the family tradition. But now « it looks as if the farm will be given up within the next few years ».

Conclusions

The analysis of a set of cases chosen on the basis of their differences shows extremely well a general point that this paper has tried to emphasize : the influence/impact of policy measures of any type or origin should always consider the quite differentiated way in which farm households interpret and use them according to their established « patterns of behaviour ». Policymakers tend to have an extremely simplistic and mechanical ideal of policy user, and a narrow view that privileges the perspective of its own sectorial policy, never achieving an understanding of the complex interplay of agricultural and non-agricultural policies from the point of view of the family household.

This general point should not be taken to mean the extreme case that one should have « individual » policy measures, but some

more flexibility in order to get nearer to the consumers demands seems extremely desirable. Especially today when a fairly standard model of modernisation is no longer able to sustain a farm family's « viability » and is being substituted by a multiplicity of options. The diversity of individual solutions is likely to increase in the near future both because of the failure of the productivist policies and because farmers (and their families) have come a long way in training, entrepreneurship, reduction of hard labour, farming techniques and market options, evaluation of advantages, non farming opportunities, economic planning, lifestyles, and many other aspects which can be appreciated by reading through the single cases described. The interplay between these individual/subjective factors and objective changes in price policy for farm products has produced several « rationalities » in their responses which suggest much more care in the elaboration of policy measures.

Our concluding observations will deal with the two main themes that have been focused in the cases described above : farm households behaviour and policy consumption. Context variables have stepped backwards because of the methodological approach chosen, based on comparison of farm families across study areas.

Farm household behaviour

In the area of land, size, farm activities and other gainful activities some interesting patterns emerge.
Most of the farms described are mountain farms or farms in less favoured areas, and it is remarkable the role of leased land in all the broad types in which we have grouped our cases (small, classical, diversifiers, disengagers). The possibility to lease land in LFA's has facilitated not only entries and exits but also variations of activities, according to the changing patterns of behaviour. It is interesting to know that this happens even in the smallest sizes (C). Nevertheless, also sale of property seem possible behaviours in view of the difficulties of economic sustainibility (M) to the benefit of the productivist farmers left (F). Price and policy changes seem to be stirring the land market more effectively than « structural » policies.

Farm activities is the area where the most varied responses of households may be observed. Even though labour saving continues to be an important rationale of families' actions, type of

enterprises are being innovated with the logic of escaping milk quotas and livestock limitations. Para-agricultural activities represent a successful strategy, whether directed at transformation (quality cheese) or farm tourism (bed and breakfast, sledge tours), while classical scale increasers introduce in any case quality products (G, K), specialisation and cooperation geared at cost reduction (F). Imaginative combinations with pluriactivity (N) give a hint of the unexplored and richer possibilities in this area than thought of in diversification policies.

Pluriactivity reconfirms itself as a behaviour strongly connected to the lifecourse of the family, often considered in a temporary and trial frame of mind (C, I) and obviously extremely tied to local labour market opportunities. A subjective element comes also through with the importance that having more than farming skills may mean opting for a non farm job (again C, I). Wife's off-farm jobs could represent a separate case since this theme seems charged with important « black box » changes : here the need for autonomy and self identify (F, G, I, L) has made farming more of an individual profession, with all that implies for attributing one common pattern of behaviour to the whole family. However there are still cases of integrated work of the couple in facing changes in farm enterprises (M).

Policy consumption and patterns of behaviour

The hypothesis that modernisation policies have been widely used but have not been crucial for major decision making seems largely valid. Again the rigidity of measures, especially desirable in view of the fact that what these families wanted to do turned out to be more sensible and gainful than what extension services proposed and achieved the aim of maintaining a young family in a mountain area. It is also quite true that heavy consumption of modernisation policy may lead to increased vulnerability (M). Modernisation policies seemed to provide in only a few cases help for diversification (L) ; more often they were « late » in reacting to the new needs of households . It may be noted that these new needs, in the case of medium large farms, were in response to changes in agricultural price policy.

Compensation payments have a crucial role in most farms, even if they work more when the amount paid is significant (G, I, K, L), however they often cannot compete with pluriactive opportunities (M, N). However, the possibilities of succession in a

situation characterised by heavy dependence on compensation should be attributed to these policies : stability of population in LFA's in the long term needs more than compensation payments to be successful. Furthermore the fact that it is tied to the number of certain types of livestock has reinforced traditional behaviour and entrepreneurship.

Past patterns of behaviour both of diversifiers and classical farmers create a situation where new policies such as set-aside are not at all understood or accepted by farmers who remain extremely critical of these set-aside in particular seems like a waste of resources that gœs against the common sense of farm families, and in their view it seems preferable in any case to think of some other activity. This is a highly emotional issue that touches the self image of farmers, and this is quite serious in demographically fragile areas. A much more positive attitude may be seen in linking compensation with environmental management and landscape care.

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The Leader programme 2007–2013: Enabling or disabling social innovation and neo-endogenous development? Insights from Austria and Ireland

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Abstract
Since the beginning of the 1990s, the Leader programme has been hailed as the instrument of rural policy that most explicitly takes account of the territorial dimension. This culminated in the mainstreaming of its underlying concept into the Rural Development Programmes of the current period (2007–2013), with the aim of having more effective policy implementation that considers the diversified needs of rural regions. Starting from analysis of the application and delivery of Leader under the present Rural Development Programme in two EU countries, Austria and Ireland, this paper presents an assessment of the effects of this programme change. In addition, it includes the EU-wide discussion on the (limited) effectiveness of the current implementation of Leader and the search for a reorientation towards local development activities in the EU's reform proposals. The paper frames the analysis around the notion of social innovation, a concept of central importance to the aims of Leader. It is argued that the implementation of Leader in this period falls far behind its potential to beneficially impact rural regions; hence it should be an object of critical debate in the reform of the Common Agricultural Policy and rural development measures, as well as coherence analyses with other policies, beyond 2013.

Keywords
Austria, Ireland, Leader programme, neo-endogenous rural development, social innovation

Introduction

Regional development in most countries has been characterized by significant urbanization processes for many decades. This has led to the perception in public discourse that rural regions have continuously lost influence in economic, social and cultural terms, being seen as passive and predominantly as a 'problem'. However, with the rise of the concept of sustainability, new articulations of a 'rural active voice' have emerged (Bell, 2008; cf. Cawley, 2009),

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shaped particularly by new views on food production (e.g. organic food) and new perspectives of rural life. The Leader[1] approach was one of the most influential sets of activities to address this spirit of mobilizing the countryside, through focusing on endogenous potential and activating local stakeholders across all sectors.

Based on the assessment that the local activities initiated by Leader since its establishment in 1991 have brought substantial momentum to rural regions across the EU, it has been argued that a more widespread application of the concept should enhance regional performance. In this context, the aim of the current funding period has been to raise the profile and significance of the Leader approach, through integrating it into Rural Development Programmes (RDPs), as well as by markedly increasing the level of Leader funding. Nevertheless, positive expectations of shifting the focus of Common Agricultural Policy (CAP) towards the more widespread application of Leader have been tempered by doubts about the feasibility and effectiveness of doing this within the new administrative frameworks of RDPs (see Lukesch et al., 2004, for example). The aim of this paper is to analyse how these changes to the Leader programme, referred to as 'mainstreaming' (Convery et al., 2010; Dargan and Shucksmith, 2008), affect the original character and constituent features[2] of the 'Leader approach', and consequently its effectiveness as a means of enabling endogenous potential and activating local stakeholders.

Given the differentiated application of Leader at the small-scale regional level, this paper draws on the findings of case studies from Austria and Ireland, which were conducted as part of a wider assessment of the impacts of RDPs[3] for the EU Framework 7-funded project RuDI.[4] The following section of the paper sets out the importance of social innovation as a concept and means of realizing neo-endogenous development strategies, including the potential impact of 'mainstreaming' the Leader approach may have on this process. The subsequent section then explains how a qualitative methodological approach was taken, in order to access the various administrative levels involved in the implementation of Leader and to go beyond inherently reductionist approaches to rural policy evaluation. Presentation of the research methods used is followed by an assessment of Leader delivery in Austria and Ireland, which compares modes of policy implementation and delivery, and summarizes the main effects of Leader mainstreaming in both Member States (MSs). This state-level assessment is complemented by findings from other studies about Leader performance, its future after 2013 and the extension of the scope of 'Local Development' programmes in the current Structural Funds reform. The paper ends by offering conclusions on the effects of Leader 'mainstreaming' on the facilitation and encouragement of innovative social action in rural regions, generally, and the implications of this work in terms of addressing development challenges and enabling opportunities for neo-endogenous rural development.

Social innovation and the enabling of neo-endogenous development

The shift from a sectoral to a territorial rural development strategy in rural areas has focused attention on neo-endogenous strategies as a means of achieving rural development, based on the assumption that those people working at the regional level know best how to tackle the problems within their region and the assets and endogenous potentials they have available (Shucksmith, 2010). However, this approach is dependent on the people and regions involved developing suitable organizational structures and institutional capacity to allow for the conceptualization and development of new ideas, and new ways of delivering rural policy (Neumeier, 2012). Innovation is thus a vital component of these policies, with its initial impetus and introduction often triggered by external factors, such as RDPs (Copus et al., 2011; see also Bock, 2012). This highlights the need to examine these programmes in terms of how they can act as a catalyst for, and encourage the development of, sustainable innovations.

Innovation within the Leader programmes has involved shared learning and the mutual exchange of knowledge and ideas indeed, innovation has been at the centre of these programmes and is one of the primary features of Leader (Dargan and Shucksmith, 2008). Bock (2012) argues that within the context of

agricultural development, the focus tends be towards the development and dissemination of technological innovations for economic gains, taken up by individual businesses in order to maximize their own profitability. Rural development, on the other hand, the focus of Leader programmes, is intent on supporting and encouraging innovation as a means of developing 'socio-economic systems and seek[ing] to meet unmet public needs and to create public value where markets and common socio-economic policies have failed' (Bock, 2012: 59). Furthermore, Leader is oriented towards the regional and local scales and the promotion and development of new forms of organization at both an institutional and personal level (Cawley, 2009), which result in social changes beneficial to the communities involved (Moulaert et al., 2005). As such, the notion of *social* innovations is widely recognized as of central importance to the aims of Leader.

Although there is some concern in the literature that the term *social* innovation is somewhat 'fuzzy' and therefore lacks a critical edge (e.g. Bock, 2012; Neumeier, 2012), there is a broad consensus that it involves new forms of organization at both an institutional and personal level, which are developed at the local level and result in social changes beneficial to the communities involved (Moulaert et al., 2005). In this respect, they differ from technological or economic innovation, whereby commercial gain may not be the primary focus, nor indeed the development of tangible outcomes (Howaldt and Schwarz, 2010); rather, social innovation is concerned with 'a change of attitudes, behaviour or perceptions' that result in new forms of collaborative action that improve the lives of those involved (Neumeier, 2011: 55). Phills (2009: 10) defines social innovation as:

> … any novel and useful solution to a social need or problem, that is better than existing approaches (i.e. more effective, efficient, sustainable, or just) and for which the value created (benefits) accrues primarily to society as a whole rather that private individuals.

Understanding processes of social innovation has therefore become increasingly important to the realization of neo-endogenous development strategies, such as those promoted through Leader programmes (Ray, 2006). In this sense, innovation is not an aspatial activity, but is intrinsically linked to territory (Polenske, 2007). Dargan and Shucksmith (2008) argue that social innovation was central to both the delivery and outcomes of Leader I and II (the two first Leader programmes in the 1990s), but that the 'mainstreaming' of Leader under the 2007–2013 RDPs has led to a dilution of this approach. This is partly to do with budgetary pressures, but also due to the increased influence and power of farming interests which, as suggested by Bock (2012) above, has altered the focus of Local Action Groups (LAGs), which are responsible for Leader implementation at the local level.

The Leader programme has posted numerous success stories in previous programme periods, which is why the DG Agri favoured the decision to mainstream the Leader programme, with the intention of extending its effectiveness and success to the wider RDP, across MSs. Under the current RDP, Leader is no longer a separate, individual programme; instead, it plays the methodological role of integration within the RDP (Convery et al., 2010; Courades, 2009; Dwyer and Maye, 2010). Within such a policy framework, Leader can be understood as requiring greater professionalization, as well as financial support. However, the mainstreaming definition has not gone unchallenged, being inherently problematic in both its use and meaning. It implies the transfer of *specific* actions and/or ideas into the 'mainstream' of policy administration and general programme application; furthermore, the implication of mainstreaming, in terms of integrating Leader as a horizontal activity into the whole RDP, affects the principles of Leader and hence its approach to facilitating innovation and enabling neo-endogenous development (Lukesch et al., 2004). As an EU-wide attempt of the European Community (EC) to reform the CAP from a sectoral policy towards a more comprehensive rural development policy, the territorial dimension is given more weight in all RDPs (Shucksmith, 2010).

However, as noted above, mainstreaming is far more than simply an administrative change. New challenges arise due to the requirements to link it to instruments, implementation rules and eligibility criteria within the main CAP regime. In particular, these

concern the increased focus on agricultural support measures and the definition and restrictions of eligibility for non-agricultural activities. Van der Ploeg (2003: 3) notes that 'it was unclear how this modification would affect formal democratic procedures and a generalized LAG approach'. Lukesch and Schuh (2007: 23) also highlight that Leader principles can 'only unfold their full potentials if applied in packages'. One of the significant findings to date from programme evaluations is recognition that there are important differences between both nations and regions, some of whom have had long-term experience of local action programmes and others for whom it is a new concept. Analysis of new MSs such as Hungary (Podmanicky, 2008), Poland (Furmankiewicz, 2012) and Romania (Marquardt et al., 2012), reveals, for example, high interest in this type of rural development approach, which is nevertheless hampered by the desire to retain centralized control over resources and processes on the one hand, and the need for a long-term perspective to enhance social innovation on the other. The political and institutional obstacles emerging from the alteration of the programme structure will be further scrutinized in this paper by addressing the main concerns highlighted within two established MSs (Austria and Ireland), linked to the general debate on the future of local development support.

Research methodology

The research on which this paper is based attempts to move beyond inherently reductionist approaches to rural policy evaluation. It argues for the need to examine and learn from the *policy process* itself, rather than merely focusing on impacts/outputs and, crucially, seeks to provide deeper insights through a small, but intensively investigated, number of cases (cf. Convery et al., 2010). The rural development policy cycle includes three main areas: governance issues on *design* (conception of instruments and operational modes); *delivery* (modes of transaction and control); and *evaluation* (timing, procedures, etc.) of policies affecting rural areas. These represent the different phases of the policy process, each of which has a substantial influence on the policy setting that extends well beyond the RDPs. Due to the integration of Leader into the RDPs, it has become crucial to understand the new design and delivery processes of Leader and its relationship to the other policy priorities of the RDPs. These aspects of the policy cycle (design, delivery and evaluation) were the core issues addressed in the qualitative approach taken in the empirical work.

In order to assess the effects of mainstreaming, the focus of the research was therefore on two MSs that have had particularly active Leader programmes in the past: Austria and Ireland. In order to obtain meaningful research results, a multistage methodology was applied. In both cases, the initial stage comprised an in-depth survey of the overall design and implementation of Leader from the start of the RDP to the end of 2009. This national design and implementation baseline review provided the context for a more detailed assessment of Leader at regional and local scales in the two MSs. Methodological instruments applied at this stage included the following: data analysis of Leader performance (strategic priority setting and analysis of expenditures) in all Austrian and Irish Leader regions; a qualitative analysis of implementation issues at all administrative levels (national, regional and local) in Austria; and similarly in Ireland, where more than two thirds of the country's Integrated Local Development Companies (ILDCs) (who perform the role of LAGs in the Irish context) were analysed.

As a means of accessing the experiences of local development actors, and as a result of the preceding national-level baseline analysis, five LAGs in Austria and three ILDCs in Ireland were selected for an in-depth examination (see Table 1) in the second stage. This involved interviews with Leader managers, project applicants, regional managers, chairmen and other local actors; observations of, and attendance at, project and staff meetings; field visits to potential projects to be funded in the RDP and other informal discussions. Interviewees were selected to represent the most influential actors and divergent views of programme participants at the local level. The set of questions addressed in these interviews focused particularly on changes in programme delivery due to 'mainstreaming' requirements and the effects of this programme change on the capability of local actors to realize innovative action. Relevant background papers and documents were also collected to extend the LAG-level analysis of mainstreaming processes

Table 1. Case study methods and data collection.

Leader 2007–2013	Austria	Ireland
Telephone interviews (national scale)	6	23
LAGs selected for in-depth analysis	5	3
Interviews with local actors in case study LAGs	18	25
Focus groups[a]	3	2
National workshops (and participant numbers)	1 (20)	1 (36)

[a]Address particularly local and regional levels.
LAG: Local Action Group.
Sources: Strahl and Dax, 2010; Maye et al., 2010.

and evaluation requirements. In addition, the research team met with various local actors (Leader managers, department officials and inspectors) at a series of focus groups to discuss the outcomes of the LAG-level analysis and to provide a forum for reflection on project findings.

In a third stage, a national workshop meeting between local and higher administrative levels was organized to capture the 'official' perspective of both provinces and the federal state and the need for autonomy at the local level. The combination of these research methods resulted in a large amount of very rich, qualitative data.

Based on these data, and their subsequent analysis, the following sections provide a comparative assessment of how Leader in the current RDP is delivered in Austria and Ireland, particularly in terms of how it enables (or not) social innovations to realize neo-endogenous development. The analysis mostly concerns delivery, sitting between conventional ex ante and mid-term programme assessment periods (2007–2009). These findings will be compared and enriched by the main results of Mid-Term Evaluations at the EU level.

Leader programmes in Austria and Ireland: regulations and modes of delivery

Local development activities and Leader have a long tradition in both Austria and Ireland. In Ireland, since the late 1980s a plethora of rural development initiatives have been introduced, starting with a 'Pilot Programme for Integrated Rural Development', prior to the 'official' introduction of the Leader initiative in 1992 (Cawley, 2009; Storey, 1999). Similarly, local development initiatives were first established in Austria in 1979 through a national programme of endogenous regional development (Gerhardter and Gruber, 2001).

In contrast to former periods, an important change and challenge under the current mainstreaming approach is that Leader measures now have to be implemented by the same procedures, and fulfil the same administrative requirements, as all the other RDP measures. Nevertheless, there is scope for national flexibility, which is exemplified in the differences between the RDP structures of Austria and Ireland. Ireland has its Leader focus on measures with the aim to improve the local economy and quality of life in rural areas (Maye et al., 2010: 17). The programme allocates 10% of the RDP budget to these measures. In Austria the allocation is done, as in most European countries, for all RDP measures, with a minimum of 5% for Leader. Based on the allocation of EU funding per RDP objective, the financial support for Leader activities was increased substantially. This rise in the Leader budget is of a very similar dimension for both countries, with the new level about three to four times higher than the support available in the previous RDP period (2000–2006). The considerable increase in funding has the potential to bring about a corresponding impact in the outcome and policy performance of rural areas.

As the comparative presentation of indicators of Leader application reveals (see Table 2), there are a number of similarities between the two countries. Both apply the Leader measures across almost the whole country and address more than half of the national population. While the public funds available for Leader 2007–2013 have been set at more than 400 million Euros in both countries, the intensity is very different, with the level of support per inhabitant being almost twice as high in Ireland. The Austrian Leader implementation started quickly so that the rate of absorption of the budget allocated to Leader was highest among all EU countries (Courades, 2011: 2). However, the most important difference to previous periods is the change in the

Table 2. Leader 2007–2013 application in Austria and Ireland.

Leader 2007–2013	Austria	Ireland
Number of LAGs	86	36
Population in LAGs (2008)	4,338,542	2,501,510
Total area of LAGs (km^2)	73,304	68,882
Population/LAG	50,448	69,486
% of total national area	88%	98%
% of total national population	52%	59%
Public funds for Leader 2007–2013	€423.1 million	€425.5 million
Public funds/LAG	€4.9 million	€11.2 million
Public funds per inhabitant	€97.5/inhabitant	€170.1/inhabitant
Projects carried out in Leader 2007–2009	2920	479[a]
Public funds for Leader 2007–2009	€64.977 million	€18.820 million
Support per project (2007–2009)	€40,431	€39,290

[a]No information about project numbers of measure 'Running the LAG, skills acquisition, animation' available.
LAG: Local Action Group.
Sources: Indecon International Economic Consultants, 2010: 50; Maye et al., 2010; Strahl and Dax, 2010.

project types supported, which in turn has implications for the average project size. The concentration on agricultural support measures has resulted in a decrease in the average project costs (in Austria now about €40,000 against €155,000 in the previous period). This trend towards smaller (and less innovative) projects holds true for Ireland and the other EU countries as well.

In Austria, the provinces are responsible for delivering Leader, whereas in Ireland it is exclusively the Department of Community, Equality and Gaeltacht Affairs (DCEGA) that is responsible for Leader. With regard to delivery at the local level, the implementation of the Leader measures in Austria takes place in the 86 Leader regions by LAGs. All RDP measures can be applied by LAGs within the Leader scheme. Beyond the coordination role of the Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) at the national level, the provinces have the core task of administrating the implementation of Leader, as well as being the service institutions. Their responsibility is to assess the content of Leader project applications, to decide on their eligibility and to execute Leader funds to the applicants.

However, the implementation procedures are different in the Austrian provinces. In some cases, Leader managers are closely linked to regional managers, or even operate themselves as regional managers, coordinating activities with other programmes such as Interreg, RCP (the Regional Competitiveness Programme financed by the European Regional Development Fund (ERDF)) and national regional support schemes. The Leader managers are in charge of project administration and implementation, support and assistance, as well as being the contact point for rural applicants and linkages to the provincial level. Furthermore, the LAGs are responsible for data collection, monitoring and self-evaluation, and for elaborating the local development strategy (LDS) for their regions.

Besides the similarities between the two countries, there are also important differences in policy delivery and governance. In Ireland there is a split in policy delivery at the macro-level, with the Department of Agriculture, Fisheries and Food (DAFF) acting as the Managing Authority, with responsibility for the 'Farming and Food' and 'Environment and Countryside' objectives/axes, while the DCEGA is responsible for 'Rural Life' and Leader, yet reports back to DAFF. The DCEGA oversees the content assessment of potential Leader projects, allocates Leader funds to the LAGs and ultimately decides whether to approve projects (Maye et al., 2010). Furthermore, LAGs in the 2007–2013 period are now

Table 3. Leader implementation in Austria and Ireland 2007–2013.

	Austria	Ireland
Leader coverage	All rural areas: 86 LAGs	Whole country: 36 ILDCs
Responsible institution	Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) for Leader and all RDP measures	Department of Community, Equality and Gaeltacht Affairs (DCEGA) for Axis 3 and 4: Leader processing; Department of Agriculture, Fisheries and Food (DAFF) for Axes 1 and 2
Province level	Service institutions at provincial level (8 Länder): content assessment and project approval	No additional tier, DCEGA is the only coordination level (content assessment, funding allocation, project approval)
Local executive level	Differences in tasks and institutional role of LAGs: some exclusively for Leader, some linked to regional management, some acting also as regional managers, and cooperating with other funding programmes	ILDCs are a 'cohesed' governance structure combining LAGs and Local Development Partnerships; ILDCs responsible for administrating Leader
RDP structure	5% of total RDP budget for Leader	'Rural Life' (Axis 3) measures are implemented through Leader (10% of total RDP budget)
Paying agency	Agrarmarkt Austria (AMA) transfers Leader budget to provincial funding service points which convey money to LAGs and applicants	DCEGA is the paying agency and processes payments rather than ILDCs

LAG: Local Action Group; ILDC: Integrated Local Development Company; RDP: Rural Development Programme.
Sources: Maye et al., 2010; Strahl and Dax, 2010.

in the form of so-called ILDCs, which are the result of a process of 'cohesion' that involved the merger of companies that previously had delivered either Leader programmes or Local Development Social Inclusion Programmes (LSDIPs) (Cawley, 2009). As these two programmes had a quite different genesis and focus, current management structures are still separate: Leader is managed by the DCEGA, with a focus on developing relatively remote rural regions; however, the LSDIP is a nationally funded programme that is oriented towards groups of excluded people in urban and rural areas. The main aim of cohesion was not only to improve the operating efficiency of programme delivery in terms of administrative costs, but also to enable synergies across programmes, thereby enhancing the diversity of projects supported, but also to consider more explicitly the social dimension when supporting the development of rural areas (Maye et al., 2010). A short overview of the organizations at the various levels in the two presented countries is summarized in Table 3.

A comparison of implementation approaches that was carried out by the European Network for Rural Development (ENRD) discerned three different models of the roles attributed to LAGs (Brosei, 2011: 9): firstly, LAGs that are only in charge of project selection; secondly, LAGs that are in charge of project selection together with payment tasks; and thirdly, LAGs that are in charge of project selection, approval and payment tasks. This EU-wide analysis reveals that local actors have been restricted to a small section of tasks in many countries. Most importantly, the changes in the administrative regulations have had particular consequences for the content of applications. Thus, in Austria the current implementation of Leader measures is characterized by two diverse types of Leader projects: 'classical' and 'standard'. 'Classical' projects are those that were typical in previous periods, with an expressed concern to consider the Leader principles. 'Standard' projects are primarily individual agricultural and

forestry (diversification) projects that are attached to Leader due to the mainstreaming approach. The case studies of LAGs reveal that they have some flexibility to select projects according to their strategy, but are pushed towards simplified procedures of approval for 'standard' (less innovative) projects (Strahl and Dax, 2010). This relates to the budgetary framework of the current RDPs, that sets out that Leader projects can only be funded if a budget provision for specific measures has been set. These 'coordination' challenges are dealt with differently in Austrian provinces. In most cases there is a lack of appropriate match funding, particularly for trans-sectoral, innovative as well as social and cultural projects. As a result of these processes, many actors feel that the considerable increase in the Leader budget has so far had no effect on raising the potential for local initiatives in Austria.

Leader in Ireland has also become much more bureaucratic through mainstreaming, being driven by rules with clearly defined governance and compliance guidelines. While the operating rules for 'Rural Life' and Leader (i.e. axes 3 and4) on paper cover a field of quite common issues (such as guidelines on operation areas, processing of applications, monitoring and evaluation), many ILDC managers argue that the DCEGA's *interpretation* of the operating rules is overly rigid and inflexible, markedly increasing the administrative burden and making it much more difficult to develop new, innovative projects. This has been a factor in delays to the implementation of Leader funds, as has the process of cohesion and wider budgetary problems caused by a constrained national economy, which has been severely hit by the global economic downturn. Although the Leader budget has been exempted from budget cuts, it has become increasingly difficult to find project partners with available match funding (Maye et al., 2010: 16, 24). Furthermore, changes to the inspection process under mainstreaming means that it is now a more risk averse, audit-based approach centred on finding errors in the application of the rules, rather than advice-based, resulting in a so-called 'inspection overload' (Maye et al., 2010: 18). This is leading to a culture of fear: fear at the DCEGA level that they may be perceived by Brussels to be failing to implement the more stringent operating rules; and fear by the ILDCs that they could fail a departmental audit, resulting in them having to pay back funds that they have already committed to projects (Maye et al., 2010: 26).

Disabling innovation: the effects of leader mainstreaming

The case studies reveal many parallels between Austria and Ireland concerning the effects of mainstreaming Leader, experiences that have also been endorsed by Mid-Term Evaluations from other countries (Leader Subcommittee Focus Group 1, 2011; Schnaut et al., 2011). The qualitative empirical approach provides evidence of the wide scope and rising challenges faced by local managers of Leader programmes, as well as reflecting their interpretation of the effects of changes in relation to programme performance. The following presentation of the main effects of Leader mainstreaming is largely informed by insights into programme implementation in Austria and Ireland, drawing on materials collected from the three stages of the evaluation, especially the detailed LAG-level case study analysis. The concerns raised highlight the necessity of checking programme delivery against the preconditions for mainstreaming. The following dimensions of mainstreaming show the gap between the potential for rural activities and supporting innovative project ideas, as expressed in the interviews with local actors, and the institutional capacity to realize this potential within the current regulation systems.

Programme delivery

Delays are strongly influenced by the ability of all the levels involved to adapt to the new programme framework and provide region-specific answers. In Ireland the delay was largely caused by the formation of ILDCs (Maye et al., 2010; see also Cawley, 2009), while in Austria, although the adaptation to the new regulation regime took time and energy (Strahl and Dax, 2010: 16), it was completed in a comparatively short time.

Increased level of regulation

The operating rules set up at national and provincial levels are established by EU regulations and should help improve programme delivery. However, it is clear from the interviews that the increased level of regulation and accounting reinforces the complexity of the scheme and is slowing down Leader delivery. Having already spent 35% of its Leader budget by May 2011 (Courades, 2011: 2), Austria is on target to spend its allocated funds by the end of the programme period (albeit at the price of almost sacrificing the innovative character of Leader). However, in many other MSs considerable efforts will have to be made in order to distribute the available Leader funds. In Ireland, for example, there is pressure on ILDCs to increase the size of individual project budgets, in order to ensure that the overall Leader budgets are spent (Maye et al., 2010: 27).

The increased levels of bureaucracy and extra auditing at both national and provincial levels have had a number of adverse effects on programme delivery, especially in that it is often the same number of staff that now has to deal with a significantly greater LAG area. It was evident from the case study visits to LAGs that these programme changes place a large burden on the staff involved, with a greater percentage of their time being used for administration, with relatively less time available for giving advice and helping with community development tasks (Strahl and Dax, 2010: 29). The decrease of support available for proactive innovation augments the EU-wide impression that programme management cannot realistically be assessed as professional (Brosei, 2011).

Strategic orientation

It is apparent from the Austrian case study that, relative to the previous programme period (Fidlschuster, 2007), many of the strategic priorities of Leader have lost relevance. The wider set of measures now applicable through mainstreaming can only be turned into positive impacts if strong incentives for the Leader concept and community development are continued. Nevertheless, the evidence suggests there is a persistent deficit in continuing the strategic orientation of supporting local action development. The reduced priority for the LDSs has been increased by barriers to the implementation of 'classical' Leader projects, which has pushed LAGs to make increasing use of 'standard' agricultural measures. In countries where RDPs are primarily governed by agricultural stakeholders, as in Austria, this has led to a distinct agricultural orientation in Leader applications and less concentration on innovative cooperation projects. Similar effects in Leader implementation were experienced in many other cases (Papadopoulou et al., 2011; RuDI consortium, 2010; Schnaut et al., 2011). This indicates a gap between the Leader approach and public assistance, revealing that the principle of multi-sectoral support is waning (Strahl and Dax, 2010: 21).

Rural innovation

What becomes apparent from both of the countries studied here, and other examples as well (see Convery et al., 2010, for example), is that the innovative character of Leader is being threatened by what might be termed a 'banalization' of projects. With the shift to low-risk (agricultural) 'standard' projects, the orientation towards activities of an experimental character, with a high degree of creativity and innovation, is diminishing (Strahl and Dax, 2010: 22). It is necessary for all levels of institutional governance to counter-balance this tendency and to make efforts to re-establish the preconditions for local community action. The economic crisis has contributed to a perception that matching budgetary targets takes preference over local community development needs. This has led Leader managers to become wary of developing innovative projects, because in reality these are often not feasible within the current regulatory framework (Maye et al., 2010: 20).

An implicit shift in decision-making

Whereas Leader was known for being an area-based bottom-up approach, LAGs nowadays feel constrained and squeezed in between a growing set of regulations, losing their ability to make use of locally specific rural assets through an innovative approach

(Strahl and Dax, 2010: 38). The mainstreaming of Leader has also made it more difficult for those operating at the local level to be flexible and to respond to the particular needs of local areas (EC, 2011), or to be a 'test bed' for neo-endogenous rural development actions that may not always be certain to succeed, but that hitherto have been considered worth trying (Maye et al., 2010: 26). This lack of adaptability regarding local needs was referred to in a number of the case study interviews as a tendency towards a reduced autonomy for LAGs. In this period, Leader measures are increasingly at odds with a bottom-up approach so that, not surprisingly, there is concern that the Leader ethos has been replaced by a much more top-down reality. In this respect, the principles of innovative, area-based local strategies as guiding Leader (EC, 2006; OECD, 2006) are in danger of becoming buzzwords without actual relevance in practice. It should be noted that the EC drew conclusions from these failures (Leader Subcommittee Focus Group 1, 2011) and reframed strategies for local development. Building on findings about translocal interrelations (Copus et al., 2011; Hedberg and do Carmo, 2012) restricting local initiatives is no longer considered useful. The future policy concept therefore envisages offering Multi-Fund Local Development Programmes. The draft regulation proposes Community-Led Local Development (CLLD) based on the Leader approach and involving all the Funds covered by the Common Strategic Framework; furthermore, that this should apply throughout all regions (EC, 2012: art.28–31), that is, rural and urban regions.

Effectiveness of Leader

Notwithstanding recent efforts to modify funding rules, the above comments clearly raise a number of important issues regarding what impact the mainstreaming process has had on the Leader approach and ethos. There is no doubt that a significant increase in the size of the budget and a more comprehensive integration of Leader into the main RDP structure have upgraded Leader's status, shifting the programme from the margins towards the centre of rural policy influence. This point was recognized in a number of interviews with Leader managers and others involved in rural policy. Nevertheless, it is apparent that only a minority of those involved are satisfied by the quantitative changes, principally because the increased funds have not as yet resulted in a correspondingly increased impact in terms of outcomes and policy performance for rural regions and societies (Strahl and Dax, 2010: 29). The application and effects of Leader differ, depending on who the responsible authorities are for its implementation at both national and provincial levels, with some administrations taking a much more multi-sectoral approach than others. Consequently, greater coherence for policy implementation and a more comprehensive assessment of impacts, in particular the added value of Leader application, is urgently required (European Court of Auditors, 2010).

Conclusions

The case study findings from Austria and Ireland regarding the mainstreaming of Leader have profound implications, especially regarding potentially diminished contributions to local innovation. Although the principles of Leader have not been removed, their relevance has been restricted. This assessment is underscored by the two MS case studies and increasingly also evidenced in the programme evaluations of other countries (Brosei, 2011; Papadopoulou et al., 2011; Schnaut et al., 2011; Thuesen, 2011). In particular, the bottom-up approach and support for social innovations and local actions are being challenged and arguably threatened, only retaining their influence when clearly targeted by multi-level governance structures. In practice, there is no priority for the 'new rural paradigm' (OECD, 2006), which focuses on places instead of sectors, taking a territorial rather than a sectoral approach. Findings, such as these presented for the two countries and other mid-term evaluations, have been discussed in the wake of the EU policy reform process, calling for a renewed recognition of the preconditions of the Leader approach.

The EU Commission has repeatedly called for an increase in the territorial dimension of CAP in past reform debates (Dax, 2006), but this has not been realized through mainstreaming. On the contrary, as

evidenced in both case study regions, there has been a trend towards centralization and a reduction in regional targeting. Innovative mechanisms of coordination and cooperation face substantial implementation difficulties, which has had a negative effect on participation in the programme. In practice, CAP application falls short of the rhetoric of the 'new rural paradigm' and fails to integrate core aspects of Leader through mainstreaming. Rigid coordination structures and hierarchical mindsets, as well as new control and audit mechanisms (evidenced here through detailed LAG-level analysis) prevent a local or regional-based application of Leader. The hierarchical administrative structures thus work against cross-cutting and multi-level governance. Moreover, the recent discourse was not restricted to the reform of Rural Development Policy, and thus an internal discussion of CAP objectives and outline, but was specifically addressed by Cohesion Policy. A vision of coordinated Multi-Fund Local Development Programmes is proposed for the 2014–2020 funding period, which would build on the lessons from the shortcomings of the current mainstreaming of Leader (EC, 2012, art.28–31).

These policy conclusions recognize that the application of Leader has deep implications for other rural activities. Thus, in some regions the inter-relations and cooperation of Leader with other local and regional actions and mechanisms (e.g. Interreg, Local Agenda 21, Climate Change action groups, nature protection areas) reflect a neo-endogenous approach. Building on recent findings of territorial, social and cultural interrelations, a more active engagement with other sectors and actors will be required in order to tap the local potential of rural (and urban) regions. In this respect, future Leader and local development actions need to reinvigorate long-established core principles, most notably the notion of social innovation (Bock, 2012; Moulaert et al., 2005), and to concentrate on local and regional assets and deliver at that level, if its capacity to make a significant area-specific impact is to be realized again.

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Notes

1. Leader is an acronym for the French term, Liaisons entre Action de Developpement de l'économie rurale (links between actions for the development of the rural economy).
2. The following aspects are in general presented as the 'Leader principles' (EC, 2006): bottom-up elaboration, local public–private partnership, integrated and multi-sectoral actions, cooperation, networking, area-based LDSs and innovation.
3. The core policy objectives are as follows: improving the competitiveness of agriculture and forestry (Axis 1 – 'Farming and Food'); supporting land management and improving the environment (Axis 2 – 'Environment and Countryside'); and improving the quality of life and encouraging diversification of economic activities (Axis 3 – 'Rural Life') (EC, 2006: 3). The Leader methodology is a fourth programme axis.
4. RuDI: 'Assessing the Impact of Rural Development Policies, including Leader', FP7 (No. 213034).

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Endogenous Development in Austria's Mountain Regions

From a Source of Irritation to a Mainstream Movement

Thomas Dax

Regional development in mountain areas and the impact of development on landscapes have been focuses of economic and regional policies in Austria for many decades due to the country's very mountainous topography. A special Support Program for Mountain Farmers was established in the early 1970s. Since the late 1970s, support for regional economies has been defined from a bottom-up perspective. Meanwhile, measures designed in accordance with agricultural and regional policies have become an important component of Austria's mountain policy, with significant implications for sustainable regional development. Assessment of mountain agriculture in Austria has been carried out with particular attention to ways and means of supporting the agricultural sector and to measures aiming to preserve and manage land resources sustainably under the difficult production conditions in mountains. At the core of mountain policy is the valuation of nonmarketable goods, which are increasingly referred to as "rural amenities" in international discourse (Figure 1). Such valuation must be included in comprehensive policy assessments of sustainable development. Emphasis on the character of mountain areas with respect to potential local and regional amenities has made it possible to enhance small-scale development initiatives at the local level. Sustainable resource use in peripheral mountain regions largely depends on the possible development potential of amenities in regional concepts, on nurturing the endogenous potential of the local population, and on inducing appropriate initiatives for balanced development of cultural landscapes and rural society.

The shift to bottom-up approaches in peripheral European mountain areas

Recent policy trends have clearly shown the need for more integral approaches with a stronger focus on regional concerns in mountains. In several Central European countries such as Austria and Switzerland, mountain policies since the 1970s have largely been inspired and enhanced by bottom-up activities and regional/rural policies on a small geographical scale. Pilot schemes have been developed by alternative groups in remote mountain areas of France and Spain. In Austria, particular attention was given to the role of mountain farming from the outset.

Redefining the role of mountain farming in Austria

Agriculture plays a pivotal role in mountainous areas of Austria: with 49% of all agricultural and forestry holdings situated in mountain areas, it is a major national concern (Figure 2). Farmers manage 49% of the country's agricultural area and 75% of the woodlands. The relevance of animal husbandry is reflected in the high proportion of grassland used (area ratio 78%).

Land use has been characterized by farming and forestry in the Alps of Austria for centuries. While the importance of agriculture as a source of food has

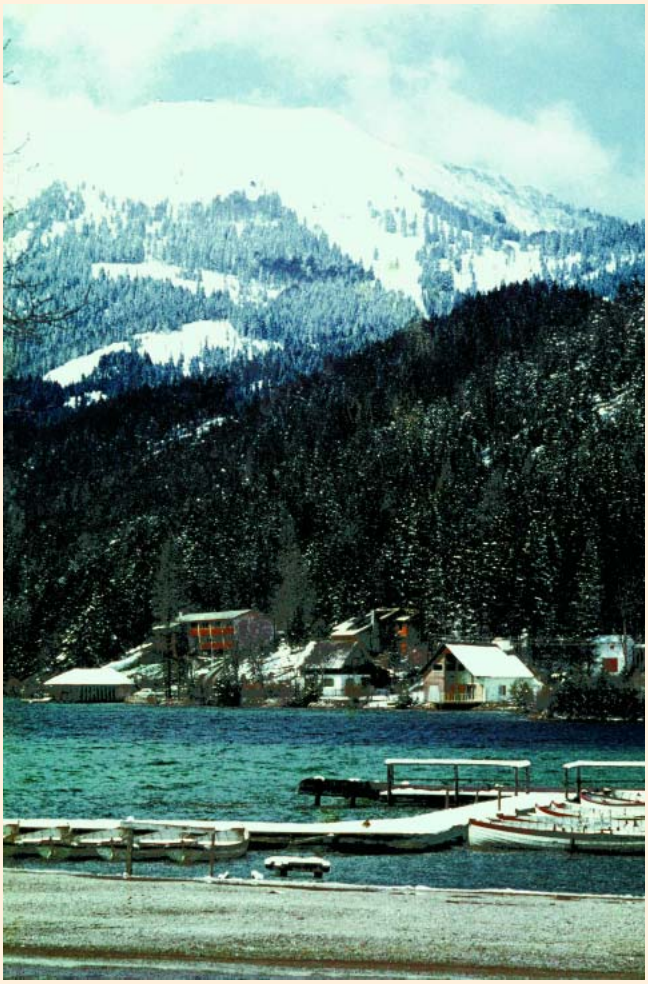

FIGURE 1 Development of winter tourism in the Alps depends on well-preserved scenic and rural amenities. (Photo courtesy of the Ministry of Agriculture, Forestry, Environment, and Water Resources)

FIGURE 2 Mountain farming has created valuable settlement areas and contributes substantially to a diversified rural economy. (Photo courtesy of the Ministry of Agriculture, Forestry, Environment, and Water Resources)

decreased dramatically in mountain areas, it has become a prime target of initiatives to maintain living and working opportunities in these areas. Programs initiated in the 1970s in the Alps began to address the interrelationships between sectors and the need for integrated strategies.

Today, farming includes a wide range of functions in mountain areas; these go far beyond its traditional functions and include the following:

- Providing high-quality fresh foodstuffs at affordable prices.
- Maintaining vital natural resources such as soil, water, air, and biodiversity.
- Shaping and preserving cultural and recreational landscapes, which are not only a living and working space but also the main resource for mountain tourism.
- Preventing outmigration from peripheral areas and maintaining a basis for social and economic activities.
- Providing raw materials and energy.
- Implementing ecologically appropriate farming methods.
- Providing an impetus for and renewal of the regional economy.
- Protecting human settlements and infrastructure against natural hazards (eg, in the form of protective forests).

In recognition of the importance of what was now called the multifunctionality of mountain farming, a Special Program for Mountain Farmers was launched in 1972 to reduce the risks of land abandonment and outmigration in mountain areas. The program focused not only on solving site-specific problems but also on improving social conditions for farm households and incorporating the regional dimension.

Promoting regional development

The debate on peripheral areas in Austria was strongly influenced by the new focus on (small-scale) regional issues and led to a shift in the regional policy paradigm. This new orientation was discussed in detail and referred to as "endogenous regional development." The Special Initiative for Mountain Areas, later referred to as the Initiative for Endogenous Regional Development (*Förderungsaktion für eigenständige Regionalentwicklung*, FER), was set up in 1979. The objective of the initiative was to support cooperative business projects in all sectors at a decentralized regional level. Concrete plans were implemented in some of Austria's most peripheral mountain areas.

Although the grants provided for support remained modest, FER was assessed as a fairly stimulating factor in developing regional policy in Austria's mountains. Besides efforts to raise the awareness and motivation of the local population, the core measure for enhancing this bottom-up approach was the provision of training through regional consultants, especially in the first phases of individual initiatives. In the process, the emphasis shifted further to regional innovation and transfer of know-how.

The evaluation of program experience and actors' reactions reveals the extent to which discussions stimulated actors' understanding of local identity, development perspectives, and the relevance of participation and cooperation. Much of the discourse and process were new to people in peripheral mountain regions, as they had learned to cling to rather traditional values and strategies. Values and local perceptions had to be questioned at the outset of the development process—much to the initial irritation of the actors—in order to incite pilot actors to actively address the discrepancies between local views and growing outside influences.

Decentralization: A prerequisite for endogenous development methods

Some areas in rural and peripheral regions and in structurally weak industrial regions, situated primarily in Austria's mountains, served as model areas for the federal government's new regional policy initiatives. This was a result of a political consensus in Austria that peripheral areas should not be left to manage entirely on their own. Mountain areas were perceived as the most peripheral and therefore received special attention. But it was not possible for the federal government to implement a comprehensive mountain program immediately, as the interests of the various sectors and the structures of corresponding policies remained in place, while responsibility for regional policies was (and still is) split between different administrative and political levels.

The first step was to design pilot projects to prove that bottom-up initiatives are feasible and enhance the development of mountain regions. The new paradigm of endogenous development required an organizational basis to promote a long-term approach. The main initial concern of the pioneering actors was to find experts willing to provide advice on how to motivate and support project initiatives. At a later stage, the initiators realized that the establishment of regional consulting structures was a far more important achievement of the pilot projects than short-term, quantitative improvement of a region's economic performance. The example provided by key actors triggered widespread approval of the concept of endogenous development and aroused an interest in setting up similar programs in other regions.

Many innovative elements of these development initiatives have since been taken up in sectoral policies or programs at various administrative levels. Now that the overall concept has been adopted in mainstream policies, programs at the province level and support from structural programs—in particular European Union regional programs—have incorporated bottom-up approaches and are based on key aspects of experience with the development initiatives. The following example of an initiative in a mountain area illustrates the success and influence of endogenous development in Austria.

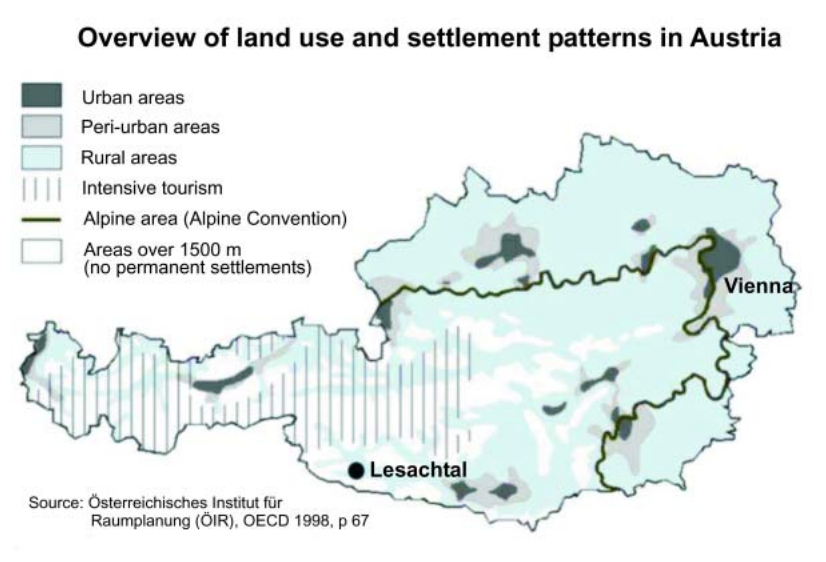

FIGURE 3 Overview of land use and settlement patterns in Austria and location of Lesachtal in the Province of Carinthia (Kärnten).

The local development program in Lesachtal

At the western end of the Province of Carinthia in southern Austria (Figure 3), a few secluded valleys have remained highly inaccessible and are therefore particularly threatened by economic decline. It is in this particular part of Austria that the approach taken in an individually tailored project in the Lesachtal was expanded for the first time in order to exploit the potential for development throughout the valley.

The municipality of Lesachtal consists of 4 parishes located in a high mountain valley at an altitude of 900 to 1500 m. The main obstacles to development are its marginal position and difficult topographic conditions. In the 1980s, integration of the local economy into the greater national economy and the decline of farming as the main activity led regional project groups to discuss future perspectives for the valley. In 1988, the following development model was adopted: Preservation of traditional mountain farming methods that characterize the Lesachtal area, in close cooperation with environmentally sound tourism.

Support from both federal and provincial policies as well as on-site consulting activities carried out by the Austrian Consultancy for Endogenous Regional Development (ÖAR) were decisive in motivating and streamlining the efforts of the local population. The most important part of the process was to strike a balance between the different administrative lev-

Key principles of the Lesachtal development program

- Restrict the absolute number of hotel beds so that the ratio of inhabitants to guests does not exceed 1:1.
- Restrict the maximum number of beds per hotel to 70.
- Preserve architectural characteristics through building regulations that promote the traditional 2-story building.
- Provide no technical infrastructure to support skiing (ski lifts, cable cars, etc).
- Adapt the main road through the valley only to local, intraregional traffic.
- Preserve valuable cultural landscapes.

els, sectors, and societal groups. After 15 years of development work, it became clear that such a quest for balance must remain a continuous process, while agreement on models and periodic renewal of development strategies must also be sought. Hence, the spirit of innovation has to be continuously kindled, and local actors should not return to the static view of fulfilling a once-agreed-on development program. Reaffirmation of the strategy and the search for new objectives characterize the dynamism shown by the local actors, who are the driving force.

The Lesachtal project has revealed that it does not suffice to focus only on economic development. It is particularly important to foster informal activities such as networking between project groups and initiatives, as this contributes to building consensus among the local population, increases the potential for regional development, and partly removes bottlenecks in local decision making.

FIGURE 4 Farming still shapes Alpine landscapes but depends on on-going support to fulfill its wide-ranging tasks. (Photo courtesy of the Ministry of Agriculture, Forestry, Environment, and Water Resources)

Local actors also now agree that efforts have to be renewed and that networking with other regions is a basis for exchange of experience and for keeping or regaining momentum.

The adoption of a strategy that made "soft tourism" the trademark of the area (see box above) was a decisive step. The project has achieved national and international repute, as testified by the awards received: At the 1991 Holiday Fair in Stuttgart, Lesachtal was praised as the "most environmentally sensitive community and unspoiled vacation setting in the Alps." Some years later, Friends of Nature International selected Lesachtal as a model region for its action entitled "The Alps—Landscape of the Year 1995."

Lessons learned for local/regional development in other mountain areas

Although the approach to mountain development adopted about 3 decades ago in Austria aimed at a holistic solution of problems, pioneer activities met with considerable difficulties related mainly to the prevailing institutional framework and the individual activities of (economic) actors. In many cases, the hardest task was to adapt individual strategies and establish a common basis for cooperative action in small mountain communities. As is particularly visible in mountain areas, a focused and coordinated policy integrating regional aspects, spatial planning, and economic, environmental, technological, transport, structural, and agricultural aspects is necessary at the different territorial levels.

The encouraging results of pilot programs significantly influenced the assessment of mountain development and the scope of economic activities perceived as opportunities in these areas. The Austrian experience shows that successful policies to safeguard environmental amenities and cultural landscapes while promoting regional development calls for the incorporation of spatially oriented sectoral policies in integrated regional development

FIGURE 5 Agricultural land use at high altitudes in the Alps is characterized by summer pasturing, which has led over the centuries to valuable ecosystems. (Photo courtesy of the Ministry of Agriculture, Forestry, Environment, and Water Resources)

strategies. The long-term provision of public environmental amenities in mountain areas can only be ensured by maintaining settlements as well as social and economic activities and by conserving and shaping cultural landscapes (Figure 4).

In general, this is not possible without maintaining mountain agriculture. Support for mountain farming has an impact not only on the income and living conditions of mountain farmers. It also raises awareness in society at large of the value of the wide range of tasks of mountain farming. Measures to support diversification and off-farm activities enhance the farmers' economic security and provide them with an impetus to participate in regional initiatives.

Today, many elements of the pioneer projects have been taken up in mainstream programs, both in mountain regions and rural areas in general. To some extent, this has limited the innovative spirit of new projects, and fresh inspiration must be sought by key actors. But the following characteristics of mountain-specific regional programs deserve general attention when designing new initiatives:

1. Endogenous development plays a decisive role in developing acceptance and ownership by local people, which are essential for their long-term commitment.
2. This local dimension must be supplemented by strategies dealing with the relation of the region to other areas. Thus, for a long-term perspective, territorial and societal interrelations deserve particular attention.
3. Innovative action and strategies for regional development in one mountain area cannot be simply taken over somewhere else. Only relevant experiences can be transferred.
4. In many cases, innovative action has to be induced by questioning existing institutional systems; this requires exchange and moderation by "outsiders."
5. Moving from individual projects to cooperative action is a central learning process for all initiatives. On-going discussion of local opportunities has led to the insight that integrated regional strategies involving a certain critical mass must not be neglected.
6. Endogenous development is not a conflict-free process. Integrating different stakeholders and ensuring wide participation of local groups and individuals are the keys to lasting success.
7. Rural amenities in mountain areas are basic assets of the potential for regional development. Integration of environmental concerns into mountain economies is not yet at hand, but numerous Austrian initiatives have begun to develop concepts.

These conclusions reveal that mountain development has great potential, particularly when learning from pilot actions. The growing number of actors involved and the new nature of policies in recent years require a subtle, but comprehensive, integration. In this regard, the rising awareness of the ecological fragility of mountain areas and the valuation of landscape perceptions have brought about a shift toward integration of environmental concerns in regional development strategies (Figure 5).

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Strengthening Cooperation Strategies in Mountain Areas

Assessment of the Interreg IIIB Alpine Space Program

Thomas Dax and François Parvex

Abstract: In the context of European spatial development, mountainous regions are characterized by specific development issues and by limitations on regional exchange. The EU Community Initiative Interreg IIIB Alpine Space Program (ASP) is a focused instrument to strengthen transnational cooperation and promote balanced development, covering the geographical area of the core mountainous area and the neighboring interlinked regions of the seven Alpine countries. The priorities of its activities are the impact of climate change on risk management, polycentric spatial development and the support of sustainable transport systems. Almost 60 projects have been approved and substantive efforts for cooperation and implementation of innovative pilot actions have taken place.

This paper draws on the results of the prospective study that was commissioned by the Management Authority to provide scenarios and perspectives for the future of cooperation in this mountain region. It assesses major achievements and points to the core requirements for ongoing transnational projects in order to overcome deficiencies experienced in these regions. The conclusions and recommendations focus on the challenges for mountain regions in securing sustainable territorial development, despite ongoing changes in land use and contrasting spatial trends. The impact of the program is thus primarily dependent on its integration into the regional knowledge system and a linkage to spatial strategies at the different geographical and administrative levels. As a next step of cooperative activities, the linkage to adjacent non-mountainous regions and a closer network with other mountain ranges outside the Alpine space is envisaged.

1. Introduction

The Alpine Space Program is one of the successful examples of transnational cooperation for different European policy issues. It is primarily conceived through its core mountain area, which reveals, according to its overall low population density, the characteristics of rural regions. However, a differentiated spatial view reveals substantial differences in settlement structures at smaller geographical levels and polarization tendencies for spatial development: large parts of the valleys of the Alpine core area are being affected by urbanization processes. Moreover, the continuing integration of mountain regions into the surrounding agglomeration areas increases the relevance of urbanization for large parts of the Alpine space. The intensified interrelations between rural and urban areas have thus become one of the main challenges for the Interreg IIIB program.

With regard to public debate, traditional views predominate in the perceptions and impose a strong demand for the maintenance of existing land use structures and cultural landscapes. The analysis of main territorial trends underpins the issue of the natural resource base as the prime concern for the development of the Alpine space. Increase of natural hazards, loss of habitats and biodiversity, endangered variety of landscapes and the increasing pressure on natural resources are seen as the most important trends.

The other most relevant spatial trend in this mountain area is the growing relevance of accessibility to infrastructure and knowledge. It has been shown that the effects for the local population depend not just on the improvement of a large-scale infrastructure, but even more on the networking of local and regional structures and organizational issues.

In assessing the effectiveness of cooperation activities, the image of the Alpine space is largely limited to a rural area with a variety of "rural amenities". It becomes more and more clear that a correct, up-to-date reference to the current regional socio-economic tendencies and spatial strategies have to be communicated to non-Alpine society. Well beyond the seemingly idyllic past, one has to address the economic and environmental threats and also take account of the potential of the area to fulfill social demands from outside.

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There is considerable scope for linking the different activity levels and achieving more integrated regional and rural development policies. The trans-regional exchange of relevant experiences within the ASP program provides a vast field for thematic cooperation and learning processes on how to address rural-urban interrelationships as a central feature of spatial development.

From its central location between some of the major metropolitan areas in Europe, it becomes evident that these activities could only develop due to rising demands on the mountain regions involved. In this regard, the ASP is often referred to as a model for the development of mountain regions and their foothills in other parts of the EU and beyond.

2. Alpine Space Program Priorities

The program area draws its designation and identity from the core mountain range, whereas the other 12 transnational cooperation areas established by the member states and the European Commission within the Interreg IIIB Community Initiative are primarily characterized by their respective geographical position with regard to different features (Alpine Space Program 2004). Transnational cooperation is becoming increasingly important for regional development in the Alpine space. In consideration of the experiences of cross-border cooperation of the two previous Interreg programs, the Interreg IIIB program has been launched for the period 2000–2006 (together with other schemes of transnational cooperation) to take account of the need for cooperation at a larger scale. It is conceived to contribute to an improved integration of national development measures and to territorial cohesion. The contents and priority activities will be shown by the analysis of the implementation of the various measures of the program.

Although the Interreg programs are funded only with 0.6% of the total Structural Funds budget (1.3 billion euros), they highlight the fact that even with comparatively low funding, it is possible to achieve significant results at the European level. With a total budget of 123 million euro (less than 5% of the Interreg IIIB funding), and a territorial limitation to the Alps and their foothills, the Alpine Space Program is one of the smallest programs of Interreg IIIB in terms of its funding and regional scope. However, it is one of the most successful in revealing the necessity for cooperation for non-structurally-weak regions and in supplying exemplary solutions for planning processes, in particular, for sensitive regional environments.

2.1 Territorial and thematic focus

The main emphasis of the program is on spatial development perspectives, economic networking, transport development, protection of the environment, the natural and cultural heritage and natural risks. This is reflected in the three priorities of the program:

- Promotion of the Alpine space as a competitive and attractive living and economic space within the scope of a polycentric spatial development in the EU (priority 1)
- Development of sustainable transport systems with particular attention to efficiency, inter-modality and better accessibility (priority 2)
- Wise management of nature, landscapes and cultural heritage, promotion of the environment and the prevention of natural disasters (priority 3)

Common characteristics of Alpine regions

In preparation for the new programming period of the Structural Funds, the European Commission called on the member states to reflect on the current transnational cooperation areas and their suitability. One of the studies under the ESPON program (Schön et al. 2005) highlighted the following three dimensions with regard to Alpine space as a transnational cooperation area.

- Common characteristics that differentiate the Alpine space as a transnational cooperation area
- Internal coherence of the cooperation area
- Differences between the regions that constitute Alpine space

In the analysis of a set of 20 indicators, the values with strongest similarity for NUTS II regions of the Alpine space were obtained for the average number of flood events, natural surface as a share of the total area, R&D personnel in the business sector, GDP per capita, and youth unemployment, where the values for R&D personnel and youth unemployment showed a very good performance. Research and development performance and average accessibility indicators are the issues with the greatest internal differentiation. This leads to the conclusion that these factors will have to be of major relevance for future activities.

These indicators, defining the common profile of the Alpine space regions, incidentally

correspond quite well with the priorities for transnational cooperation in the next phase of cohesion policy implementation as proposed by the European Commission (EC 2004), which includes water management, risk prevention, and scientific and technological networks.

Territorial balance in participation

The great importance attached to accessibility parameters suggests that the participation of eligible regions is crucial for linking practice with experiences derived from projects and thus make use of pilot projects. The distribution of the partners into different administrative levels from NUTS 1 to NUTS 3 underpins the central role of NUTS 2 administrative partners, i.e., the level most commonly assigned as the regional level, with, in general, responsibility for planning tasks and implementing, regional development (Table 1). Although most active partners in the projects are concentrated in Italy and Austria, all countries and most regions are active in the program. Together with other public (18%) and scientific (also 18%) institutions, the administrative units (43%) involved in the projects account for the majority of partners. It is, however, obvious that the inclusion of low geographical levels (i.e., community level), non-profit organizations and private partners is particularly relevant for case study work and action, which provides useful examples and interesting results for other areas.

Up to now, a total of 57 projects with about 600 partners have been commissioned.[1] The up-take has been high for priorities 1 and 3 and there will be a small targeted last call (5th call) only for activities of priority 2, i.e., the development of sustainable transport systems. This slight gap in the implementation is related to the amount of funds available for projects that are rather small when dealing with infrastructure objectives.

Moreover, the intensity of transnational cooperation has been classified by assessing the degree to which the projects contribute to qualitative objectives of cooperation. The bulk of projects are therefore primarily interested in increasing knowledge, developing tools and extending networks, which are the least demanding objectives in the cooperation framework. A more in-depth cooperation aiming at a further exchange, strategy building and common action only rarely takes place. Yet this is no major surprise since transnational cooperation, going beyond mere cross-border activities, requires a long-term preparation phase and continued commitment (Scott 1999).

2.2 *Inter-disciplinary approach*

The great diversity of situations implies an extended exchange of experiences and a specific focus on regional adaptations. As the problems that have to be addressed relate to all the economic sectors, socio-economic and environ-

	NUTS 1	NUTS 2	NUTS 3	LAU*
Number of partners (territorial units)	16	123	58	54
Partners in %	6.5	49	23	21.5

* Local administrative unit (LAU)
Source: Bausch et al. 2005

Table 1: Level of administrative units involved in Interreg IIIB Alpine Space Program projects

Measure	Title of the measure	Number of projects	Share in %
1.1	Mutual knowledge and common perspectives	11	21
1.2	Competitiveness and sustainable development	12	23
2.1	Sustainable transport systems: perspectives and analyses	2	4
2.2	Improvement of existing and promotion of future transport systems by large scale and small scale intelligent solutions such as intermodality	6	11
3.1	Nature and resources, in particular, water	7	13
3.2	Good management and promotion of landscapes and cultural heritage	9	17
3.3	Cooperation in the field of natural risks	6	11

Source: Bausch et al. 2005

Table 2: Alpine Space Program projects by priority

Main territorial imbalances	Center-periphery issues
	Demographic and economic importance of regions Urban systems
Interactions between rural and urban areas	Characteristics of urban-rural interactions Areas with shrinking populations
Regions with geographic handicaps	Mountain regions Low population density areas Discontinuities in cross-border areas
Promoting innovation and ensuring an equitable repartition of factors of competitiveness	R&D capacity and territorial competitiveness Innovation capacity
Improving accessibility	Accessibility/Transportation Accessibility/Telecommunications Accessibility/Energy

Table 3: Main topics for territorial cohesion

Source: EC 2004

Map 1: Interreg IIIB Alpine Space Program area 2000–2006
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Source: Alpine Space Program, www.alpinespace.org
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mental trends, mountain policies have to adopt an interdisciplinary approach and to include trans-disciplinary action as well. Former studies have raised the issue and pointed to the specific need for cooperation in marginal areas (Arnaud 2002).

Since the Interreg IIIB program was conceived as one of the instruments to implement ESDP via the EU cohesion policy, it has to reflect the wide range of policy options laid down in ESDP. In addition, the new cohesion policy is oriented towards the implementation of the Lis-

bon and Gothenburg agendas. Thus, new concepts will be relevant for the programming documents in the next Structural Funds period.

In this discussion on the structure of the programming document for the next programming period, two documents can be mentioned as particularly relevant: the Ljubljana Declaration (CEMAT 2003), which proposes an extended array of topics integrating spatial aspects of the sustainable development paradigm, and the Interim Territorial Cohesion Report (EC 2004), which gives the concept of territorial cohesion an operational framework.

The latter addresses the main territorial imbalances in the EU and analyses the major topics for the different area types. These issues underpin the requirement for programs dealing with the comprehensive range of policy fields and calling for the interrelation of different research disciplines.

3. Perspectives for future cooperation

In preparation for the next program period (2007–2013), a prospective study has been launched to provide a survey on options for the future of the program (Bausch et al. 2005). It should provide recommendations for improvements as well as the main aspects for the continuation of transnational cooperation. The study focused on the discussion of territorial trends, the analysis of relevant policies, the evaluation of program performance, and the formulation of various spatial visions for the Alpine Space.

3.1 Policy assessment and trends analysis

The Alpine space constitutes a specific area of the European continent, not only geologically, but also where different policy traditions and approaches meet. Due to its topography, it has been experienced as a territory that is difficult to access or cross, and spatial differences occur at very detailed scales. Being situated in the heart of Europe, the general public's interest in it arose very early and policies were subsequently established. Although we can see different sectors addressed by early activities, policy development followed a rather sectoral approach and was conceived in a very divergent way by the different countries and/or regions. A review on the history of the activities underscores the divergence and weak integration of mountain policies only a decade ago (Barruet 1995). The common understanding of the need for place-based policies has spread over the last decade in many national and international forums. However, the analysis of current policies still reveals the prevalence of sector concepts and measures.

Over the last few years, the recognition of goods and services provided by mountain areas has risen considerably. This process has been particularly driven by an increased social demand, both from the regions themselves and from the outside. With the United Nation's International Year of Mountains (IYM) 2002, the international awareness for mountain ecosystems and the inter-relationship to lowland developments attained high political levels and priority. This process requires a high degree of interdisciplinary research, experience through application by practitioners and institutional development.

Analysis of mountain policies

The increased theoretical consideration of Alpine policies gets visible through the increasing focus of recent research activities on the particularities of mountain areas (Dax 2003). A great number of these activities address mountain issues by including the interrelations to the surrounding lowland areas. These current research projects constitute valuable references that provide an assessment of different policy aspects for the Alpine area. Each of them refers to a specific dimension of policy assessment and contributes to the preparation of methods for policies on sustainable development in mountain areas. A more general agenda of research for mountain area development has been discussed at the global level (The Abisko Agenda, The Royal Swedish Academy of Sciences 2002) and is now under consideration by the International Mountain Partnership, established as an outcome of IYM 2002.

A comparative study on European mountain ranges and the implementation of policies at the national level has been provided by the scoping study on mountain areas in Europe commissioned by DG Regio (Nordregio 2004) for the sectors of agriculture, forestry, mining and manufacturing, tourism, infrastructure, living conditions, and environment. It also presented best practice examples of specific actions. The study concludes that it is difficult to separate general trends and other policy effects from the effects of specific mountain policies. The few evaluations that have been done suggest that mountain populations are generally declining;

funding under the Community Agricultural Policy does not always succeed in its objectives in mountain areas; economic diversification is taking place, but unemployment remains high in some areas; the environment, landscapes, and cultural values have become a primary target and are better protected; and barrier effects have been reduced, but mainly at the regional level.

Based particularly on national analyses of strengths, weaknesses, opportunities, and threats (SWOT), three types of strategies for future development could be identified for the mountain regions of Europe. Reactive strategies are those that compensate for handicaps and structural difficulties, and are found especially in new member states and accession countries, usually with a primary focus on the modernization of agriculture. Proactive strategies (e.g., Austria, France, Slovenia, Switzerland) primarily target diversified mountain economies, and recognize the crucial importance of good accessibility, including linking sector activities and dependence on environmental performance. Sustainable strategies in some industrial and urbanized countries (e.g., Sweden, UK) give even greater attention to environmental issues and the role of mountains in responding to urban demands for "natural" environments with opportunities for outdoor recreation.

From this analysis, the following issues turned out to be particularly important for consideration in the Alpine Space Program:

- The interrelationship of mountain-lowland aspects
- Mountain policies as a multi-sectoral task
- The challenge of finding a balance between development and preservation
- Concern for impact analysis of national policy implementation and regional effects (new Structural Funds policy framework 2007–2013)
- Need for long-term commitment and strategy approach to develop effective programs
- Local approaches as core elements in developing adaptive territorial strategies

The content of mountain policies should address the following areas: activities to secure land use and development of local resources; making use of livestock production, forest and hydropower; shaping regional networks of conservation areas; improving knowledge about mountains through integrated research, monitoring, and education and the institutional development and cooperation of mountain regions.

The contributions of the different sector policies to this policy framework is experienced differently by the Alpine countries. The discussion within the *Alpine Convention* leading to the formulation of thematic protocols and the actual multi-annual program show the various policy aspects involved. Some experiences can be summarized as follows:

- Agricultural policy aid to the mountain areas has succeeded, in part, in compensating for the production disadvantages of mountain farms as indicated through increasing support for mountain agriculture in most Alpine countries/regions. However, it has to be emphasized that support levels and effectiveness varies considerably

Category	Main trends	Cooperation field
Natural resources and biodiversity	Loss of habitats and biodiversity	Preservation of habitats and biodiversity
	Increasing environmental damage by transport	Prevention of environmental damages due to transport
	Variety of landscapes endangered	Preservation of variety of cultural landscapes
	Increasing pressure on natural resources and natural heritage	Preservation of natural resources and natural heritage by acting on pressure factors
	Dynamic increase of natural hazards	Prevention and mitigation of natural hazards
		Protected areas
	Demand on water resources	Improvement of water resource quality
		Alpine water reserves as a future asset

Table 4: Potential transnational cooperation fields resulting from spatial trends analysis

Category	Main trends	Cooperation field
Economy	Growing importance of accessibility and knowledge	Knowledge economy and society development in the Alps
		Accessibility to infrastructure and knowledge as development factors
	Increase of transportation volume	Innovative solutions to transportation problems
		Paths to lower external costs of transport
	Continuing rise in energy consumption	Renewable energy as an opportunity for local and regional economies
	Dynamic competition/concentration in tourism sector	New concepts in Alpine tourism
		City and cultural tourism as an opportunity for Alpine cities
Culture and social welfare	Cultural heritage	Cultural heritage in the Alps in view of increasing cultural consumption
	Aging population	Spatial development instruments to curb depopulation
		Experience with immigration and policies in the Alps
	Growing interest in higher education, and stronger competition between universities	Alpine cities as R&D locations
		Alpine universities cooperation: new trends as opportunities
Spatial development	Economic concentration in the EU and spatial disparities	Strategies for the Alpine core area, Alpine cities and the peri-alpine belt
	Urbanization processes and urban-rural relationships	Regional differences of job opportunities and unemployment

Source: Bausch et al. 2005, p. 19f.

Table 4 (cont.)

between the different regions, reflecting the differences in national priorities.

• Through the high level of integration of the farming population in off-farm labor markets, multi-activities and regional policies are core elements for achieving objectives of sustainability and long-term provision of social demands. Mountain farming policy has made a marked contribution to maintaining settlement structure and conservation of the cultural landscapes in areas with particularly severe work-related farming difficulties, which are being threatened by population exodus.

• Evaluation studies on regional and agricultural policy in mountain areas have shown a growing appreciation of the values of mountain farming.

• The discourse developed in the United Nation's International Year of the Mountains 2002 on the problems and the wide range of functions provided by mountain regions for lowland areas has intensified.

• The recognition for specific mountain support and positive results through cooperative integration policies delivered quite a number of best practice examples available for successful policy approaches.

Trends and cooperation fields

The analysis of trends used the concept of sustainable development, consisting of three major fields or categories: natural resources and bio-

diversity, economy, and culture and social welfare, and, as a fourth, territorial dimension spatial development trends in the narrower sense. Through the main spatial trends, some of which might not be specific to the Alpine space but reflect more general trends, potential cooperation fields for this area may be defined. These are listed in the Table 5.

3.2 Multi-level governance

Regional governance is particularly important in this cooperation area where a multitude of different administrative and cultural experiences, diverse hierarchical levels, and public and private partners cooperate. In this cooperation area, which includes countries and regions with quite distinctive cultural backgrounds and institutional approaches, it is crucial to find the right balance of key actors with their respective roles in the cooperation framework to achieve significant results.

The specific characteristics of EU territorial governance processes are of crucial importance for understanding the role of transnational policies. "Discursive European integration" through policy communities should not just lead to meaningful interrelations between EU and national policy communities, this process has to be replicated at all levels of territorial governance as well (Farinos 2005). The emerging policy of transnational cooperation is to address particularly the multitude of actors to be engaged in programs, such as the Alpine Space Program. It is therefore a typical case for multi-level governance. This perspective on governance issues seems vital to the future of European spatial planning systems and is particularly relevant in the mountain situation of the Alps where environment and economic tasks overlap. Nevertheless, actors have to pay attention to the divergent demands of the different spatial levels addressed.

Key players have a specific role for the different tasks that are characterized for ASP in Table 5. In a program like this, the main actors from the different levels have to cooperate closely, and understanding and links between

Actors group	Policy level	Policy elements	Main role
European Commission	EU, Alpine Space	Territorial cohesion, EU spatial strategy	*European* spatial development coordination, spatial strategy
National state	National, Alpine Space	Coordination, national spatial strategy, agriculture	*Coordination* of spatial policy, links to other areas
Regions	Regional	Regional planning, spatial development	*Strategic* role in project development
Communities	Local	Local development, environment, nature protection, tourism	Main actors in pilot activities, project *implementation*
Networks of municipalities	Local/regional	Local action, spatial cooperation, thematic cooperation	Best practices, enhance *cooperation,* inter-cultural exchange
Alpine cooperation	Alpine Space, national, regional, local	Alpine Convention's work program, networks of cities, nature protection, etc.	Thematic review and exchange across *all the Alpine range,* information instructing actors and identity preparation, relate to non-core Alpine Space area
Intermediaries	Regional, local	Program support, regional networking	*Linking* local and regional levels and provide project and implementation support
Local stakeholders	Regional, local	Local economy, rural amenities	Implementation towards the *local economy,* adaptation to local cultures, valuation of amenities

Table 5: Key actors for the Alpine Space Program

Source: Bausch et al. 2005

levels have to be strengthened. This leads to the acknowledgement of top-down and bottom-up actions, where both contribute to effective project development and performance. In particular, the mountain area context requires sufficient consideration as well as the inclusion of local approaches as core actors, since socio-economic conditions and strategies might vary considerably within short distances. Although all levels have a specific role, the regional authorities have in many respects a pivotal role and can be seen as a strategic actor for project development. This reflects actual program experience and improvements might be due to the capability to work on network structures and internal priorities (with regard to other spatial development tasks of the same actors). In this context, it is crucial to note that pilot projects tend to be situated at a more local level, which implies the strong involvement of local actors. The Alpine-wide networks of communities have up to now already been important partners in the projects, and the continuation of local action examples will be important for extending small scale cooperation to other parts of the program area.

3.3 Scenarios for the Alpine territory

The various aspects of cooperation underscore the different visions for the Alpine Space and its future. In the conceptual phase of the next program period, it seems important to set out main views on the prospect of the Alps and potential scenarios. As arriving at a single option for a shared scenario among all the partners cannot be expected, these scenarios are the basis for increasing understanding and building a consensus for action.

Among the prospective visions described, there are no good or bad scenarios, only those that are more or less plausible in a future that will be influenced by our present and foreseen actions. Sharing a scenario therefore does not mean choosing a single option from among the visions proposed. The scenarios developed are rather visions that co-exist among the actors of transnational cooperation and can be thought of as a basis for reconciling points of view and building a consensus for action.

4. Conclusions

The analysis of the cooperation in spatial development within the Alpine space has revealed a series of issues that are relevant for territorial strategies at national and EU levels. At the same time, they point to the need to take specific account of the situation and needs of sensitive areas, such as the mountains. In this regard, it seems particularly important to:

- Raise awareness of regional problems (with a specific focus on the different groups of stakeholders and policy levels)
- Supplement the sector view with integrated spatial approaches
- Aim at transparency and address policy trade-offs
- Include spatial differentiation and integration of different levels
- Take account of the divergence in territorial structures and interrelations
- Provide scope for policy implications and reflect impact analysis
- Focus on the increasing interest for participation by local actors
- Develop and discuss scenarios and extend strategic considerations beyond the mainstream
- Refer to the regional context and transnational policy development as a potential and a challenge for transnational cooperation

The Interrreg IIIB Alpine Space Program has enhanced the transnational cooperation already started before the program. Although it is a small program, it is an excellent opportunity to deepen the process of regional identification and search for an assessment of the region's position with regard to external areas. Particularly the experiences of Alpine-wide actions, such as the CIPRA and the Alpine Convention, underpin the commitment for searching for solutions and improving mountain policies. This approach can also be seen as exemplary for other mountain ranges, for example, the collaboration with the Carpathians that started recently (Mitreva 2005). The cooperation activities of the Alpine Space Program and the mountain regions of Central and Eastern Europe call for joint efforts, particularly on the part of spatial planning and environment policy (Selke 2004). As inter-regional linkages and social demands from the lowlands outside the Alps increase, the cooperation of the local and regional levels becomes crucial to improving the wise management of natural resources and cultural heritage, to achieving sustainable territorial development and to keeping the area an innovative and attractive living space.

A further engagement in the future cooperation program of Interreg has the potential to support the identification of action and policies in a regional context of particular environmental sensitivity and to explore methods

Scenarios	Keywords	Context and perspective
Alpine core and MEGAs	Metropolization, attractiveness, global sustainability, protection, city/mountain solidarity, international tourism	The metropolitan areas surrounding the Alps will continue to grow and urban sprawl will put increasing pressure on mountain spaces. The centers of competitiveness will drive the entire Alpine economy. Alpine Space (AS) will be subject to the intersecting interests of metropolitan areas and mountain core zones.
Regional diversity: puzzle and coopetition*	Territorial systems, multi-level governance, clusters, cultural partnerships, regional heritage, local development	Regional sub-zones are dealing with a set of issues specific to their own areas. The cultural and linguistic links, geographic and historic proximity will foster the emergence of distinct systems of action within the AS. This diversity will encourage productive cooperation as well as competition among the regional sub-zones.
North-south mediation	Transit routes, governmental cooperation, infrastructures, impacts, ports and airports, technological risks	AS will be increasingly concerned with north-south European mediation in the heart of the continent's economy. The reinforcement of rolling highway tunnels and high-speed transit infrastructures will lead to three main transalpine corridors (north-south European economic axis).
Network, corridors, connecting elements	Polycentrism, distribution, knowledge networks, mobility management	AS will be structured by its polycentric network of metropolitan areas, each located at the crossroads of major north-south/east-west axes in Europe. This urban network will provide AS with the ability to participate in the knowledge economy. The quality of connectivity, accessibility to services and mobility management will determine the conditions for progress.
Openness and enlargement	Large basins, openness, enlargement, "Little Europes", solidarity, Alpine experience	AS will become increasingly open in all directions due to the structuring of large European fluvial basins: the Rhine, Rhone, Po and Danube. This orientation will enhance greater coordination with peri-Alpine regions and beyond: Mediterranean area, Rhine region, Carpathians and Balkans.
Positioning: us and the others	Globalization, international tourism, alpine amenities, global competition, image, joint promotion	Global competition will continually destabilize the position and functions of the AS. Tourism, technology, socio-economic networks and productive systems will be confronted with competition well beyond the European scale. AS has to shape its specific identity and role at the national, EU and global scales.

Table 6: Potential scenarios for the Alpine area
Source: Bausch et al. 2005

* Coopetition: cooperation and competition (by Roberto Camagni)

to exchange experiences with other mountain ranges. It would thus contribute specifically to the implementation of aspects of the ESDP by attaching specific importance to issues of mountain development and its integration into regional planning strategy considerations.

Note

1 The four projects selected under the fourth call for proposals early in 2006 are not included in the analysis of the Prospective Study, which was finalized in November 2005 (Bausch et al. 2005).

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Drawing lessons from Alpine space activities for integrative regional development in mountain regions

Kurztitel: Integrated assessment of Alpine space activities

Summary

The European Alps include a wealth of worldwide referred mountain habitats. This paper intends to assess the various activities developed in this mountain range through increasingly trans-national activities: the international agreement of the Alpine Convention, the Alpine Space Programme and a multitude of thematic Alpine networks activities. While worldwide mountain research is also particularly based within this mountain range links between research and practitioners are emerging only by and by. Taking stock of best-practice seems important at this stage of strategy building and might supply useful findings in the search for adaptation of action in mountain areas to global change: The inclusion of local, non-government stakeholders, the cross-sectoral approach and an anticipation perspective towards development trends are suggested as core elements of any mountain development strategy. This will particularly become more important with the current preparation for a Macro-Regional Strategy for the Alpine Region.

Zusammenfassung

Die Europäischen Alpen umfassen ein großes Spektrum an Berggebietshabitaten, das weltweit als Referenzregion geschätzt wird. Dieser Beitrag konzentriert sich auf die Analyse der vielseitigen Aktivitäten, die durch die trans-nationale Kooperation des internationalen Abkommens der Alpenkonvention, des Europäischen Alpenraumprogramms und thematischer Netzwerke getragen werden. Während die weltweite Berggebietsforschung zwar ihren Schwerpunkt in diesem Berggebiet hat, gibt es noch erheblichen Entwicklungsbedarf hinsichtlich der Beziehungen zwischen Wissenschaft und regionaler Praxis. Aus der Bestandsaufnahme der bisherigen Umsetzungserfahrungen lassen sich wichtige allgemeine Schlussfolgerungen für die Entwicklung der Berggebiete im Anpassungsprozess an globale Veränderungen ziehen. Die Einbeziehung lokaler Akteure, ein sektorenübergreifender Ansatz und eine vorausschauende Berücksichtigung wichtiger Entwicklungstrends erscheinen für künftige Strategien von zentraler Bedeutung. Diese

Ansätze gewinnen insbesondere angesichts der aktuell laufenden Vorbereitungsarbeiten für eine Makroregionale Strategie für den Alpenraum zusehends an Bedeutung.

Schlüsselwörter:

Introduction

The European Alps include a wealth of worldwide referred images of mountain habitats. This paper assesses the various activities developed in this mountain range over the last decades that have addressed their amenities, created attractiveness and increased awareness towards environmental sensibility of mountain areas.

Observations are drawn from participation in various national and international research projects on European policies to cope with the specific production and development problems of mountains in different contexts. These include relevant policy instruments, the Alpine Convention as framework for sustainable development, the European Union's transnational Alpine Space Programme and a host of local, regional and national initiatives and networks. The paper will explore approaches to secure commitment for comprehensive policy strategies with regard to future challenges and the potential to transfer experiences between mountain regions.

The most relevant observations in this regard are: First, activities are not limited to institutional development (of the Alpine Convention), but extend to the widely accepted framework of integrated approaches in national and regional policies, and the multiplication of local action. Second, many spheres of activities have elaborated over recent years, reflecting the concern to take account of the diversity and impact of global changes on mountain areas. And third, trans-national cooperation has nurtured similar approaches for mountain ranges in Europe (e.g. Carpathian Convention, Balkan etc.) and beyond (e.g. Himalayan Region Initiative and an alternative model for the Andean Community).

Since the adoption of Agenda 21 at the Rio Earth Summit in 1992 the concern for and interest in, Sustainable Mountain Development (SMD) has risen substantially at the global level. Following the inclusion of Chapter 13, entitled "Managing Fragile Ecosystems – Sustainable Mountain Development" in that document, the "Mountain Agenda", as it is commonly referred to, provided momentum for institutional development and a number of

new activities aiming at development problems in many mountain regions around the world. The most visible global achievements in this process were the proclamation of the year 2002 as the International Year of Mountains (IYM) by the United Nations and the subsequent establishment of the global Mountain Partnership. These activities have to be framed in the long-term process on reorientation of resource use. Partly they reinforce the activities of already existing networks and extend their scope to other countries and mountain ranges. It is therefore at the level of the different mountain ranges and regions that application of new concepts and perspectives reveal most clearly their socio-economic, spatial effects (Maselli 2011).

The Alpine area is one of the large mountain ranges in Europe that have started to address these issues already since several decades. However, it took until 1991 that an international agreement, the "Convention on the Protection of the Alps" (Alpine Convention) was signed by the concerned Alpine countries and the European Union as well. After establishing a set of trans-regional cooperation documents, "the Convention has been widely cited as a successful example of regional cooperation" (Price 2000, 192). The assessment of the effectiveness of this institution has to differentiate between the "official" development and the impact in the Alpine regions themselves. A number of trans-national networks, the enhancement of regional and local action and the implementation of trans-regional projects through European programmes, in particular the Alpine Space programme, underpin the increasing perception of new initiatives and creative environments in the area.

With the rising demand for problem-solving approaches in other mountain areas (of Europe and beyond), the Alpine Convention was presented as an instructive model. Knowledge transfer with regard to specific institutional and development experience was arranged in recent years, focusing first on "adjacent" mountain ranges like the Carpathians and the Balkan and the Dinaric Mountains, but was particularly well developed for the more distant regions of the Himalayan mountains and later extended also to the Central Asian mountain ranges, the Caucasus and others.

Although the Alpine regions are well-known to provide the mountain area with the highest research intensity (Körner 2009) trans-regional coordination and an integrative assessment of diverse action represent considerable challenges. Research cooperation is underscored as

one of the specific tasks of the Alpine Convention. The International Scientific Committee on Research in the Alps (ISCAR) hence promotes international cooperation in Alpine research which becomes best visible through the biannual conferences (Forum Alpinum) since 1994 (Scheurer 2014). However, an in-depth policy assessment across the Alpine range is still missing which was also referred to in the most recent conference of this series (Dax 2014). Several attempts to elaborate comprehensive strategies and coordination between different parts of this mountain range will be addressed in order to provide an overview on existing approaches. This analysis will point to the wide range of activities, main aspects of development programmes and influential sectors with a high density of good practice examples. Finally, the paper will conclude on some lessons for sustainable mountain development and priorities for more strategic future action in the Alpine regions.

1. A wide range of mountain activities in the Alpine area

Observations of action at various levels reveal the relevance of a multitude of actors and stakeholders. This has implications both for policy design and implementation, and particularly for individual action influencing regional development performance, environmental impact and socio-cultural changes in different regional contexts. Many case-specific, and an increasing number of coordinated, approaches address the development problems and sensitivity of mountain contexts.

Networks, research collaboration and aggregated databases seek to provide information across all the Alpine regions and enhance exchange and comparability between different regional cultures. These activities go well beyond the remit of the Alpine Convention. The high commitment can be interpreted as a consequence of the increased reflexivity for mountain issues that is also nurtured by the Convention's objectives and discussions. Three aspects of Alpine activities should be mentioned here in order to highlight the scope and priorities of relevant action:

- Thematic priorities set by discussions, documents and reports of the Alpine Convention,
- Strategic areas of transnational cooperation elaborated in the Alpine Space programme, and

- Alpine networks linking actors for specific thematic trans-boundary cooperation activities.

The overview on "Alpine" activities (Table 1) lists a large, but not all including, number of relevant activities and highlights the cross-cutting nature of programmes and networks.

[Insert Table 1 about Here]

It should be emphasized that the three categories of Alpine activities by no means cover all relevant action in the Alpine range since a host of further activities are carried out and emerge, particularly at the local level. Even if that is not directly linked to EU, national or regional programmes, actors are often inspired by and refer to those more general developments. The focus on strategy building and networking calls for particular attention to coordination aspects of all mountain activities.

2. A model for other mountain regions?

The discourse in the Alpine area started by highlighting the underlying restrictive factors of development and presented an outline specifically characterized by significant handicaps. Mountain development policies were thus primarily established in response to a situation of "backwardness", weak economic development and the low productivity potential (in particular in agriculture). Consequently, the first major structural measure of the Common Agricultural Policy (CAP) of the European Union was the Less-Favoured Areas (LFA) scheme, installed in 1975. That instrument already addressed a set of objectives, situating mountain and LFA support in a complex system of interrelations with the environment and social change of those regions. However, the exclusive support for agricultural tasks was seen as too limited so that at the end of the 1990s a more holistic assessment positioned mountains, and particularly the Alpine area, in a policy context that urged the reference of the Alpine development as a "laboratory" for rural development across Europe (Schindegger and Zanetti 1997). Despite this increase in the awareness of mountain policy needs, problems of mountain areas were not met adequately by national and European policies at that time (Dax 1998).

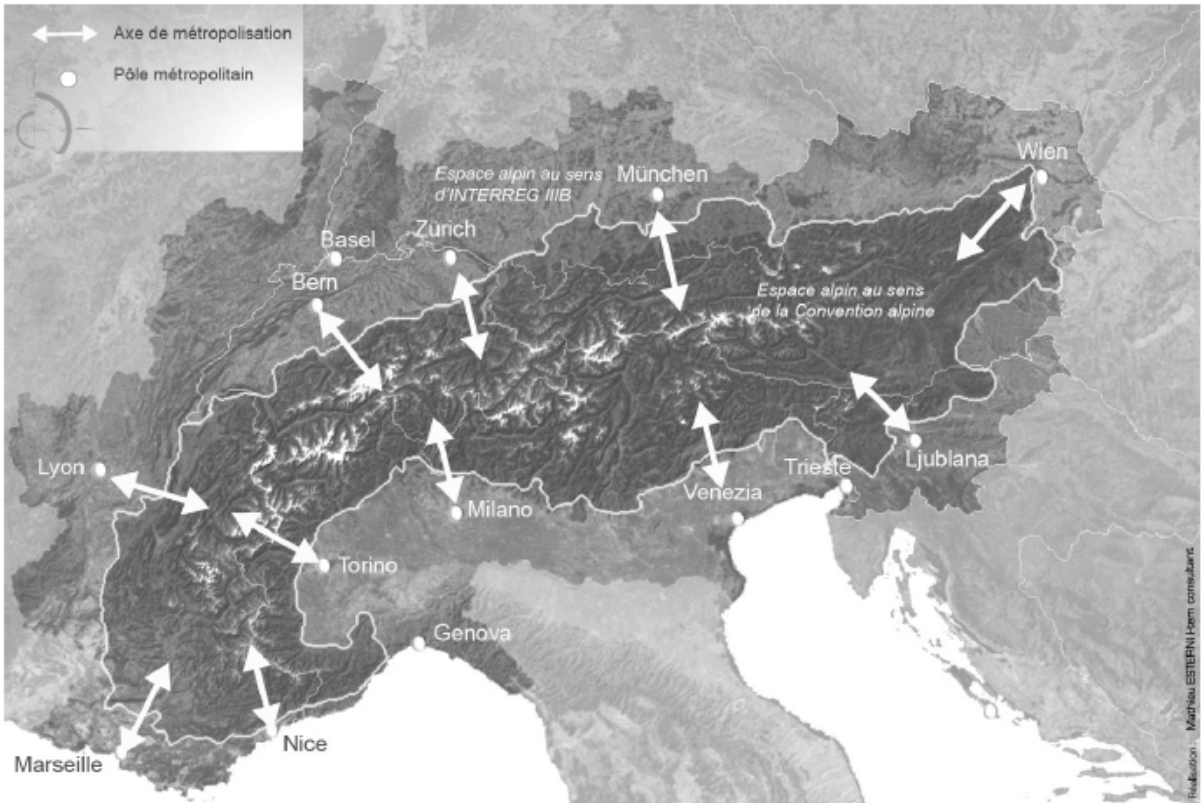
Reflecting the emerging global discussion on mountain development and sustainable resource use the attention towards mountains as a specific geographical dimension within

European regional development increased. Particularly the establishment and shaping of the legal bases of the Alpine Convention over the 1990s contributed to the creation of the trans-national cooperation area of the Alpine Space. Since 2000 this programme has aimed at implementing targeted demonstration projects in several priority areas. At a more general level, the discussion on mountain policies development continued and requested to take account of the geographical specificities of mountain and other regions of the EU (ADE 2012). High level reports (e.g. the EU's periodic Cohesion Reports) and the Green Paper of Territorial Cohesion (EC 2008) made clear that mountains require specific consideration in rural and regional development.

The debate on the validity of this view is intensive. The aim is to provide a more general case for mountain development across the European Union that work towards "new institutional arrangements combining a territorial and environmental focus and complex networks of stakeholders" (Debarbieux 2013, 1). In many instances the levels of public awareness, presentation of specificities and range of activities are very different between mountain ranges across Europe. Alpine regions are often addressed as main references where these aspects are treated most extensively. It has therefore frequently been alluded to as a model for the process of dealing with mountain issues.

Nevertheless it should be highlighted that a series of divergent perspectives coexist in the Alpine area which favors different strategic approaches. These differences are also important features whenever aspects of transfer of experiences are discussed. To give a telling example, the impact of the various views on the spatial dimension of the Alpine area should be quoted here (Figure 1). The Alpine Convention selected an area which is defined mainly by topographical features and hardly goes beyond that aspect. (The definition of the Less-Favoured area scheme is the one which is most similar to it, but still shows some minor differences.) The Alpine Space programme area for contrast includes all the regions touched by the Alpine mountains, mostly at the Nuts 3 level. Accordingly it includes large parts of the lowlands that are linked with the mountain area in its economic and social context. The discussion of a potential future "Macro-region" of the Alps which has turned up in recent years has to solve this important issue of finding the appropriate area of application between these different notions.

Figure 1: Position of the Alps and relation to surroundings



Source: Vanier 2006, 86

Besides the internal differences Alpine areas experience is taken as an impressive set of collective knowledge and more and more referred to in policy programming of other mountain ranges of Europe, but also at global level. Examples of cooperation include the Carpathian Mountains (Ruffini et al. 2008, Majtényi and Tamburelli 2009), the Balkans and the Dinaric Arc (UNEP 2010), comparative analyses with the Apennines and the Pyrenees, and also the Caucasus (UNEP 2009) and the mountains of Central Asia, and the Andean mountains (Church 2010).

In pondering on the potential to understand and use the Alpine Convention as a model for other mountain regions, Martin Price (2000) focuses on the main achievement of raising awareness through the political process initiated in this area. He makes clear that this has considerable appeal to other mountain ranges, but internally requires continued efforts to strengthen and nurture the potential. This applies particularly to enhanced coordination of regional approaches ("governance" aspect) and trans-regional cooperation (Dax and Parvex 2006) and the need to overcome implementation deficiencies. Actual performance can only

be assessed when actors from different political programmes are included in the analysis. Price concluded therefore several years ago that "the convention has begun to contribute to regional cooperation, but few of the expected impacts on environmental policy-making and implementation have been realized. For governments and NGO of other mountain regions, there are many lessons to be learned from nearly 5 decades of experience in the Alps" (Price 2000, 194). In recent years the concern for intensifying implementation and searching for good practice has continued taking account of such critics. In particular, the discussion with other mountain ranges contributed to reflect the institutional process in the Alps. For a more comprehensive assessment it seems crucial to extend the analysis on all the different aspects of emerging local development and draw common lessons from this deepening development process (Price et al. 2011).

3. Good practice in regional governance

Despite the lack of implementation through Alpine Convention activities itself, the scope of action in diverse social, economic and cultural areas is increasing. The demand for such integrative, regional development initiatives has been formulated particularly for remote rural areas. It can be traced back to local pilot action in peripheral, including mountain regions, and subsequent elaboration of endogenous development concepts. With the Leader programme as an important part of the rural development strategy it acquired a lasting effect on EU policy. In the current EU reform a further strengthening through the Community-Led Local Development (CLLD) schemes across all types of areas and funds is suggested. Particularly, mountain regions face an interesting case where aspects of socio-economic development have to adjust to environmental sensitivity and strategies taking account of the diverse dimensions in its development activities are required.

Good practice in the Alps can be discerned in a series of policy domains and implementation examples. As the following list reveals they emerge from different fields of action, some supported by Structural Funds project, some related to regional and local programmes. It seems important to underpin that they revolve to issues that are at the core of the Alpine Convention's themes, the Alpine Space priorities and other relevant programmes targets. Although the discussion on networking, sustainable resource use, heritage and innovation, regional quality production and landscape development has a long tradition, the search for

new and innovative action is on-going. It has to be nurtured continuously and position itself in a permanent process of exchange with surrounding spaces, but also "global" influences. While changes can be expected to be incremental, it seems however important to adapt the specific framework of action and react through appropriate strategic conclusions, focusing on the following main issues:

- Sustainable resource use, overcoming sectoral boundaries and valorizing local assets, e.g. through adapted tourism (e.g. "soft tourism" and local initiatives)
- Orientation towards amenity valuation (in particular landscape), and local and regional strengths, taking account of ecological sensitivity
- focus on local heritage, culture and link to innovation
- Strength of regional production (low-level value chains) and mountain quality production ("mountain" quality labels)
- networking activities across wide range of regions and cultures (networks of local and regional stakeholders, e.g. Alliance of the Alps, Agenda 21, etc.)

4. Lessons for Sustainable Mountain Development

The wide array of these good practice activities can be seen as an answer to the specific situation of the Alpine area. Many of these activities have started from individual examples and local cases, but could be extended through networking and transfer of specific experiences. This seems to provide one of the important lessons of the Alpine area: The historical cleavage of different mountain valleys led to scattered experiences and identities. In order to respond adequately to recent large-scale changes, this separation has to be overcome by a trans-regional approach. From the host of positive examples it emerges a trend towards stronger application of trans-regional cooperation which nevertheless still has to be further enhanced.

The large geographical extension and the high number of the population of about 13 Mio inhabitants in the core area of the Alps contribute to regional development features that differ substantially ng in its sub-areas due to a multitude of divergent spatial processes. Thus no simple explanation of regional dynamics is available and the issue of inter-relations with surrounding areas gains increasing weight. This is reflected in the type of regional inter-

252 linkages addressed in various strategy considerations. The Prospective Study (Bausch et al.
253 2005) for example referred to several exemplary, but very different strategic approaches,
254 indicating the potential to perceive the Alpine area from different angles.

255 What can be assessed as one of the important success stories in the Alpine area is the
256 heightened awareness on mountain issues, the increased valuation of this space as an
257 attractive landscape that nevertheless is subject to ecological sensitivity and the recognition
258 of local knowledge at various levels. A comprehensive assessment of all the achievements is
259 still due, albeit a number of stock-taking studies were commissioned. It seems that the
260 attribution of the various parts of the Alpine range to different countries and cultural
261 backgrounds has significant implications on the perspective and valuation of activities. In
262 particular in forging future strategies there are different approaches and priorities set by
263 national delegations which reflect the different status of the Alps within each of the nation
264 states. By way of summarizing the following main lessons can be derived from a synthesis
265 view on the diverse Alpine space activities:

266 • to implement local mountain-specific activities

267 • to harness local knowledge and provide good practice

268 • to up-scale activities from local and regional to trans-boundary approach

269 • to develop analytical tools to understand better regional processes

270 • to assess overall impacts of the complete set of activities in the Alpine regions

271 • to build a common strategic framework

272 • to exchange with other mountain ranges

273 • to draw conclusions for research priorities on mountain development

274 • to develop and adjust options for sustainable mountain development

275 From all these aspects mentioned the efforts on trans-boundary cooperation seem
276 particularly valuable. They address aspects of Multi-Level Governance that have increased
277 due to recent development processes and will have to be faced in the future as well. The
278 discussion on the Macro-Regional approach (Gloersen et al. 2012, European Parliament
279 2013) forces the regions and stakeholders to strengthen the strategic considerations and

achieve a consensus on the strategy. At the same time this is an issue which is strongly interlinked with the regional identity of the Alpine mountain range, but also other regions adjacent to it. An intensive dialogue on the spatial development trajectories seems therefore inevitable and a useful step to focus mountain action. On the other hand, this dialogue and constructive process on strategic positioning might turn out to be also important for exchanges with other mountain areas. It is less an issue of transferring conclusions and "principles" for sustainable mountain development to other areas than to engage in a discussion process that reinforces the importance of regional governance processes (Zhang and Dax 2013).

5. Recent concern for establishing a Macro-Regional Strategy for the Alps

Apparently, good practice and general conclusions on the relevance of participation and cooperation are cornerstones that have to be developed further in a permanent development process. The current preparation for a Macro-Regional Strategy for the Alpine Region constitutes an opportunity to take stock of the wide range of activities, to act a catalyst of enhanced coordination and to intensify long-term strategic thinking for the Alpine Space (Bauer 2014, 52). Moreover, realizing a Macro-Regional Strategy for the Alps could provide a model (Galle 2013) for regional governance in other complex spatial contexts of the EU as well.

The discussions on a Macro-Regional Strategy for the Alpine Region have started - unlike the top-down incited precursors of the EU Strategies for the Baltic Sea Region and the Danube Region - with a declaration by a number of concerned regions (Mittenwald Declaration 2010), followed by initiatives of other stakeholders and decision-makers in the Alps. While at the outset of the reflections skepticism of the usefulness of the new instrument prevailed, it soon turned out in the debate that the large-scale European option has to be seized to progress with cooperation and coordination across the Alpine regions in a strategic manner in order to provide European added-value (EC 2013). Given the highly advanced level of activities the strategic and trans-regional element receives a specific relevance.

As soon as the European Parliament has adopted a resolution for a Macro-Regional Strategy of the Alps (23 May 2013) all relevant policy actors were called upon to agree on a joint Intervention Document for the Implementation of a European Union Strategy for the Alpine

Region (Grenoble document, 18 October 2013). This document already outlined the main three thematic pillars of the strategy: (i) to foster sustainable growth and promote innovation in the Alps; (ii) to raise connectivity for all; and (iii) to ensure sustainability in the Alpine Region. From July to October 2014 the general framework of the intentions for a Macro-Regional Strategy for the Alpine Region were under public consultation to further increase participation in the debate and take account of the scope of innovative ideas. It is planned that implementation of respective activities can start following the adoption of the Action Plan for the EU Strategy for the Alpine Region (EUSALP) in autumn 2015 by the European Council.

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Policies for Less Favoured Areas 11

Thomas Dax and Petra Hellegers

INTRODUCTION

Productivity and farm income vary greatly across regions within the European Union (EU). These longstanding interregional disparities led to the establishment of the Less Favoured Area (LFA) scheme in the 1970s. Over a long period it was the only significant structural measure of agricultural policy, but recent policy reforms have moved away from commodity market supports, towards direct payments and have increasingly emphasised the environmental implications of policy measures. With this thrust of present policy discussions in mind, this chapter will consider the rules governing the LFA scheme and its uptake in the Member States, as well as its implications for the environment, in particular with regard to low intensity farming systems.

The high coincidence of LFAs with High Nature Value (HNV) farming systems contribute to the assessment that farm development in LFAs is particularly relevant to the upkeep of the beneficial features of farming activity. The integration of HNV farming with the possible development of the LFA scheme is seen to be vital to addressing the notion of sustainable farming in the future Common Agricultural Policy (CAP) in an appropriate manner.

Origin of LFA support

For many decades European countries have addressed the problems of LFAs, and particularly those of mountain areas, through local sectoral policy programmes, mainly for forestry and agriculture (Barruet, 1995). At the end of the 1960s concern about the impacts of agricultural adjustment increased and the threats of a policy oriented solely towards productivity and the markets became visible. However, the idea to take up measures in disadvantaged areas to cope with depopulation and to preserve the economic, societal and landscape pattern of those areas did not find much interest in CAP debate (CEC, 1993, p. 7f.).

It was only when the UK negotiated entry to the EC, and laid down its condition to be able to continue to give special help to hill farming, that measures for

LFAs were taken at the EC level (Lowe *et al.*, 1998). In response to these negotiations, Directive 75/268 was introduced in 1975. This Directive provided support to farmers in certain agriculturally disadvantaged areas in order to achieve 'the continuation of farming and thereby maintaining a minimum population level or conserving the countryside'.

From the very beginning, LFA policy was conceived as a structural policy aimed at the prevention of land abandonment, to preserve the farming population in those areas and conserve the countryside. In this respect, the LFA scheme was one of the first measures to address environmentally beneficial farming systems, at least indirectly. For the broader public the main relevance of the scheme was that for the first time an explicitly regional approach in agricultural structural policy was brought into play.

Delimitation of areas

The LFA scheme responds to the widely divergent regional situation of EU agriculture, with respect to both the socio-economic situation and natural characteristics. It should set the framework for agricultural holdings in the LFAs to benefit from direct payments and specific measures. The categories and the criteria for the demarcation of the LFAs have been defined in EEC Directive 75/268 (Art. 3, para 3-5), later in Regulation 950/97 (Art. 23-25), and recently integrated into Regulation 1257/1999 (Art. 13-21). A large number of more than 32 implementing Directives comprise the actual delimitation of the LFAs of each Member State (CEC, 1997). There are three types of LFA:

- Mountain areas where altitude and slopes reduce the growing season and the scope for mechanisation. (High-latitude regions in Finland have also been included in this category.) These areas make up about 20% of the total Utilised Agricultural Area (UAA) (Article 3.3).
- Simple LFAs which are marked by poor soil conditions (low agricultural productivity), low agricultural income levels and low population densities or depopulation tendencies. These areas account for 34% of the UAA (Article 3.4).
- LFAs with 'specific handicaps' which are restricted to small areas with handicaps relating to the environment, landscape development or coastal areas and islands where agricultural activity should be preserved in order to maintain the countryside. About 2% of the UAA is classified under this type (Article 3.5).

The distribution of the three types of LFAs in the various EU Member States can be seen from Table 11.1. It shows the particularly high share of mountain areas in some Member States (Greece, Austria and Finland) and the predominance of simple LFAs in others (Luxembourg, Ireland, Portugal, Germany, UK and Spain). The five largest Member States (Spain, France, Italy, Germany and UK), however, account for 75% of total LFA of EU-15.

The rising interest in the LFA scheme can be seen from the fact that there has always been pressure from Member States to increase the area of LFAs within their territory. The proportion of UAA designated as LFA therefore increased from 33% in 1975 to about 56% in 1996. This increase has been only partly due to the accession during this period of new Member States with high percentages of LFA (e.g. Greece, Portugal, Spain and later Austria and Finland). It was also due to real increases in LFA coverage in existing Member States (particularly Germany, France, Ireland, Italy and the UK) (Table 11.2).

Table 11.1 Utilised Agricultural Area (UAA) in LFAs (1996)

	In 1,000 ha (or % share of total UAA)									
Member State	Mountain areas Art. 3.3		Simple LFAs Art. 3.4		Specific handicaps Art. 3.5		Total LFA		Total UAA	
Belgium	-	(-)	273	(20)	-	(-)	273	(20)	1,357	
Denmark	-	(-)	-	(-)	-	(-)	0	(0)	2,770	
Germany [a]	336	(2)	7,987	(47)	199	(1)	8,522	(50)	17,012	
Greece	3,914	(61)	964	(15)	402	(6)	5,280	(82)	6,408	
Spain	7,503	(28)	11,343	(43)	700	(3)	19,546	(74)	26,330	
France	5,284	(18)	7,809	(26)	804	(2)	13,897	(46)	30,011	
Ireland	-	(-)	3,456	(71)	12	(0)	3,468	(71)	4,892	
Italy	5,218	(32)	3,405	(21)	218	(1)	8,841	(54)	16,496	
Luxembourg	-	(-)	122	(96)	3	(2)	124	(98)	127	
Netherlands	-	(-)	-	(-)	111	(6)	111	(6)	2,011	
Portugal	1,227	(31)	2,056	(51)	150	(4)	3,433	(86)	3,998	
UK	-	(-)	8,341	(45)	1	(0)	8,342	(45)	18,658	
EU-12	23,482	(18)	45,756	(35)	2,599	(2)	71,836	(55)	130,070	
Austria	2,047	(58)	208	(6)	164	(5)	2,419	(69)	3,524	
Finland	1,407	(55)	536	(21)	220	(9)	2,164	(85)	2,549	
Sweden	526	(14)	1,011	(28)	333	(9)	1,869	(51)	3,634	
EU-15	27,462	(20)	47,511	(34)	3,316	(2)	78,288	(56)	139,777	
Share of total LFA (%)	35		61		4		100			

[a] 16 Länder.
Source: CEC (1997, p. 54).

ROLE OF LFA WITHIN CAP AND OTHER POLICIES

Mountain areas comprise about 20% of total UAA in the EU-15. Some Member States, though, have a particularly high share of mountain areas, and their production patterns are dominated by LFA land use systems. The actual extent of

mountain areas is much greater since such areas usually also have a high share of forest cover and unproductive areas.

The agricultural productivity of the LFAs is limited; the average production potential is about 60% that of 'normal areas' but down to about 50% in mountain areas (CEC, 1994). These disadvantages are reflected in the relative agricultural incomes. Land use in LFAs is characterised by a higher share of grassland and a lower share of arable. But the EU averages shown in Table 11.3 hide the much greater differences within and between Member States. Grassland production levels in the LFAs (including the mountain areas) of central northern Europe considerably exceed those of Southern European countries; whereas permanent crops are mainly concentrated in Southern European mountain areas and are nearly absent from the LFAs of Northern Europe (CEC 1993, p. 22).

The diversity of LFAs in the EU is even more striking when analysing the agricultural income disparities between LFA areas and non-LFAs. The differences within Member States are much smaller than those between 'northern' and 'southern' countries (Figure 11.1). The unfavourable income situation for southern countries generally and their LFAs in particular is more and more addressed by

Table 11.2 Agricultural area classified as LFA (as percentage of total UAA; Directive 75/268)

Member State	Total UAA in 1990 (1,000 ha)	LFA as % of total UAA				
		1975	1981	1986	1991	1996
Belgium	1,357	19.8	21.2	21.9	21.9	20
Denmark	2,770	-	-	-	-	-
Germany	17,012	28.7	32.8	50.9	53.6	50
Greece	6,408	-	-	78.2	78.3	82
Spain	26,330	-	-	62.4	67.5	74
France	30,011	33.1	36.4	38.5	45.1	46
Ireland	4,892	51.2	55.4	58.0	71.4	71
Italy	16,496	37.7	42.3	51.1	51.9	54
Luxembourg	127	100.0	100.0	100.0	99.0	98
Netherlands	2,011	-	0.6	0.9	2.4	6
Portugal	3,998	-	-	75.6	75.6	86
UK	18,795	36.0	40.8	52.5	52.6	45
Austria	3,524					69
Finland	2,549					85
Sweden	3,634					51
EU-10	100,319	32.9	34.2			
EU-12	130,070			51.6	55.1	55
EU-15	139,777					56

Source: European Commission DGVI F.1; CEC (1993, p. 14); CEC (1994, p. 25); CEC (1997, p.54).

policy analysis in the south (e.g. Bazin and Roux, 1992; Frisio, 1997). Concern for the environmental impact of agricultural methods and the threat of land abandonment particularly in these countries will necessitate an increased awareness of the problem at the European level.

Extensive farming regions and regions with small-scale farming are most susceptible to marginalisation, with major environmental consequences (Baldock *et al.*, 1996). As mainstream CAP support is not oriented to these farming systems, expenditures per farm are especially low in small-scale farming regions and cannot suffice on their own to counteract marginalisation. At the same time, the widespread occurrence of low agricultural incomes and of less developed regional economies in LFAs (CEC, 1994) points to the need for a broader policy perspective. It underlines the requirement to integrate future rural policies in general and to adopt a common strategy across different policy sectors in order to combat the marginalisation tendencies in regional development. In particular, the income gap between normal areas and LFAs points to the need for specific and enhanced support for LFAs.

Table 11.3 The contribution of LFAs to EU agriculture

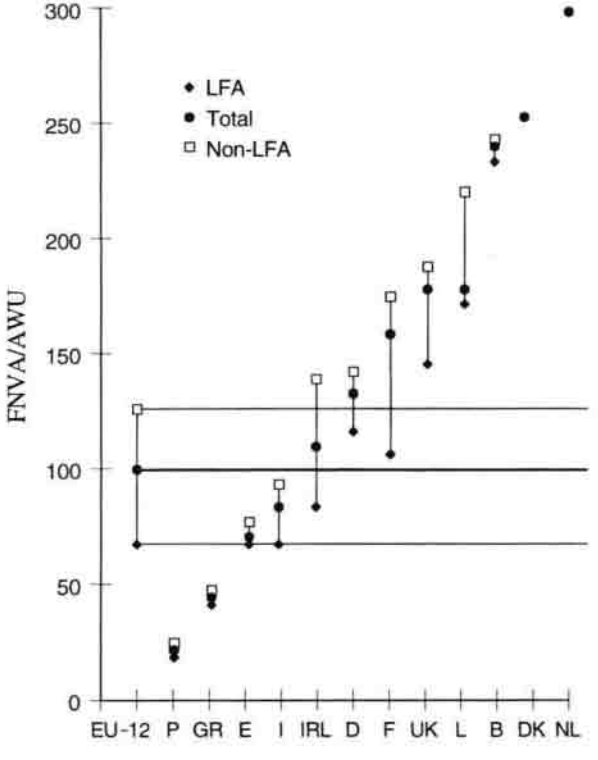
	LFAs as a whole	Mountain areas	Non-LFA
Share of utilised agricultural area (UAA) 1995 (EU-15, in %)	56.00	20.00	44.00
Share of standard gross margin (SGM) 1987 (EU-12, in %)	29.00	9.50	71.00
Production potential (SGM ha^{-1} 1987)	0.60	0.46	1.05
Agricultural income (1987-1989), index	59.00	50.00	100.00
Proportion in arable, 1987 (%)	42.30	40.90	64.60
Proportion in grassland, 1987 (%)	48.30	43.40	26.20
Proportion in permanent cultures, 1987 (%)	9.30	15.40	9.10

Source: CEC (1993); CEC (1997); Dax (1998c).

The land use of LFAs is largely characterised by the limits imposed by the naturally adverse conditions. Present farming systems have developed over many centuries and are usually well adjusted to the specific set of restrictions. To a large extent they have shaped much of the cultivated landscapes of Europe. The continuity of these farming systems is therefore seen as central to the preservation of these cultural landscapes and as a precondition to avoid erosion, desertification and land abandonment. In recent years there has also been growing interest in the relationship between LFA policies and nature conservation. The low intensity farming systems typically found in LFAs are associated with a diversity of wildlife and semi-natural habitats. Amongst conservationists there has also been increased understanding that species cannot be protected by site-specific measures

alone, but depend on the integrity of ecological networks and sympatheric land uses in surrounding areas. However, the relevant conservation policies do not typically address land management and farming practices outside specifically designated areas. Some European studies have identified the conservation relevance of farming practices in LFAs. In an EU-wide study of high nature value regions the share of LFA in each of the 12 study areas exceeded 60% of total UAA (in 1989/90), with the exception of the Pindos Mountains in Greece and the Dutch Peatlands (Hellegers and Godeschalk, 1998).

The coincidence of LFAs and areas of nature conservation interest in the EU is shown in Figure 11.2. This overlap is particularly high for the mountain areas and in many cases for protected areas, too. Most of the farming systems in LFAs are low intensity ones. Although many organisations have focused on the environ-



FNVA: Farm Net Value Added; AWU: Annual Work Unit.

Figure 11.1 Agricultural income disparities between LFA and non-LFA areas of the EU Member States, 1988 (Source: CEC, 1994, p. 64.)

mental aspects of intensive farming, the nature conservation aspects of less intensive systems must not be neglected. A study of low intensity farming systems (Beaufoy *et al.*, 1994) concluded that 'it is ironic that many environmental initiatives on farmland tend to concentrate (often with little prospect of success) on

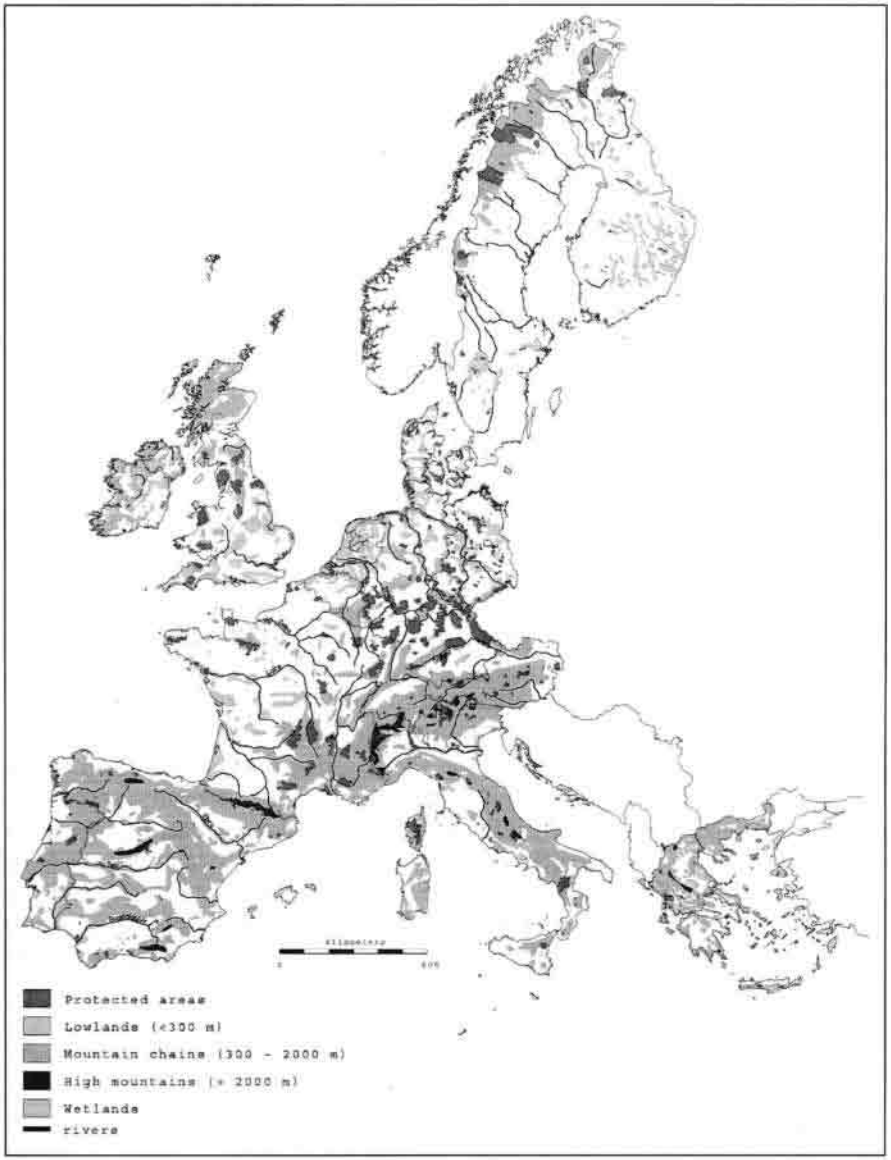


Figure 11.2 Areas of nature conservation
Commissioned by The Netherlands National Spatial Planning Agency, Ministry of Housing, Spatial Planning and the Environment, as part of the project on Rural Areas and Europe (DLO Winand Staring Centre for Integrated Land, Soil and Water Research, Wageningen, the Netherlands). Source: Bethe (1997).

reversing actions that have been destructive, yet tend to ignore practices that are currently benign and could be sustained'. In this respect, most environmental initiatives tend to reward some farmers for their previously destructive activities but not others for their contribution to the maintenance of biodiversity, nature protection, cultural landscapes and socio-economic development (Bignal and McCracken, 1996). As low intensity farming systems are endangered by both abandonment and intensification, there is an urgent need to highlight the importance of LFAs also for nature conservation.

THE INSTRUMENTS OF LFA POLICY

The concept of LFA was based on the notion that these were areas of intrinsically low productivity where farming needed to be compensated for the disadvantages it faced to ensure that such areas did not become depopulated. Therefore, the main policy support was termed 'compensatory allowances' (see Table 11.4). This measure was granted per animal and/or per ha to offset natural handicaps. Other specific measures included:

- investment aids for farm modernisation which were set at a rate up to 10% higher than in 'normal' areas;
- aid for collective investment, which included the improvement of grassland and rough grazing.

Indirectly agricultural holdings in LFAs may also benefit from:

- A more favourable implementation of Common Market Organisations, such as a complementary premium to top up the Sheep Annual Premium, additional quotas and reserves for sheep and suckler cows. In addition, Member States may grant special reference quantities in the dairy sector.
- Various other measures which happen to have a greater impact on LFAs than elsewhere. The most important policy measures of this kind are the agri-environmental programmes under Regulation 2078/92 and direct aid for extensive farming under the CMOs. Moreover, the majority of LFAs are also eligible for measures of the regionalised Structural Funds programmes under Objectives 1, 5b and 6.

The criteria for eligibility for compensatory allowances specify that:

- applicants must have, in general, a holding of at least 3 ha UAA; and
- must continue farming for at least 5 years.

Aid granted has been provided so far on a Livestock Unit (LU) basis (for dairy cows, cattle, sheep, goats and equine animals) and may range from a minimum of 20.3 ECU per LU to 150 ECU per LU. There are additional restrictions intended to prevent funds being absorbed by too large or intensive holdings:

Table 11.4 Overview of LFA payments

	1976	1982	1986	1991	1994
Number of beneficiary holdings	339,735	683,105	880,681	1,147,600	1,056,419
Compensatory allowance payments:					
Total (million ECU)	269	509	782	1,060	1,381
Average (ECU per holding)	785	745	888	923	1,308
Number of LU (in 1,000)	7,330	9,496	15,333	16,827	15,998
Average (ECU per LU)	36.7	53.6	51.0	63.0	86.3

Source: Various CEC reports on situation of agriculture in the EC; CEC (1989, p. 86*f*); CEC (1997, p. 55).

- the premium is limited to 20 dairy cows per holding, except in mountain areas;
- the allowance can be granted for no more than 1.4 LU ha^{-1} of the total forage area of the holding;
- an additional aid per ha for crop production is calculated excluding the area for animal feed, durum wheat, fruit trees (apples, pears, peaches), vineyards and sugar beet and wheat area with yields higher than 2.5 tonnes ha^{-1};
- there is an upper limit for the EU contribution to individual holdings of 120 units (of LU or ha) and the full amount is only paid for the first 60 units. For the rest of the eligible units, half the premium is paid.

Co-financing is set in general at a rate of 25%, but for the following regions the following higher rates are fixed:

- 50% for non-Objective 1 regions in Italy and parts of Spain;
- 65% for Ireland and the Länder in Germany;
- 70% for Spain and Portugal;
- 75% for Greece and Objective 1 regions of Italy.

Although these co-financing rates show considerably higher levels for southern European countries, the uptake of compensatory allowances has been particularly weak there. The different implementation and use of the measure is reflected in the statistics of the uptake showing marked differences between Member States. In some countries like Italy, Germany and Spain the regional administrations are responsible for the running of the scheme and adapt it to local circumstances. Thus the national averages presented here have to be differentiated for the regions and type of LFA (mountain areas and other LFA). Whereas some 45% of all the farm holdings in LFAs benefit from the scheme (CEC, 1997, p. 55), the participation of holdings varies from between 84 and 99% in most north-

Table 11.5 Breakdown of LFA payments (1994)

Member State	Amount of allowances paid in 1994 Mio ECU	No. of beneficiary holdings	Average allowance per holding (ECU)	No. of LU granted (in 1,000)	Average amount per LU (ECU)	No. of ha granted	Amount per ha (ECU)	Share of beneficiary holdings in LFA (%)
Belgium	9	6,873	1,329	108	85	-	-	86
Denmark	-	-	-	-	-	-	-	-
Germany	500	231,277	2,163	3,199	93	2,689,563	75	87
Greece	99	190,262	521	1,170	61	424,472	65	66
Spain	85	187,059	454	1,417	36	960,351	35	34
France	297	139,435	2,127	4,205	70	6,658	327	54
Ireland	166	105,619	1,575	1,884	88	-	-	99
Italy	27	39,056	689	376	57	215,882	25	9
Luxembourg	11	2,515	4,437	53	113	46,437	111	84
Netherlands	3	3,901	884	33	104	33,670	102	98
Portugal	37	89,510	410	447	54	240,605	52	53
UK	147	60,912	2,419	3,106	47	-	-	95
EU-12	1,382	1,056,419	1,308	15,998	67	4,617,638	67	45

Source: CEC (1997, p. 55).

ern Member States to just 9% in Italy (Table 11.5). The main reason for the lower proportion of farmers receiving aid out of the total number of farmers in the LFAs in the countries of the south is inherent to the concept around which it has been built. The orientation of the compensatory allowances scheme on headage payments made it obviously more applicable in regions which focus on livestock production, including Ireland and the UK, but also Greece. In particular, the small structure of farms in the south, with many farms of a size beneath the eligibility threshold, excluded a large proportion from this payment. In spite of the fact that the minimum limits for the granting of aid in these countries has been lowered many farms are still not eligible, e.g. in Italy, where 29% of farms are less than one hectare in size. Moreover, the ha payments for crop production which exclude areas devoted to forage crops, grapes, wheat, etc. disfavour the application of the scheme in regions where permanent cultures and arable land are a significant proportion of land use. The difference is most outstanding between mountain areas in the north and the south. Whereas in the north arable land and permanent cropping are almost absent from mountain areas (and have limited relevance in other LFAs), it is a marked feature of land use in the southern LFAs. Another reason for a lower commitment of southern Member States can be found in the process of allocating Objective 5a budgetary resources by each Member State. The focus can be chosen between the three types of action: modernisation of holdings (Reg. 2328/91), improvement of processing and marketing structures (Reg. 866/90), and compensatory allowances. In the past, Member States in the south with great structural handicaps preferred to spend their Objective 5a resources on modernisation schemes and the improvement of processing and marketing structures.

The different priorities identified by Member States lead to considerable differences in farmer participation which are not to be explained by structural differences alone. In particular, variations in the implementation of the scheme by Member States and regions greatly affect the uptake and budget spent on the measure. Whereas some countries do not modulate the payment according to the size of the holding, in others provisions exist to differentiate grants according to type of production, number of productive units, the stocking rate, maximum payments or the income of the farmer. Partly as a consequence, the average payment per beneficiary holding ranges between Member States from 4,400 ECU in Luxembourg to 410 ECU in Portugal (see Table 11.5). Member States with the majority of allowances paid, like Germany, France, Ireland and the UK, have an average of more or less 2,000 ECU, whereas payments in the four southern countries (Portugal, Spain, Italy and Greece) only reach about 400-700 ECU per holding. Thus the payments are concentrated in the four cited north-western European countries which account for about 80% of the allowances paid (1994), even though they hold only 48% of the total LFA (EU-12).

Direct income support in the context of general agricultural policy plays an important role in maintaining the viability of farming in LFAs (over and above the compensatory allowances). The value of such support measures often exceeds the net farm income for a holding. The sheepmeat and goatmeat regime and the beef regime are of particular importance in the many LFAs where livestock grazing dominates. They have helped to prevent a decline in the area grazed and may have

prolonged the distribution of sheep and goat and beef cattle on holdings in marginal areas (Baldock *et al.*, 1996).

ENVIRONMENTAL ASSESSMENT AND NEW POLICY ELEMENTS

Whereas initially LFA policy did not reflect policy concern over the impact of agriculture on the environment, but was conceived as a measure to compensate for handicaps and to mitigate income gaps, the subsequent reorientation of the CAP and the rise of environmental policy itself started to address this issue directly. Since 1989 Member States have had the possibility to put environmental conditions on the payment of compensatory allowances. Such limits, however, were only applied in the UK and in a fairly rudimentary way. As agri-environmental measures have been developed, in particular since the CAP reform of 1992, attention has also focused on the beneficial effects on the environment of the LFA scheme (European Economy, 1997). These lie particularly in the maintenance of important habitats, both on cultivated and grazed land, and in features such as hedgerows, ponds and trees which historically were integrated with the farming system.

With the end of traditional farming methods and a switch to more harmful farming practices also in parts of some LFAs, landscape degradation and a reduction in biodiversity might take place, and thus the continuation of sympathetic farming activities in these areas is extremely relevant. The continuation of farm management, particularly in mountain areas, thus plays a central role in rural development, as it acts as a prerequisite and basic activity for other sectors, such as tourism, and the maintenance of infrastructure facilities (OECD, 1998). From European-wide comparative work on the integration of the environment into mountain farming (EUROMONTANA, 1998) it could be seen that tendencies of farming in European mountain areas are somewhat divergent. Whereas farming in countries that are heavily committed to the use and integration of their mountain areas in the national economy has tended to stabilise in most areas, other countries are displaying stronger tendencies either to intensification or to land abandonment. In general, these processes are the results of a long-term evolution and can hardly be monitored and evaluated over a short time-scale and within a limited geographical area.

Assessment is made even more difficult since abandonment and intensification phenomena often appear simultaneously within one region. Moreover, they can also occur within a local community or even a single farm holding. The divergence within a given area adds to the complexity of processes and makes it difficult to attribute a straightforward positive or negative overall impact (Dax and Wiesinger, 1998).

Given the interrelation of land use and regional economy, the regional context has to be taken into account when assigning value to farming practices and changes in farming practices in mountain areas. What may be regarded as a positive effect for the environment in many southern European regions (e.g.

afforestation), might be seen as negative in central and northern European regions (with a high forest cover), causing a reduction in biodiversity and the disappearance of cultural landscapes. Likewise, Baldock and Mitchell report that 'there is a strong case for seeking to limit grazing pressure from subsidized livestock where this is causing environmental damages', but 'there are also areas where habitat value is deteriorating as a result of under-grazing' (Baldock and Mitchell, 1995, p. 58).

In addition to the requirement for a contextual interpretation, and the assessment of the simultaneous occurrence of land abandonment and intensification tendencies, non-agricultural sectors have acquired a leading role as the driving forces for farm household decisions. A thorough understanding of the socio-economic development and integration of farm households into the general economy (e.g. via pluriactivity and education) reveals its impact on the continuation of the provision of environmental goods (Arkleton Trust, 1992).

The evolution of extensive farming systems in the LFAs has attracted attention because the shift to other more harmful practices could lead to considerable degradation of the environment and the cultural landscape. These changes are especially serious as they very often involve the irreversible disappearance of valuable elements of the environment. Moreover, the negative impact on the natural environment often induces a further weakening of the socio-economic situation of the region and is thus detrimental to a sustainable regional development.

The reform of the CAP in 1992 for the arable and beef sector represented a significant shift in the nature of the support provided, from price support measures to more direct subsidies through the provision of direct payments. The changes were assumed to strengthen incentives towards a decrease in input factors and to induce an improvement in environmental performance in general. The effect on farming in the LFAs is likely to have been diluted as these areas are rather characterised by small-scale and/or low intensity farming. The introduction of the agri-environmental Regulation was of much greater significance. With many schemes only coming into operation in 1996 the specific effect on LFAs has not yet been analysed in greater detail. To give an example where there has been considerable and wide-ranging impact on farm income, the implementation and uptake of the Austrian scheme can be mentioned. In that case, although the scheme represents a horizontal programme for all farmers, the ecologically more demanding measures are concentrated on LFAs, and in particular in mountain areas: e.g. 94% of organic farming support is given to farmers in LFAs, even though the number of holdings and UAA in LFAs represents about two-thirds of Austrian agriculture.

MAINTAINING HIGH NATURE VALUE FARMING SYSTEMS

A series of recent studies have evoked the existence of high nature value (HNV) farming systems in Europe and their beneficial role for nature conservation and biodiversity (Baldock and Beaufoy, 1993; Beaufoy *et al.*, 1994; Hellegers and

Godeschalk, 1998). They have also highlighted the imminent threat to those farming patterns by impending marginalisation processes in the regions where they occur, which are mainly LFAs.

In general, HNV farming systems are referred to as low intensity farming systems with highly diverse habitat types (Baldock and Beaufoy, 1993), though there may also be high intensive farming systems with rich natural potential, like the polders in The Netherlands. The main categories of farmland with HNV features are (Hellegers and Godeschalk, 1998, p. 21):

- semi-natural grasslands (permanent, and with hardly any use of fertilisers);
- important areas for breeding and migratory birds;

Table 11.6 Farming systems which are likely to be of high nature conservation value

Farming system or practice	Distribution in Europe
Grazing and mowing of semi-natural dry grassland	Parts of south Italy, Spain, south Portugal, France, England, Germany
Grazing and mowing of lowland wet grassland	Parts of Ireland, Netherlands, France, UK
Grazing of moorland and heaths	Large areas of UK uplands and Ireland and smaller areas in other regions
Grazing of high (e.g. Alpine) mountain wooded agro-pastoral	Pyrenees, Cantabria, Alps, etc.
Grazing of Iberian dehesa and montado wooded agro-pastoral	Large areas of west and south-west Iberian Peninsula systems
Grazing of Mediterranean scrub (maquis, matorral, etc.)	Large areas of Spain, southern France, Greece, Italy
Grazing of coastal marshes	Part of Netherlands, UK, France, Spain, Portugal
Grazing and traditional silviculture of forests and woodlands	Mainly upland/mountain areas in the south of the Community
Arable cultivation and grazing of 'pseudo' steppes	Mainly Spain, also parts of Portugal, Italy, Greece
Management (including replacement planting) of perennial/tree crops, especially olives and orchards	Olives in Spain, Portugal, Italy, Greece. Orchards in Normandy, Provence, southern Germany, Italy
Maintenance of bocage landscapes and others rich in semi-natural features, as part of livestock and mixed farming	Parts of northern France, Britain, Ireland, Portugal, Spain, Italy, Greece
Mixed, low intensity arable land use	Especially in southern Europe: Portugal, parts of Spain, Italy and Greece

Note: the regional assessment of this table does not cover the new entrants to the EU in 1995 (Austria, Finland, Sweden) nor the central and eastern European countries where low intensity systems are also of great importance.
Source: Baldock and Beaufoy (1993).

- areas with many 'natural' features, like hedgerows, small woodlands, ponds, etc.;
- dehesas/montados (which are agro-forestry systems with rotation of arable and livestock production under trees in Iberia);
- low intensity arable and perennial crops.

In such areas, an appropriate land management is required to maintain the existing biodiversity. Marginalisation with ensuing land abandonment that is not properly managed might lead to a great loss of biodiversity. However, agricultural policy requires achievement of a balance between the provision of support for traditional husbandry and cultivation practices, and an approach relying more on ecologically sound processes.

Given the great variety of low intensity farming systems, analyses on the characteristics, types and distribution of such systems were needed. Within a comparative study, focusing on the countries with the main occurrence of these systems, Beaufoy *et al.* (1994) developed such a typology. A rough categorisation of the main extensive farming systems and practices most often found in LFAs in Europe is given in Table 11.6. These farming systems tend to be HNV and specifically contribute to the maintenance of the cultural landscape.

An estimation of the area of farmland under low intensity farming systems (Beaufoy *et al.*, 1994) shows that southern Europe has both the largest number of farming types, and the greatest area of land under low intensity farming. Given that the more intensively farmed Member States in north-western Europe are missing in these calculations, the actual share of UAA under low intensity systems in Europe might be somewhat lower than the average of the study (38%) (Table 11.7). Although the estimated areas are preliminary and indicative, the figures reveal the outstanding importance of low intensity farmland on the Iberian peninsula and for many other European regions, particularly LFAs. As incomes

Table 11.7 Farmland under low intensity farming systems

Country	Agricultural area under low intensity systems (in million ha)	Share of UAA under low intensity systems (in %)
Greece	6	61
Spain	25	82
France	8	25
Ireland	2	35
Italy	7	31
Portugal	3	60
UK	2	11
Hungary	2	23
Poland	3	14
Total	56	38

Source: Bignal and McCracken (1996).

from HNV farming systems tend to be low and the future of farming is threatened by marginalisation, special emphasis on the issue is necessitated. A particular consequence of the decline of these farming practices would be negative changes to cultural landscapes and biodiversity. Labour-intensive grazing and cultivation systems and the maintenance of valuable features of landscapes might be endangered, which may result in the encroachment of scrub and woodland, leading to a loss of environmental value. As a consequence HNV is no longer understood as an automatic by-product of agricultural activity, but its preservation comes to be highly dependent on direct payments, such as the compensatory allowances.

REFORM OF LFA POLICY

LFA payments are one of the core measures of the 'Regulation on support for Rural Development' from the EAGGF agreed as part of the 1999 CAP reforms. Given the high awareness of environmental problems and the requirement to better address the beneficial role of farming in LFAs there has been significant change in the basis of LFA payments.

These apply particularly to the overall objective to develop an instrument in favour of the preservation of low intensity farming methods. The compensatory allowance will remain the prime instrument but will have to be calculated on a per ha basis. This will disfavour more intensive livestock holders and regions. As a comparative analysis across a great part of EU Member States has shown (Hellegers and Godeschalk, 1998, p. 78ff.), many areas will not experience serious problems in staying eligible for support since livestock density is for a majority of farmers beneath 1.0 LU ha^{-1}, except for dairy farmers. But the overall assessment is that the reduction of the density threshold for the compensatory allowances will have greatest effects for farmers with problems of overgrazing and tendencies towards intensification of livestock production which occur in certain LFAs (Dax, 1998a).

The new regulation also envisages the requirement to define production methods compatible with environmental objectives and the maintenance of natural resources. This rule will play a major role when additionally NATURA-2000 areas will have to be integrated (Bennnett, 1997; a provision to increase the more flexibly disposable third category of LFAs, the 'small areas', from 4 to 10% is intended to give the necessary room for manoeuvre).

Discussions about the integration of areas with environmentally specific conditions revealed that support for this new type of area should remain separate from the kind of areas classified up to now. The decisions on Agenda 2000 of the Berlin Meeting in March 1999 regarding this issue made clear that there shall be two categories for complementary payments in the future, although the same rules shall apply to them, and the size for areas with environmentally specific conditions will be linked to the category of 'small areas' and limited to 10% of the national area. The new strand of the scheme focused on the application of EU regulations with respect to environmental prescriptions for farm management in specific areas (in general, NATURA-2000 areas). The recent decisions thus tried

to alleviate arising conflicts between farmer-oriented support and 'environmentalists'. Given the considerable overlap of LFA with the new category of areas with environmental prescriptions it will be decisive for the future of LFA support to continue and deepen the debate about the impact of all types of LFAs for the achievement of environmental objectives and, particularly, the preservation of natural resources.

The vivid debate on rural and regional development within the last decade has, to a large extent, also incorporated the beneficial role of agriculture in LFAs, and particularly mountain areas (Dax, 1998b). Analysis has recently focused on the positive impact that 'rural amenities' might play for rural development, thus highlighting the importance of harnessing the benefits stemming from rural resources (OECD, 1994). For the preservation of HNV systems within LFAs it will be of central importance that regional development programmes adopt this viewpoint. This means that the development of farming methods, as shown by this example, cannot be left to agricultural policy alone, but must relate to regional development processes also.

In conceiving the environmental sensitivity of mountain areas and other LFAs not only as a handicap to agricultural production but also as a rural development asset (Dax, 1998c) it seems appropriate to address rural amenities too. Targeting of support must not be limited to LFA payments and agri-environmental schemes, but be extended to the set of measures for agricultural and forestry and general rural development. A special recognition of the environmental sensitivity in mountain areas and other LFAs through the Structural Funds Regulation could also enhance initiatives at the local and regional level.

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7. Integrated rural development in mountain areas

Thomas Dax and Gerhard Hovorka

INTRODUCTION

Due to the particular ecological sensitivity of mountain areas, conflicts between environmental, developmental and societal changes have occurred increasingly in mountain regions affected by external social demands. The intensive use and the valuation of amenities of a great part of European mountain landscapes has been particularly driven by people from regions other than mountain areas. This search for the preservation of the characteristics of current landscape features requires an acknowledgement of the particular ecological sensitivity of these areas. Mountain regions like the Alps are therefore called upon to find innovative ways to preserve their highly valued landscapes and resources. The resulting challenges underline the general thrust towards integrated policies. If the dimension of extreme topography, often resulting in low population densities, is taken into account, the need for such policies becomes even more acute. The attention attached to mountain issues is increasingly related to the high ecological sensitivity of mountain areas and its impact on global change (Price, 1999). The inclusion of Chapter 13 – 'Managing Fragile Ecosystems: Sustainable Mountain Development' – in the Agenda 21 document, endorsed by the UN Conference on Environment and Development (UNCED, 1992) in Rio de Janeiro, is considered to indicate the priority of the issue. With the series of activities during the United Nation's International Year of the Mountains 2002, the awareness of these questions has been raised worldwide and has pushed the discussion on the need for integrated policies further.

Cultural landscapes are important elements of social identity and contribute to political cohesion. They represent important rural development assets, which are part of a region's capital stock and, for the development of an area, their quality is as important as the local road network, communication or education facilities (OECD, 1998). A dynamic understanding of their development and changes over time shows that they

are the result of the interplay of socio-economic, cultural and natural factors. As the landscape in Austria is characterised by the high proportion (70 per cent) of mountain areas, economic and territorial policy started very early to stress the multiple functions provided by mountain agriculture and aimed at landscape preservation and regional development. Since the early 1970s a special Mountain Farmers' Support Programme and specific regional policy measures have been set up and meanwhile adapted to more recent challenges for mountain development.

The Austrian mountain area is an example where economic activities other than agriculture have acquired great relevance in recent decades. As a fully integrated living and working space, it cannot be adequately assessed through separate sector analysis. A view on the regional problems and strengths through a limited sectoral analysis or a restriction to its primary functions would entail short-term solutions and disregard the interlink ages of functions relevant for mountain areas. The geographical characteristics express themselves in the limited space available for settlement and industry, the handicaps on agriculture and forestry, in an expensive infrastructure and a particularly sensitive landscape. However, the various sub-regions display great differences in structure and development, sometimes within a very limited area. In connection with this, the federal structure is not accidental. It allows a relatively large degree of independence for the regional (provincial) and local (municipal) authorities, which represent an essential determining factor in the formation of regional policy in Austria, and in the mountain area in particular. Policies to maintain multifunctional landscapes and to safeguard environmental and cultural achievements, as well as rural development, can thus only be effective in the long term if spatially oriented sectoral policies are built in to integrated regional development strategies.

For several years now, research has been using inter-disciplinary methods to address the different dimensions of landscape development – in particular, through the establishment of the Cultural Landscapes Research Initiative, commissioned by the Ministry for Science and Research. The multi-dimensional aspect has been addressed from the outset through the definition of constituent components of the programme. The section on 'multifunctionality and use conflicts' acquired particular significance and specific emphasis has been placed on traditional cultural landscapes in the Alps (Begusch et al., 1995), including new viewpoints on understanding the driving forces of landscape development. The big number of studies have underlined from different perspectives the dynamic character of landscape development and the need to work on future strategies by pulling together results and conclusions from very different research fields. To mention just a few of them, it will be important to extend economic analyses to incorporate studies on behaviour and aspirations of local people from all age classes, to increase the link to the ecological assessment of the impacts of sector development (Lechner, 2000), local and regional interdependencies, and

include also issues of interpretation of legal basis (Pohoryles et al., 1999), psychological discourse, linguistic analysis and changes of relations between society and natural environment (Ecker et al., 2000). This allows the conclusion that mountain landscapes are not any more understood as a given topographical situation but as a specific living space highly dependent and shaped by the economy, regional values, identity and strategy.

The chapter addresses the features of regional developments of mountain areas and calls for an analysis at a low geographical level, the inclusion of considerations on structural development and integrative concepts. It will therefore explore the experience on mountain policies in Austria and the particular role agricultural policy plays in the context. By presenting the activities and major driving factors of a small mountain region, practical policy issues and the difficulties of market development in remote areas are discussed. The chapter thus aims to point to the need for coordination, partnership development and an integrative approach as fundamental elements for the future of small-scale mountain farming since only the combination of farm and off-farm work and appropriate regional initiatives may be able to provide effective strategies against harmful tendencies for the environment and marginalisation of mountain regions.

UNEVEN REGIONAL DEVELOPMENT IN THE MOUNTAIN AREAS

The Austrian mountain area forms part of two of Europe's mountain massifs, the Alps and the Bohemian massif. The clearest spatial backdrop in this context is the area classification, carried out in the course of accession to the EU according to criteria for demarcation of the LFAs (Less-Favoured Areas) defined first in EEC Directive 75/268 (Art. 3, para 3), later in Regulation 950/97 (Art. 23), and recently integrated into Regulation 1257/99 (Art. 13-21). According to this classification, the mountain area comprises 70 per cent of Austrian territory and is home to 36 per cent of the Austrian population (Dax, 1998). This share of the national population living in mountain areas underpins Austria's early concern for enhancing the full potential of all economic sectors in these regions.

It is essential to realise that, in contrast to the assumption of economic decline in peripheral areas, the general dynamic of business and employment in the alpine area is subject to the same tendency as in the non-alpine area: the number of people employed in agriculture and forestry is falling, industry and manufacturing still account for a large proportion of total employment, and the shift of jobs towards the tertiary economy is quite marked. Tourism is a core element of the service sector in the mountain area, in particular in the western part of the alpine area. Population growth and economic development in the last 20 years have led, on the one hand, to an increase in the importance of the alpine area and, on the other, to a sharpening of disparities, also within the alpine area (Schindegger et al., 1997). This differentiation of local and regional development is particularly important as contexts would shift considerably from one valley to another.

The mountain area accounts for nearly 90 per cent of overnight tourist stays and the economic activities associated with them in Austria. However, tourism also displays great variations in intensity. Whereas in almost all of the western half of the country it is the dominant or at least essential element of the economic structure, this branch of the economy is only significant in fewer areas of the eastern half. The generally high quality of the cultural landscape in similar mountain environments supports the view that the differences in tourism intensity reveal its uneven valuation as a rural amenity. Through the interrelation of farmers to the rural economy, the different demand patterns for tourism and recreational use quite often have implications for land use changes. In many parts of the mountain area with less tourist attraction and demand, farming suffers from marginalisation tendencies and farm land is gradually converted into forest.

The image of the Alps as a unique tourist area thus often leads to an overestimation of the economic role of tourism. Recently, the interrelation of mountain agriculture, landscape and tourism has been used to raise the specific feature of land use in these mountain areas. Whereas in some places the tourist population in peak periods considerably exceeds the number of inhabitants, which implies acute forms of utilisation conflicts, other areas remain threatened by economic decline and population exodus.

MOUNTAIN AGRICULTURE AS A BASIS FOR MULTIFUNCTIONAL LANDSCAPES

Agriculture plays an important role in maintaining multifunctional landscapes in mountainous areas of Austria. With 52 per cent of all agricultural and forestry holdings situated in the mountain areas, it is also of great national concern. These farms manage 57 per cent of the agricultural area and 80 per cent of the woodland (BMLFUW, 2002). The major significance of animal husbandry is expressed in the high proportion of managed grassland (area ratio 78 per cent). Part of the grassland in the mountain area has a particularly high nature value, as with high alpine pastures, steep mountain meadows, dry grassland biotopes and damp meadows in some valleys sustained through extensive management systems. These holdings keep 64 per cent of the dairy cows, 64 per cent of all cattle, and 79 per cent of sheep (Statistik Austria, 2001). Mountain farms are also of great importance for forest protection and the management of alpine pasture areas, which are extremely sensitive eco-systems.

The unfavourable natural situation of mountain farming enterprises is expressed primarily in the steep gradients of the farmed areas, the shorter growing season, the extreme weather conditions and an absence of alternative production possibilities. Often, poor transport conditions and an inadequate and expensive infrastructure may also be added to this. Austrian farm holdings are characterised by a small-farming structure, which is operated primarily by family labour input: the average size of mountain farms is only 14 hectares utilised agricultural area (of which 11 hectares is grassland) and 11 hectares forest. Mountain farm holdings with cows have an average stock of 8.5 units and only 5.2 per cent of farms keep more than 20 cows. Only for 44 per cent of mountain farms is agriculture the main economic activity.

Whereas its food provision function was previously the main demand on agriculture, for some time now a wide range of functions have been attributed to farming in the mountain areas, going far beyond its original tasks. Beyond issues linked directly to farming, multifunctional mountain farming includes objectives to sustain the management of externalities:

- to secure provision of high-quality, fresh foodstuffs at favourable prices;
- to ensure the natural fundamentals of life – soil, water, air, biodiversity;
- to shape, maintain and care for the cultural and recreational landscape;
- to provide raw materials and energy;
- to realise ecologically sound farming methods;
- to contribute to the maintenance of the population settlements and social and economic activities in the countryside;
- to provide an impetus for and renewal of the regional economy; and
- to protect against natural hazards.

Albeit if some of these functions might also be addressed by intensive production systems, it seems important that under the difficult production situations of mountain areas, concentration on quality development and regional particular products constitute a major asset. Moreover, the use and development of sector activities is only rendered possible through a minimum density of population and regional activities in a competitive way.

POLICIES WITH AN IMPACT ON MOUNTAIN AREAS

The specific challenges of development in mountains is reflected through a set of policies in various fields of activity. Although all sectors would be of relevance, the priority was laid on farming, forestry and regional development, the most influential sectors in these areas. A more complete assessment is only achieved bit by bit through the inclusion of issues such as traffic, environment, water management, cultural development and governance.

Differentiation of Mountain Farming

The experience that farming difficulties are not equal within the mountain area has long since led to in-depth considerations on how to classify mountain farmers. Since the early 1970s a differentiated classification system (of four groups) has been the base for mountain farmers' support in Austria, as in Switzerland and shortly after the introduction of LFA policy for EU countries in some other mountain regions too. However, from the beginning, the Austrian system used a classification of site-specific farming difficulties experienced through the specific situation of each individual mountain farm.

The main criteria for the classification were the climatic conditions and the internal transport situation, i.e. the proportion of agricultural area of the holding that had a gradient of at least 25 per cent (no longer workable with a normal tractor) or of at least 50 per cent for the farms with highest difficulties (category 4). The additional criteria, external transport situation (no access to the farm for trucks) and low agricultural hectarage, could result in a shift to the next category of difficulty.

This has, of course, implications for the perspectives of land use and farming systems. The differentiation of mountain farms described above was in place until 2001 and revealed part of the diversity of mountain farming systems as well as its close relationship to off-farm or/and non-agricultural work.

With Austria's accession to the EU, the mountain area had to be defined for the first time, which added the territorial demarcation of mountain area to the individual classification. But, of course, the existing division of mountain farms within the mountain area into four categories of difficulty, based on individual farm differentiation, has remained in place. In relation to this it turned out that the experience on mountain farming policies was important to the implementation of EU regulations. With the rising support for sustainable development approaches the relative weight for mountain support in this sector could even be enlarged and some farmers could gain particularly from increasing agri-environmental measures. Although evidence on the policy outcome remains rather weak, and difficult to attribute, the overall land use development suggests that the agricultural use of farm land hardly decreased and thus marginalisation did not turn to be a major issue for most mountain areas (Dax, 1998).

The categories of mountain farms provide the basis for differentiation in data on mountain farming and indicate the divergence of production situations within the mountain area (Table 7.1). The low levels of productivity of mountain farms are particularly reflected through low output per unit. The combined effect of policy instruments applied have a significant impact on shrinking this gap for income figures. In addition, high levels of social benefits and off-farm income create a situation that narrows the

difference between the farm household income in different categories of mountain farms and that in other regions.

Table 7.1 The economic situation of mountain farms in Austria, 1999–2001 (index, Austria = 100)

Indicator	Austria	Mountain area	Category of mountain farms 1	2	3	4	0[a]
Output crops and livestock (per ha UAA)	100	68	90	66	54	22	132
Output crops and livestock (per farm unit)	100	73	87	72	55	36	127
Total output (per farm unit) [b]	100	91	93	92	81	68	111
Farm income	100	100	100	101	92	78	103
Subsidies	100	100	100	99	104	104	98
Subsidies as % of farm income	65	65	65	64	73	87	62
Farm household income	100	97	98	97	95	81	104

Notes:
Category 1: mountain farms with lowest degree of production difficulty.
Category 2: mountain farms with medium production difficulty.
Category 3: mountain farms with high production difficulty.
Category 4: mountain farms with extremely high production difficulty.
[a] Category 0 is defined as all non-mountain farms of Austria.
[b] Including forest, subsidies and taxes.

Source: Landwirtschaftliche Buchführungsgesellschaft (LBG), own calculations.

The revised classification for mountain farms (Tamme et al., 2002), applied since 2001, responds to the demand to address the positive externalities of mountain farming more clearly. A detailed system attributing up to 570 points to mountain farms makes it possible to clarify and make a wide range of dimensions of difficulties of mountain farms explicit. In addition, the system allows for annual changes through linkages to software accounting for the actual land use of mountain farms. This is the basis for the differentiation of the compensatory allowance system and is also used for other specific measures, particularly those in the agri-environmental schemes, to enhance the preservation of cultural landscapes in mountain areas. It is also expected that non-market benefits could be targeted more directly and the positive effects of mountain policy of the last three decades will continue. Depending on the future of WTO negotiations, such strategies may become

decisive in avoiding the marginalisation of mountain farming in many regions (Crabtree et al., 2002) and integrated mountain development seems to be vital to the future viability of mountain areas.

Mountain Farmers' Special Programme

Since the beginning of the 1970s, a specific support programme for mountain farming has attached particular relevance to the tasks provided by mountain farmers. As a national concern the Mountain Farmers' Special Programme has not just focused on site-specific farming difficulties but has also attached importance to the social situation of farm households and their insertion in the rural economy, aimed at the preservation of mountain landscapes, and has taken account of the necessity of developing concepts oriented at multifunctional aspects in mountain farming and land use. Alongside this concept, the programme has combined the following groups of measures:

- direct payments for mountain farmers;
- improvement of infrastructure facilities in the mountain area;
- regional agricultural aid (in particular investment aid);
- forestry measures; and
- agricultural terrain improvement and other measures.

These measures reflect the initial consideration to conceive of agricultural support as part of mountain-specific policies. Hence, it has not just taken the preservation of mountain farming into account, but – at least in the beginning – made considerable efforts to raise the farm-related infrastructures and alleviate the situation of peripheral locations. At the core, the objective of safeguarding the development of cultural landscapes as a primary base for other uses and an asset for local development has received higher priority over this period (Hovorka, 1998). Nevertheless, the sectoral approach has remained decisive, but with the increased acceptance of mountain farming support by the majority of the Austrian population, it has contributed to reinforcing the view that close cooperation between sectors is needed.

Over time the priorities of the programme have shifted, and direct payments, in particular the mountain farmers' allowance, has become the predominant measure. This trend also continued in the 1990s, when the programme's title and philosophy was abandoned. Its core measure – direct payments to mountain farmers, targeted on the preservation of farm management – has even been intensified since then. This mountain-specific programme has been integrated into the horizontal Rural Development Programme, which covers the total area of Austria.

Rural Development Programme

Although the adaptations through the application of the European Union's regulation meant a significant shift away from its previous system, the experience in designing structural measures aimed at the multiple tasks of (mountain) agriculture particularly helped to apply agri-environmental measures and other structural instruments. Currently, the ratio of the second pillar of Common Agricultural Policy (CAP) in Austria far exceeds market regulation measures (Table 7.2). Even if some of the effect is due to the small-scale structure of Austrian agriculture and its weak market integration, the political priority to apply the set of measures available and also adapt them to the needs of mountain farming is decisive for this situation. With the integration of the structural instruments, including the mountain support schemes into the Rural Development Programme 2000-06 (BMLFUW, 2000), it has been possible to provide a comprehensive framework for the remuneration of multiple tasks of mountain farming.

The agri-environmental programme, ÖPUL, for which an integral, horizontal approach was chosen (€599 million per year for the period 2000-06), had greatest implications for mountain farms, since their management systems correspond to environmentally sound farming to a higher degree than elsewhere. Mountain farmers receive about 45 per cent of these funds whereas they account for only 36 per cent of Austrian farms (with 49 per cent of total UAA). One of the most demanding environmental elements of this scheme is the support for organic farming. In 2000, 83 per cent of supported organic farms were mountain farms (Kirner et al., 2002) and the proportion of organic farming increases for farms with higher production difficulties.

Table 7.2 Public support measures per farm unit in per cent (1999–2001)

	Austria	Mountain area	Category of mountain farms 1	2	3	4	0[a]
Direct payments	35	21	29	18	15	10	47
Agri-environmental programme (ÖPUL)	40	41	39	42	42	40	39
Compensatory allowances	14	24	18	25	28	39	5
Other payments	12	14	13	15	15	11	9
Total payments	100	100	100	100	100	100	100

Note: [a]Category 0 is defined as all non-mountain farms of Austria.

Source: LBG, own calculations.

The Rural Development Programme made it possible to intensify efforts for the agri-environmental programme and the Less-Favoured Areas scheme (including mountain areas) which has undergone some changes. The new LFA payment seeks to incorporate some of the advantages of the old system prior to EU accession. The measure now allows for greater differentiation between farmers and introduces a payment providing basic support to mountain farmers. These measures, together with a set of other agricultural structural measures, cover the majority of funds in the Rural Development Programme.

While public support in absolute terms is similar for all farm groups, its compensatory effect has increased over recent years and succeeded in narrowing the income gap between mountain and lowland farms. One has to acknowledge that this decrease of the income gap might be related to the statistical coincidence due to the fact that crop farmers had profited above average from degressive payments in the first years after EU accession and meanwhile these payments have run out. In Table 7.2 the various public support measures are disaggregated to show the varying distribution between categories. Direct payments are 47 per cent for non-mountain farms (in particular, crop production in favourable areas), whereas mountain farmers receive the highest proportion of support through the agri-environmental programme (ÖPUL) and compensatory allowances, which include landscape preservation as one of their main objectives. These two account for 65 per cent of public support for farms in mountain areas (and for mountain farms of category 4 even 79 per cent), whereas non-mountain farmers receive only 44 per cent of their public support from these measures (all figures sum of lines 2 and 3). The table also reveals that, without the clear focus of compensatory allowances and agri-environmental measures on mountain farming, mountain farms with higher production difficulties in particular would receive little public support (see low percentage of direct payments, in particular, for categories 3 and 4).

Spatially Integrated Policies

Besides mountain farming, the development of mountain areas has had to seek complementary measures in other sectoral policies, particularly enhancing the local/regional development of these peripheral areas. In 1979 the Federal Chancellery introduced the Mountain Area Special Initiative as a pilot scheme for most remote mountain areas (Bundeskanzleramt, 1980). The objective of this initiative – the Initiative for Endogenous Regional Development – was to support cooperative business projects in all sectors. Although the support grants provided were rather small in total compared to other industrial renewal schemes, it can be considered to have had a rather stimulating incentive on regional policy in Austria's mountain areas. One core measure to enhance this bottom-up approach was the provision of

training through regional consultants, especially in the starting phases of initiatives. In the process, the emphasis shifted further to regional innovation and know-how transfer. With its multi-sectoral approach, these pilot actions raised the awareness about ecological issues and the need to integrate cultural landscape developments as a core aspect for comprehensive strategies of regions that are heavily dependent on them for their overall economic development.

Due to Austria's federal structure, it is important that the lower administrative levels, in particular the provinces (*Länder*), have shared this strategy and also developed aid programmes to support regional development initiatives for economic development in mountain areas. These programmes and additional initiatives of local authorities have complemented the federal development schemes in most peripheral mountain regions.

Mountain Relevant Structural Funds Initiatives

The adoption of EU policy brought about more drastic alterations for regional policy itself. Many of the Structural Funds objective areas, and also the Leader and Interreg Community initiatives have predominantly been applied in many mountain regions. One can estimate that about two-thirds of these programmes were relevant to the mountain areas. With the concentration of Structural Fund programmes for the period 2000–06, the areas and population eligible have been cut by a third, leading to a scattered support area. This implies greater difficulties in addressing the common problems of mountain areas through this programme, and greater responsibility for regional policy on the part of national authorities at all levels.

For the mountain areas, the concept of sustainability has also gained importance as environmental performance has become a key issue. This also reflects the view that rural amenities in mountain areas are basic assets for regional development. There is a host of studies and strategies that address the need to develop concepts to incorporate new visions on the use of the specific character of rural (mountain) regions and the possibilities of harnessing rural amenities as a core part of their development potential (Dax, 1999). The integration of environmental concerns into the mountain economies (Dax and Wiesinger, 1998) has not yet taken place sufficiently, but numerous initiatives are starting to develop concepts and, in particular, local projects that address the complex interplay between landscape management and socio-economic development.

LEADER – AIMING AT MULTIPLE TASKS OF LAND USE

The Leader programme, started in 1991, is the EU Community Initiative designed for the development of rural areas. Its approach seeks innovative

strategies for the development of selected rural areas. The leading concept of the programme is the preference for integrated regional development strategies as opposed to sector-specific measures, the requirement to focus on the participation of local population and the intensive cooperation and networking of rural development activities.

Since the moment it joined the EU, Austria has drawn on its experience with similar bottom-up initiatives for local development (Gerhardter and Gruber, 2001) to support the starting up of a wide range of Leader initiatives. In the Leader II programme (1995–99) 32 Local Action Groups (LAGs) covering more than 400 municipalities and a population of about 765 000 inhabitants (10 per cent of the Austrian population) in an area of 20 149 square kilometres participated. Now, in the current Leader+ programme, the opportunity to extend the eligible area to all the rural parts of the country has been seized and the area of the 56 LAGs selected for the programme period (2000-06) extends to 47 000 square kilometres (56 per cent of the total area of Austria) with a population of 2.175 million inhabitants (27 per cent of the population). More than three-quarters of Leader regions are situated predominantly in the mountain areas and most of the others adjacent to them (BMLFUW, 2001).

The financial framework of this Community Initiative has risen from total costs of €67 million to €161.5 million, between the two periods, including EU funding of €21.5 million and €75.5 million respectively. This increase clearly reflects the national concern to enhance wide participation of local actors in the initiative. It is based on the good experiences Austria had with the application of the programme in the first period (ÖROK, 1999; Austrian Research Centres, 2001). The experience of this assessment was also an important incentive to the great commitment towards enlargement of the Leader approach in the current programme period.

The initiatives in this period now follow financing regulations that have been streamlined, support for Leader+ being provided exclusively by European Agricultural Guidance and Guarantee Fund (EAGGF) – Guidance Section as well as the required national financing by public and private funds. The main objectives are to encourage and support rural actors in thinking about the longer-term potential of their area and engaging in innovative activities that tend to have an experimental character. In the Austrian context, the Community Initiative received particular attention in mountain regions addressing the need to raise awareness of local strengths and develop regional strategies that strive to nurture the potential arising from diversification and cooperation of farm-based activities. In conjunction with tourism development, the understanding of providing elementary tasks through the preservation of farm management under the adverse production conditions in the mountain areas was decisive to changing the attitude of local actors. The following description of one of the more recent regional initiatives can be

seen as exemplary for others, and particularly instructive in the extent to which it addresses diverse tasks and linkages of mountain agriculture.

The Teichalm Case Study

The LAG in the Teichalm-Sommeralm alpine pasture land was set up in 1995 on the basis of the EU Leader II initiative and is prolonged through Leader+ at least until 2008. Participation in the two subsequent programme periods ensures the long-term development of regional strategies and the nature of the organisational structures. The Leader area is located in the administrative district of Weiz in the Federal Province of Styria.

All local authorities in the case study are part of the mountain area. The mountainous character is underlined by the fact that the Teichalm-Sommeralm region is the largest continuous alpine pasture area in Europe, situated at an altitude between 1200 and 1500 metres. This is a centuries-old cultural landscape that has arisen as a result of human economic activity, primarily alpine farming. About 13 000 inhabitants live in the case study area, which is characterised by agriculture, forestry and tourism (greenbelt recreational area for Graz). When the Leader II project started (1995) it faced falling overnight visitor numbers in tourism (on average 3 to 5 per cent per year), had a high commuting and migration rate, a small-scale agriculture (approximately 60 per cent of farms had under 10 hectares UAA) with predominantly part-time farmers (approximately 68 per cent) and the area had poor transport access. Because of the absence of coordinated alpine farming, there was a danger of overgrowth by woodland, which might imply a loss in landscape values and biodiversity; the region was an excursion destination for the surrounding area, but there was no value creation that would lead to a sustainable improvement of the situation.

The alpine pasture area was taken as the focal point to establish regional identity and the label developed immediately became attractive to local actors. Starting from a long tourist tradition as a summer resort, innovative approaches based on the use of the particular landscape resources were sought. This new regional momentum has been encouraged, among other things, by the persisting difficulties in tourism development and the lack of future perspectives for mountain farming in the region. Initial work included a strengths-and-weaknesses analysis, taking into consideration the resource potential of the area. In contrast to previous lack of coordination the focus now has been laid on cooperation projects between neighbouring communities.

It soon became apparent that such a demanding cooperative project could only succeed if efficient institutional structures were made available. The municipalities, economic associations and groups involved therefore established the regional Almenland bureau in May 1999, which coordinates the work of the participating groups, institutions and municipalities. The

bureau is a workshop for ideas for the future development of the region and the concentration and selective offer of regional products and services. In particular it is the central institution and discussion forum for the LAG. The particular achievement is that the relevant partners are working together closely in the bureau and the networking is institutionalised, aiming at cooperation, exchange of experiences and common training for the sustainable development of the region.

The multitude of measures and actions is shown in the following list of main activities, which are grouped around thematic priorities and coordinated by the regional office activities:

- special products 'Weizer Bergland';
- direct marketing of farm products;
- farm tourism packages;
- folk museum development;
- intensification of wood utilisation;
- folk costumes of the pasture land;
- improvement of winter sports facilities; and
- environmentally oriented tourism management.

The case study is an example of the possibilities of combining different support schemes effectively, and deliberately targeting synergies of the interlinkages between programmes. Both EU programmes and Austrian national and regional specific programmes have been made available in the realisation of these diverse projects. This combination of programmes was intended as a starting aid for a long-term economic development of the region. The support schemes include measures from the Leader II programme, but also support from Objective 5b and 5a programmes and regional support (STEFREI: Styrian support programme for regional aid, regional consulting and tourism support). The Objective 5b programme covered measures like village renewal and community development, development of special farm products, support for forest cooperatives, riding facilities, a sheep farmers' cooperative, and use of renewable energy (Table 7.3). The pronounced inter-sectoral approach was regarded as a model for programme implementation of Leader II in the respective evaluation reports. In particular, the synergies with the Objective 5b programme at the project level were regarded as being significant (ÖROK, 1999).

The funds for the current Leader+ programme envisage a marked extension with key projects planned at costs about four times the amount spent through the former Community Initiative. In part, this increase might be due to the increased difficulties of finding matching funds under the new Objective 2 programme, which has to cope with a scattered area of eligibility.

Table 7.3 Support programmes used by LAG Almenland Teichalm-Sommeralm

Programmes (1995–99)	Total costs in million euros
Leader II	4.686
Objective 5b	13.426
Objective 5a	0.622
Land Styria, tourism support	0.088
STEFREI, regional programme	0.043
Total	18.865

Source: Dax and Hovorka (2002).

The overall estimation has shown that 45 new full-time and 105 part-time jobs have been created through Leader II projects in various sectors, including, in particular, tourism and trade activities. In all, the activities have contributed to secure 1600 jobs in agriculture, forestry and business in the region, particularly through enabling and securing off-farm activities for mountain farmers. The positive development is also reflected in tourism figures, which have risen again since 1998.

The Almenland Teichalm-Sommeralm study area has been selected as an example of a new development process in Austria, which received its impetus mainly through the possibilities made apparent by Structural Fund support schemes. It thus relates to the programmes and pilot actions that were started in Austria more than a decade earlier. By focusing on an ongoing development process, the attention is on the difficulties of setting up the appropriate regional institutional framework, its relation to other administrative levels and the experiences of inter-institutional cooperation, which are particularly rich and inspiring at the conceptual and start phase of development work. However, when looking at the second programme period, one has to deal with the issue of maintaining the momentum in regional development initiatives and spreading ideas to a larger part of the local population. In a number of aspects the experience of the study area LAGs are relevant for other mountain regions:

- The regional initiative starts from the notion of the interrelationship of local sectors and builds a particularly strong linkage between agriculture, forestry and tourism.
- It tries not to be defensive and not to restrict itself to the main projects, but reaches out to activities linking up to other sectors, such as business, enterprise cooperation and energy use.
- Rural amenities are no longer understood primarily as factors representing difficulties for mountain farming but can be seen as opportunities for linking nature conservation aspects with consumer-driven answers to tourism and business development.
- Networking of actors, and the moderation of the process of exchange of views with external actors can contribute to avoiding institutional (and personal) conflicts and hindrances to the development process.
- It is essential to develop the regional concept around a central notion, best captured in a significant term (such as Almenland), which captures local identity and addresses the perspectives for the development objectives.

The high level of participating groups makes it possible to deepen development aspects within the region and to envisage a larger geographical area as the target area. The relationship of the region to areas outside the region and an increased understanding of the interrelation in economic and social terms will be essential for the future success of the initiative. Hence, inter-regional exchange becomes the new focus for regional initiatives.

CONCLUSIONS

The case study analysis of Austria and international work on rural amenity provision underscores the need to take account of combinations of market mechanisms and non-market approaches, particularly in remote areas. The experience from the regional development initiatives suggest that both an active core of local actors addressing the local market problems and harnessing the full development potential of the region as well as the appropriate policy instruments are requested to set up a significant development dynamic. The holistic approach is necessary to provide the full range of positive effects, which are, in the case of land use management, often most relevant to other economic sectors and to non-local people valuing these services. According to a system approach, single instruments involve the danger of neglecting interrelations and tend to fail in the internalisation of externalities. With regard to addressing the multitude of tasks of land use systems in mountains there are some quite important implications of policy intervention (and non-intervention) that deserve particular emphasis (OECD, 1999).

- Mountain development requires active support through incentive policies that contribute to shaping the local/regional actors' behaviour.
- Regulatory measures are often necessary to take account of the value of landscapes, in particular with regard to aspects like non-use, option and existence values, and the maintenance of such valuable assets, particularly in the field of high nature value systems, for future generations (OECD, 1998).

- Amenities in mountain areas typically have important collective and territorial dimensions, which implies that disadvantages of remote places like mountain areas can only be overcome by collective action.
- There is a significant coincidence between mountain areas and areas of nature conservation interest. Since low-intensity farming systems of mountain areas reveal characteristics to a high extent benign to the environment, but endangered both by abandonment and intensification, there is an urgent need to highlight the importance of appropriate land management of these areas for landscape development and support structures through policy concepts (Dax and Hellegers, 2000).

Agricultural policy aid to the mountain areas has succeeded, in part, in compensating for the production disadvantages of mountain farms as shown through examples such as those in Austria. Through the high level of integration of the farming population in off-farm labour markets, pluriactivity and the regional policy can be realised as the second prerequisite for achieving regional objectives of sustainability and long-term provision of social demands. Mountain farming policy has made a marked contribution to maintaining settlement structure and conserving and shaping the cultural landscapes in areas with particularly severe work-related farming difficulties, which were also threatened by population exodus. Support for mountain farms has had positive direct and indirect effects in safeguarding the sensitive eco-systems and maintaining multifunctional landscapes and for the entire living and working space in the mountain area. However, the danger of conceptualising cultural landscapes primarily according to features that are considered to be traditional management methods underpins the requirement of a dynamic view to counter the tendency to dualisation of landscapes (Hebertshuber, 2000) fostered by over-rigid preservation concepts.

The latest evaluation studies on regional and agricultural policy in mountain areas (ÖROK, 1999; Austrian Research Centres, 2001; Hovorka, 2001) have shown growing appreciation of the values of mountain farming. This links to the discourse intensified through the United Nation's International Year of the Mountains 2002 on the problems and wide range of functions provided by mountain regions for lowland areas. Whereas, worldwide, the situation in most mountain ranges is dramatic, with few economic, dynamic and weak ecological developments, the situation in the Alps is more differentiated. Owing to the societal consensus on mountain support achieved, as well as to the positive economic results realised under adverse conditions, there are at least examples of successful policy approaches.

These experiences lead to the conclusion that the CAP would also have to include in the future significant instruments that are oriented towards the particular production difficulties of mountain farmers. The set of these measures, including support like the compensatory allowances, the agri-

environmental programmes and the adaptation of the regulation schemes for milk quotas to mountain specificities, has to achieve such a level that it attains a compensation effect in order to contribute to sustaining mountain farming. The debate on socio-economic processes in mountain areas has to incorporate the long-term provision of public environmental amenities in the mountain areas to facilitate sustainable regional development. This calls for an integrated regional strategy aiming at the maintenance of settlement, social and economic activities and the conservation and shaping of the cultural landscape in the mountain area. The typical multifunctional land management systems constitute a fundamental contribution to the development and use of mountain landscapes.

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Chapter 22

Reforming Pillar II –Towards Significant and Sustainable Rural Development?

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Introduction

In 1997, the EU Agricultural Council adopted a set of conclusions in which it developed the basics of the concept of the European Model of Agriculture. As part of the European Strategy for Sustainable Development based on the decisions of the European Council in Göteborg (June 2001), environmental dimensions were added to the social and economic ones. In the same year, the Agricultural Council integrated environmental and sustainable development as political terms and targets into the Common Agricultural Policy (CAP), and it adopted the European Model of Agriculture and particularly the concept of the multifunctionality of agriculture as a core basis of European farming policy.

As the statement of the Finnish presidency (2006, 6) shows:

> Multi-functionality is at the heart of the European Model of Agriculture. This means that together with competitive food, fibre and energy production farming also delivers other services for society as a whole. These services, which are closely linked to food and fibre production, include safeguarding viable rural societies and infrastructures, balanced regional development and rural employment, maintenance of traditional rural landscapes, bio-diversity, protection of the environment, and high standards of animal welfare and food safety. These services reflect the concerns of consumers and taxpayers. As European farmers provide these multifunctional services for the benefit of society as a whole, which often incur additional costs without a compensating market return, it is necessary and justified to reward them through public funds. In most European countries family farms are the key element in fulfilling the objectives".[1]

1 For a discussion of the functions of agriculture and policies that influence the provision of goods and bads as well as environmental and social services that agriculture is likely to provide, see Bergmann and Thomson (2007).

While in most developed countries the farming sector is in decline (OECD 2006, 8), it remains vital for many remote and peripheral areas. Indeed, in such areas it is often one of the most important economic sectors, and provides incomes, employment and quality of life for both farm households and the broader public. For urban and peri-urban areas, the most important functions of agriculture are the provision of eco-system services and recreational areas, generally in the form of public goods (Weber et al. 2008).

When the European Model of Agriculture was developed in the late 1990s, there was a widely shared understanding that agricultural policy should be modified in order to support functions or roles of agriculture that go beyond the production of food and contribute to the sustainable development of rural areas. Besides the primary targets of farming within the economic development process (provision of food in the first place, and also income and employment opportunities), such roles of agriculture as the provision of eco-system services, landscapes, renewable energies and the social viability of rural communities have become more and more important (cf. Van Huylenbroeck et al. (2007, 7f).

The TOP-MARD Project

The main target of the EU FP6 research project TOP-MARD was the development of the concept of multifunctionality as helping to analyse rural development policy with a focus on the economic, social, cultural and environmental context on a territorial scale. Its approach explicitly analyses:

- regions rather than nations or individual farms
- the links between rural development and agricultural policies

public goods and services using a systems dynamics model, POMMARD. The project thus filled a gap alongside other approaches, e.g. the Roles of Agriculture (FAO 2002) and Multifunctionality within the New Rural Paradigm (OECD 2006).

The POMMARD Model

Structure and Development of POMMARD

The POMMARD model was built with the Stella© software (ISEE, 2007), and represents stocks and flows using user-defined variables, parameters, equations and time periods. It can be used to simulate the behaviour of a rural region as a whole (i.e. not individual farms or other businesses) in terms of its demography, economy, environment and Quality of Life (QoL) over a number of years (at least 15, in the case of TOP-MARD). It contains 11 modules: Land Use (see below), Agriculture, Non-Commodity Outputs or NCOs (environmental), Economy,

Investment, Human Resources (demography), Quality of Life, and Tourism, together with Initial Conditions, Scenario Controls and Indicators (i.e. major model results). Figure 22.1 depicts the model structure.

The modelling approach behind POMMARD is based on Johnson (1986) and Leontief (1953), in which dynamic regional shifts are included in a localised input-output (IO) table. The initial productionist IO approach was developed to include regional specific Social Accounting Matrices (SAM), different capitals (e.g. institutional), and Quality of Life (QoL) indicators (Bryden et al. 2008).

The primary engines of the POMMARD model are final demands by economic sector (23 in the core model) and land use by up to eight agricultural (and other, e.g. forestry) production systems. Such use, specified by shares of total regional area, determines the amounts of labour employed in these systems, and the output of farm commodities and environmental non-commodities. The regional economy is modelled via an IO table to which a "households" row and column are added, while the Investment module modifies the capacity of each sector. However, unlike many models of economic relationships, the model is partially supply-oriented, insofar as agricultural activity supplements other demand drivers.

The regional human population is modelled in some detail, e.g. four age groups and six educational levels: in and after primary (age 14), secondary (age 19), and tertiary education, respectively (age 22). These age-education cohorts are represented in the employment and migration vectors.

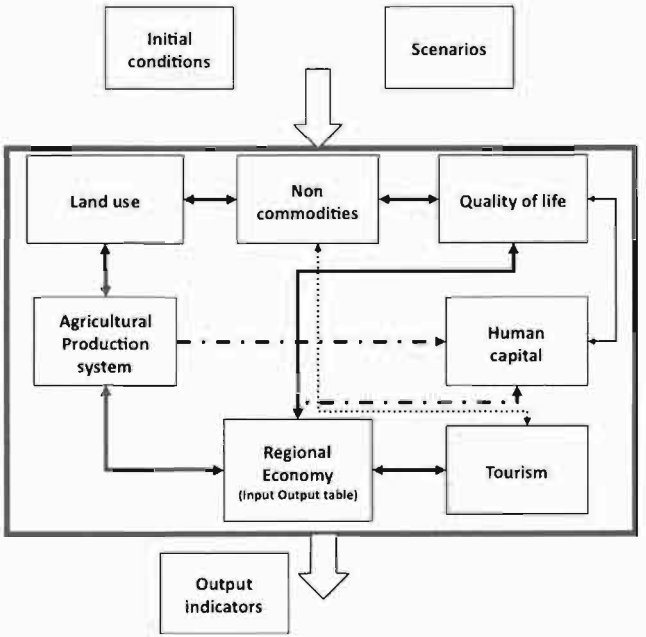

Figure 22.1 The Structure of the POMMARD Model

Source: Bergmann and Thomson (2008, 4)

The core version of POMMARD was under development throughout 2006 and 2007. Calibration in POMMARD is basically carried out by changing the most important demographic coefficients so that the whole model results in a "better" projection (see Bergmann and Thomson 2008). Such calibration was done by comparing official data between 2001 and 2007 with the results that POMMARD delivered for that period. In most cases (Germany, Scotland, Sweden), the calibration needed adaptation in the labour force participation rates, while in other cases the differences between the actual and estimated values were sufficiently small.

Output indicators employed in POMMARD

In general, the assessment of policies related to the multifunctionality of agriculture and rural development can be done with large numbers of indicators. For example, in the FP5 funded project DORA, more than 57 indicators were used, as previously done by Bryden (2002, 14f.) and Bryden et al. (2004). The EEA (European Environmental Agency) used 25 indicators to focus on the implications of policies for the status of biodiversity across Europe, and Eurofund (2008) employs more than 150 indicators to focus just on the assessment of Quality of Life.

In order to facilitate the interpretation of its results, the TOP-MARD project selected only 24 indicators, and Bergmann et al. (2007) argued that eight core indicators might be appropriate. In this chapter, the following core five categories and indicators will be used:

- Demographics – population size
- Farming – farm employment
- Economics – regional per capita income
- Population change – annual regional net migration balance
- Environmental quality – annual change in Biodiversity indicators

The case study areas

The case study areas (CSAs) that have been chosen for this comparison are:

- Pinzgau-Pongau (P-P; a tourism-dominated alpine area in North-Western Austria near Salzburg and the German border, NUTS3 Code: AT322),
- Wetterau (WE; an urbanised industrial area in the middle of Germany in the Bundesland Hessia near Frankfurt/Main, NUTS3 code: DE71E),
- Caithness-Sutherland (C&S, a remote rural peripheral area in the Far North of Scotland and a part of the Highlands and Islands, NUTS3 Code: Part of UKM61, LAU1)[2] and

2 Local Administrative Unit = formerly NUTS4

- Gorenjska (GK, a tourism and manufacturing dominated alpine area in the North of Slovenia near the Austrian border part of a new accession EU Member state, NUTS3 Code: SI022).

Table 22.1 Key Data for Case Study Areas, 2001

		Austria	Germany	Scotland	Slovenia
		(NUTS3)	(NUTS3)	(LAU1)	(NUTS3)
	Unit	Pinzgau-Pongau	Wetterau	Caithness and Sutherland	Gorenjska
Agriculture					
Number of farms	number	4,370	660	3,321	4,680*
Net farm income	EUR1,000	8.48	33.17	7.89	10.91*
Average ESU per farm	ESU	7.15	26.81	6.68	5.01*
Labour demand	head	4,510	1,408	2,325	5,420*
Farmed and Forested land	ha	176,410	36431	281,197	32,460
Demographics					
Population size	head	161,996	296,153	38,972	195,885
Under 20	head	42,361	63,847	9,177	45,457
Over 65	head	20,939	48,463	7,213	27,938
Net-migration annual flows	head	400	6,027	-100	0
population density in km²	km²	37.20	269.06	5.41	92.22*
Economics					
GVA per capita	EUR/head	22.2	33.4	10.0	9.9
GVA land use	EUR1,000	105,107	46,699	18,350	42,337
Regional employment	head	73,484	75,954	15,367	92,458

		Austria	Germany	Scotland	Slovenia
		(NUTS3)	(NUTS3)	(LAU1)	(NUTS3)
	Unit	Pinzgau-Pongau	Wetterau	Caithness and Sutherland	Gorenjska
Environment					
Biodiversity indicators	none	373,757	66,359	281,193	45,252
Natural capital change	none	0	0	0	0
surface	ha	435,500	110,070	720,000	212,400*

*data for 2003

Source: Eurostat

The comparison of social, economic and ecological indicators between these four TOP-MARD CSAs reveals vast differences that are place-dependent (peri-urban, remote rural or peripheral; see Table 22.1). All areas have a lower population density than the relevant national average, are more or less rural insofar that agriculture has a large proportion of regional GVA, and are mountainous regions except for WE (Germany). The main functions of agriculture in all CSAs are to (a) produce food and fibre, (b) protect the environment, (c) ensure the social viability of rural areas, (d) guard rural culture, and (e) provide a basis for lifestyle choices (Thomson 2005).

For GK, the dominating roles are (a) and (c), and to some extent even the role of agriculture as a basis for rural development is present. On the other hand, the dominating roles of agriculture in WE are (b) to (d). The other two CSAs (C&S and P-P) can be found in between, e.g. C&S farming is basically a lifestyle choice, while in P-P it is (b) and (c).

Scenario specification and results

Scenario specification and calculation

The CAP reform of 2003 introduced decoupled "Single Farm Payments" (SFPs) and voluntary as well as compulsory "modulation". It is likely that the modulation instrument will see more use in future in that the current compulsory rate of 5 per cent will be raised. Speeches by the European Commissioner for Agriculture and Rural Development (Fischer-Boel 2008,3) indicate that:

- the common market organisations (e.g. the milk as well as the sugar market quotas) are to be phased out,

- Single Farm Payments should be paid to farmers, defined according to common sense... and
- "progressive" modulation (i.e. limiting the amount of SFPs paid to larger farms) may be introduced".

With savings used to address new challenges (e.g. climate change, bio-energy, water scarcity, biodiversity, increase social cohesion, etc.), the rural development Pillar II of the CAP will be strengthened.

It seems certain that there will be a shift in CAP expenditures towards Pillar II in order to strengthen environmental land management, rural development (including investments into the farming sector) and social cohesion (see Thomson and McGranahan 2008). The effect of this shift can be analysed with POMMARD.

Five scenarios were specified:

a. Baseline, based on EU expenditures 2001-06, including all changes that took place in 2006/7 (most prominently the introduction of SFPs, and an annual land use change defined as a trend based on the years 1991-2001),
b. "Axis 1", in which all funds being spent in Pillar II are spent in Axis 1 to improve the competitiveness of the agricultural sector,
c. "Axis 2", in which all funds being spent in Pillar II are spent in Axis 2 to provide agri-environmental goods and services as well as to support agriculture in less favoured areas.
d. "Axis 3", in which all funds being spent from 2007 onwards are spent in Axis 3 to improve the quality of life and competitiveness of rural areas.
e. "Modulation", in which Pillar I expenditures are decreased by 50 per cent and subsequently are spent in Pillar II under Axis 3.

The IO tables used referred to the year 2001 (or later in the case of the SIovenian case study area), and included EU expenditures for the years 2001 to 2006. The effects of this spending were calculated on the basis of assumptions on:

1. the economic sectors affected by each pillar's expenditures (e.g. in all four CSAs the assumption on Axis 2 expenditure was that it increases household incomes) and,
2. the leverage effect of spending under each Axis, e.g. EUR1 spent by the EU along Axis 3 attracts an additional EUR1 from the member state and EUR2 in terms of private investment.

Modelling the changes that came into effect in the year 2007 for the period 2007 to 2013 was done in a similar way, and the results were compared for each scenario by appropriate adding and subtracting of the effects that the expenditures had during the period 2001 to 2006.

All scenarios were adapted to local conditions and public expenditure patterns, to reflect the fact that in each of the CSAs the Pillar II measures are implemented

with different regional coefficients and data but under common guidelines, affecting different input variables. For example, in Scotland and Slovenia, Axis 2 expenditures are shared between agri-environmental schemes and Less Favoured Area support, while in Germany the agri-environment is the target. In Austria, both schemes are characterised by a high level of support to mountain farms, underscoring the linkage of mountain farming to tourism (Dax and Hovorka 2004). Most other variables (e.g. land use change, birth rates, labour force participation rates, quality of life indicators, etc.) were estimated using time series analysis or available data from official statistical sources.

Results

Since the scales for each CSA differ to a large extent, all results in this section are calculated as a percentage of the Baseline results for the year 2015. While in Scotland and Austria the largest differences to the Baseline are up to 10 per cent, the largest effect of a scenario in the Wetterau is below 0.5 per cent, showing that in a largely urban fringe area the impact of EU policy changes is measurable but insignificant. On the other hand, in the more rural areas of P-P and C&S, the effects of policy changes are significant.

Specific case study area results: Pinzgau-Pongau

The highest increase in population size (Table 22.2) can be expected with the Axis 2 scenario, that increases the number of tourists visiting P-P, and would therefore create additional employment. On the other hand, the population would decrease with the Axis 1 and Axis 3 scenarios as an effect of the investment into sectors that need more capital per head (education, private services, etc.) compared to the additional demand for tourism labour as a result of the Axis 2 scenario. Rather surprisingly, there are no changes to agricultural labour demand in P-P over all scenarios.

Table 22.2 Scenario results for P-P. in 2015

Austria (2015)	Baseline	Axis 1	Axis 2	Axis 3	Modulation
Total Population	100.0%	99.7%	100.1%	99.8%	100.0%
Agric. Employment	100.0%	100.0%	100.0%	100.0%	100.0%
Per Capita Income	100.0%	99.4%	100.2%	99.4%	99.9%
Total Migration	100.0%	110.8%	97.0%	109.7%	101.5%
Biodiversity	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Own calculations.

However, due to the fact that almost all labour in Austrian agriculture is provided through family households, provision of labour is hardly dependent on market forces over the long term, but is more determined by life-style choices and by intergenerational decisions to keep up farming (or not).

Per capita income as a measure of economic well-being over all scenarios is changed only to small amounts. The best scenario in Austria regarding this indicator is again the Axis 2 scenario in which a better environmental quality generates additional regional incomes through increased touristic demand.

Total annual net-migration is highest in the Axis 1 scenario at 111 per cent of the baseline and lowest in the Axis 2 scenario. This indicates that people tend to out-migrate less as the Axis 2 scenario significantly increases the local quality of life as well as developing new regional jobs.

The Biodiversity indicator does not change at all in P-P, because the environmental quality is good, and any measure that does not drastically change the environment has almost no effect for the region.

Overall, comparing the results of the five sets of scenario results for P-P. the most attractive option would be the Axis 2 scenario, followed by the Baseline and the modulation scenario, as in all three the population size stays stable (or increases), and per capita income levels increase or stay almost the same.

Specific case study area results: Wetterau

The WE results generally show only very small changes (<0.1 per cent) compared to the Baseline (see Table 22.3). The Axis 1 scenario would increase the population through increased investments into labour-saving technologies in agriculture, while population would decrease as the German Axis 2 measures mostly target the extensification of production systems. The highest degree of population increase can be found by measures undertaken under Axis 3, result which supports the

assumption that the current LEADER measures are able to support rural viability to a small extent in the WE .

As in P-P, there are no changes to agricultural labour demand in WE over all scenarios. The same result can be found regarding per capita income. However, there is a decrease as a result of the Modulation scenario, as farm households lose a significant share of their household income, and this is only partly substituted by higher incomes of employees in non-agricultural sectors.

Table 22.3 Scenario results for WE in 2015

Germany (2015)	Baseline	Axis 1	Axis 2	Axis 3	Modulation
Total Population	100.00%	100.09%	99.99%	100.18%	100.05%
Ag Employment	100.00%	100.00%	100.00%	100.00%	100.00%
Per Capita Income	100.00%	100.00%	100.00%	100.00%	99.80%
Total Migration	100.00%	100.14%	99.86%	100.14%	100.41%
Biodiversity	100.00%	100.00%	100.00%	100.00%	100.00%

Source: Own calculations.

Total migration is negatively affected by the Axis 2 scenario, as decreased spending on economic investments in Axis 1 and Axis 2 in WE leads to a lower regional labour demand. The biodiversity indicator again shows no changes as German landscapes are highly regulated and therefore changes between the different land use categories (e.g. arable land, grassland, woodlands, etc.) are unlikely.

Overall, comparing the results of the five scenario runs for WE. the most attractive option would be the Axis 3 scenario, followed by the Axis 1 and Axis 3 scenarios as in all three the population sizes stays stable (or increases), and the per capita income increases or stays almost the same. The worst scenario seems to be the Modulation scenario in which per capita income drops while population increases somewhat.

Specific case study area results: Caithness and Sutherland The C&S results (see Table 22.4) show the largest changes under all scenarios. Population would be significantly increased through increased investments into education and manufacturing by Axis 3 scenario, followed by a large increase effected by Axis 1 investments into machinery and other technology useful in the farming sector. Ss in the other CSAs, there are no changes to agricultural labour demand in C&S over all scenarios. Per capita income is decreased by the Axis 1 scenario by nearly 2 per cent as well as in the Modulation scenario, while it would be increase by 4 per cent in the Axis 2 scenario and by 1 per cent in the Axis 3 scenario

Table 22.4 Scenario results for C&S in 2015

Scotland (2015)	Baseline	Axis 1	Axis 2	Axis 3	Modulation
Total Population	100.0%	104.0%	100.4%	109.0%	102.9%
Ag Employment	100.0%	100.0%	100.0%	100.0%	98.3%
Per Capita Income	100.0%	98.2%	104.1%	101.0%	98.9%
Total Migration	100.0%	88.9%	83.0%	97.0%	107.2%
Biodiversity	100.0%	100.1%	100.1%	100.1%	100.3%

Source: own calculations.

Total migration is negatively and strongly affected by the Axes 1 and 2 scenarios, as decreased spending on economic investments leads to lower regional labour demand. However, the Modulation scenario would positively influence total migration by 2015, as it would be 7 per cent higher than the Baseline scenario. The biodiversity indicator sees its highest change with the Modulation scenario, probably indicating that a more diversified development approach in C&S would not only profit rural viability but also the environment.

Overall, comparing the results of the five scenario runs for C&S, the most attractive option would be the Axis 2 scenario, followed by the Axis 3 and Modulation scenario as in all three the population size increases, the per capita income increases, and the marginal change of the biodiversity indicator is significantly positive. The worst scenario under those presented would be the Axis 1 scenario, since, although it increases population size and the biodiversity indicators, it decreases the per capita income, making the regional population worse off than in the Baseline.

Gorenjska

The GK results are surprisingly similar to the results of the WE (see Table 22.5). This similarity is based on the scenario specification, as we assume that only CAP expenses are altered which represent under 10 per cent of all EU expenditures in rural areas compared to 90 per cent donated by the structural funds in Slovenia.

The Axis 2 scenario is likely to increase population size, indicating that preservation of farming and the environment in this marginal area preserves the settlement pattern. The Modulation scenario is likely to decrease population, caused by a significant number of farms being shut down. As in the other CSAs, there are no significant large-scale changes to agricultural labour demand in GK

over all scenarios. However, the Modulation scenario again decreases labour demand, while the Axis 2 would increase it. Per capita income decreases by nearly 0.2 per cent in all Axis scenarios apart from the Axis 2 scenario in which increased population counteracts with the per capita income increase that is provoked by higher wages in the tourism sector than in the delivering farming sector.

Total migration is significantly negatively affected by the Modulation scenario, while all other scenarios reveal that annual net migration is higher, showing that the area becomes more attractive for potential in-migrants within each of the Axis 1 to Axis 3 scenarios. The biodiversity indicator sees its highest change with the Axis 2 scenario, suggesting that this might be a result of higher public support for environmental and spatial public goods.

Table 22.5 Scenario results for Gorenjska in 2015

Slovenia (2015)	Baseline	Axis 1	Axis 2	Axis 3	Modulation
Total Population	100.0%	100.0%	101.2%	100.0%	99.1%
Ag Employment	100.0%	100.0%	100.3%	100.0%	99.8%
Per Capita Income	100.0%	99.8%	100.4%	99.8%	99.5%
Total Migration	100.0%	101.0%	116.7%	100.5%	92.5%
Biodiversity	100.0%	100.0%	100.3%	100.0%	99.8%

Source: own calculation

Overall, comparing the results of the five scenario runs for GK the most attractive option would be the Axis 2 scenario, followed by the Axis 3 and Axis 1 scenario as in all three the population size increases, the per capita income increases and the marginal change of the biodiversity indicator is significantly positive. Probably as a sign of the not yet reached saturated development status in the other, richer, CSAs, there seems to be a need under the Slovenian circumstances first to invest into agriculture (Axis 1), the environment (Axis 2) and education/new employments (Axis 3) before a more diversified approach such as that modelled in the Modulation scenario should be chosen.

Discussion and conclusion

This chapter has presented a modelling approach that uses a holistic territorial approach to regional modelling in order to overcome the limitations of approaches that prefer a purely economic focus on questions related to rural development.

The results show that when a common specification is chosen, the results vary according to the countries of the CSA, and even more importantly – as the GK example shows – according to whether the member state is an "older" or a "newer" member.

Summarizing across the EU, the area-specific results show that:

- Axis 1 expenditure increases overall local employment more than the other three scenarios and may therefore help to ensure rural viability in farming areas. However, other components of sustainability, e.g. quality of life, and environmental quality, can be affected negatively.
- Axis 2 expenditure improves the environment as well as the quality of life in all areas, and leads to increases in local employment through multiplier effects.
- Axis 3 expenditure has positive effects in near-urbanised central European regions, but in peripheral regions is unlikely to be sustainable without continued EU support since better qualification is an additional out-migration push factor and most rural remote areas depend heavily on central governmental financial transfers to cover their cost.
- In Western European CSAs (part of the EU15), the Modulation scenario has positive effects on the local economy as well as not changing the economic position of agriculture, since with higher commodity prices farmers (even if factor prices increase as well) are likely to be compensated for loses of the SFP (a classical example that in the long term profit-seeking can have better effects than rent-seeking). The Modulation scenario in Slovenia shows that before a holistic approach to rural development can be chosen, regional pre-conditions such as those in the EU15 have to be reached.

The model results suggest that the local/regional effects of wider societal trends such as population movements, service-dominated work and commuting, and tourism diversification can be supported by EU policies but can not be reversed or even significantly changed in order to achieve more sustainability.

Furthermore, the results show that in highly developed rural areas such as C&S, P-P and WE, expenditures targeting Axis 3 are appropriate, while in GK the results suggest that, prior to extending Axis 3, steps should be undertaken to support the agri-environment through Axis 2.

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Recognising the Amenities of Mountain Agriculture in Europe

Thomas Dax

Spring in the Austrian Alps. Photo: Gerard Hovorka.

For many years, the specific handicaps of mountain areas in Europe have been seen as a major reason for targeted policies, particularly for mountain agriculture. There is a range of differences in the production difficulties due to the climate and topographical variety of geographical situations. Farm abandonment and marginalisation processes are seen as significant threats not just to agricultural production but also to regional development of these areas in general.

From the 1970s, mountain farming support was conceived as one of the main instruments of structural policy aimed at the prevention of land abandonment, to preservation of the farming population in these areas and maintainance of cultural landscapes. It was framed within the Less-Favoured Areas (LFA) policy which also addresses other LFAs outside the mountain areas, including types of production difficulties. In the long term, it can be observed that this was one of the first measures to address environmentally beneficial farming systems and High Nature Value (HNV) farming systems. It was developed both within the EU and rwn - EU European countries.

Objectives of mountain farming support

The dominant objective of this policy is to maintain farm management in less-favoured areas based on environmental principles and provision of other functions beyond food production. The aim is sustainable resource management, which includes particularly preservation of soil, water and air quality, maintenance of the cultural landscape, a high degree of biodiversity and protection from natural hazards. As the EU regulation provided a flexible framework to take account of the specificities of production difficulties, the implementation in the different Member countries and regions focus on various priorities. Usually the following aims are formulated by these programmes:

- Maintenance of agricultural land use and the associated rural community through the development of the rural environment;
- Contribution to the settlement and land use management systems under difficult production conditions; and
- Remuneration of the public goods produced by farms in less-favoured areas.

Delimitation of areas

Due to the high variation in climate and production between different European regions (North/South), thresholds applied vary considerably between the Member States of the European Union (MS) and regions. The demarcation of the mountain areas as defined in EEC Directive 75/268 (Art. 3, para 3-5) and later amended several times, has set the geographical area and can be considered as the best known classification for mountain areas in Europe. By addressing altitude and the gradient of the agricultural areas as main criteria, it provides a measurement for farming difficulties. Mountain areas are understood as areas where altitude and slope reduce the growing season and scope for mechanisation. High latitude regions in Finland have been included in this category. Mountain areas make up about 17 percent of the total Utilised Agricultural Area (UAA) of the EU.

Particularly high proportions of mountain areas can be found in several Member States like Austria, Greece, Slovenia and Finland, whereas Italy, France and Spain show the highest absolute mountain areas. In central and northern European mountain regions, animal husbandry and grassland management are of major significance for land use and decisive for landscape structures. Areas with a particular high nature value are widespread, such as high pastures, steep mountain meadows, dry grassland biotopes and damp meadows in some valleys. Mountain farms are also of great importance for forest protection and the management of Alpine pasture areas, which are extremely sensitive eco-systems.

In comparison to the UAA, the proportion of permanent grassland and wooded area is particularly high. The low production potential is underscored by the low share of the Standard Gross Margin (SGM) in LFA. The additional variables on the situation per holding underpin the small agricultural structure for the mountain areas. It reinforces the need for the differentiation between other LFAs and mountain areas, demonstrating quite clearly that land use, livestock and crop production potential are significantly lower for mountain areas.

Table 1: Contribution of mountain areas and LFA to EU agriculture (2003 in percent of total EU-15)

	Mountain areas	Other LFA (incl.specific handicaps)
UAA	17.8	38.2
Arable land	10.4	33.0
Fallow land	12.5	43.8
Permanent grassland	28.4	48.4
Permanent crops	27.4	33.8
Wooded area	60.0	34.9
Share of SGM	11.8	24.1
SGM per ha (EU-15=100, Index)	66	69

Source: Eurostat, own calculation

[1] *Due to the extension of LFAs and the limited differentiation of the other less-favoured areas, doubts on the effectiveness of the implementation for that part of the scheme have risen and a revision is required by 2010. However, this revision will not apply to the mountain areas for which the delimitation will remain unchanged.*

In many mountain regions, farm holdings are moreover characterised by a small farming structure which is operated primarily by family labour input. The average size of mountain farms in EU-15 is as low as 12.3 ha UAA against an average of 18.7 ha UAA for all farms in EU-15. In terms of Standard Gross Margin (SGM), the difference is even bigger. Whereas the average SGM per holding in mountain areas is 8.1 Economic Size Units (ESU), this figure is up to 18.7 ESU for all the EU-15 farms. These indicators refer to particular production difficulties and region-specific problems that have to be addressed through strategies to strengthen viability of land use in mountain areas.

Support levels

The different priorities identified by Member States and the variety of policy implementation, lead to differences in uptake which are not explained by structural differences alone. Factors of importance include:

- The average payment per beneficiary holding ranges between 600 and 9,000 Euros. The range for the average payments per supported area is similarly high, comprising support levels of 20 to 200 Euro/hectare. In the regions most concerned, LFA support achieves up to 40 percent of farm income (Crabtree et al. 2003);
- The proportion of beneficiaries with regard to all holdings in eligible areas varies considerably. This proportion varies from about 10 percent in Italy and other southern European countries to nearly all farmers in northern Member States;
- Whereas some countries do not modulate the payment according to the size of the holding, in others, provisions exist to differentiate grants according to type of production, number of productive units, stocking rate, maximum payments or revenue of the farmer.

About 470,000 mountain farmers (2004) received Compensatory Allowances payments, which is less than a quarter of eligible mountain farmers.

Diversification and multifunctional tasks

The fact that only for a minority of mountain farms is agriculture the main economic activity, has driven farmers towards the recognition of a wide range of functions, going far beyond food-provision. Some of these are linked directly to farming, but multifunctional mountain farming includes objectives to sustain the management of externalities supplying services and values, reflecting a rising social demand.

Agriculture and forestry in a Swiss Mountan Valley. Photo: Roland Neissi.

It is important that the provision of these tasks is linked to specific requirements of farm management with clear limits for intensification of production. Such production methods are particularly supported by the widely applied agri-environmental measures of CAP. In this regard, the priority of mountain farming strategies on quality development and region specific products represent a major asset and has a positive impact on farm household incomes.

Through the provision of positive externalities, mountain farming contributes to maintaining settlement structure and shaping the cultural landscapes in areas which otherwise would lose significant parts of their development potential. Since by definition public goods are not rewarded in the market, there is an obvious case for transfers from society at large to reward those who maintain such public goods. Thus the support for mountain farms is core for the positive direct and indirect effects in safeguarding the sensitive eco-systems and maintaining multifunctional landscapes in mountain regions. The debate on the socio-economic processes increasingly has to focus on the long-term provision of public environmental amenities to facilitate sustainable regional development and address the threats of land abandonment and marginalisation processes in mountain areas.

Harness development potential of mountain agriculture

With the appreciation of rural amenities as a development asset (e.g. OECD 1998), the discourse on mountain policy has changed from the demand for compensating for production difficulties towards a stronger integration of the specific features and potential as a development asset.

These are linked to products and farming activities where the inter-relationship with other sectors, regions and persons is most strongly developed. Tourism activity, high-quality production, regional products and traditional processing methods, as well as organic production are examples. The important issue is that this development could only be realised because of the rising demand from large parts of society in Europe, including the urban population. The stronger inter-relationship of mountain and non-mountain areas seems therefore one of the main prerequisites for effective diversification. A host of other factors also need to be taken into account for successful development approaches. These include (Fleury et al. 2006):

- Reflection of the diversity of mountain regions and products;
- Long-term support by regional managers to “detect” and nurture development potential;
- Enhanced understanding of processes of change, product development and innovative projects;
- Continued assessment of achievements, securing the lasting effect of the dynamic of the project;
- A professional approach to product development that includes recognition of strengths and weaknesses and takes account of failures in order to overcome them;
- Use of the advantages of cooperative action wherever appropriate.

This is not just about increasing the effectiveness of mountain farming systems and adapting it to the actual demands of society, but also envisages closer cooperation with the non-farming sectors and a new understanding of the specific role of mountain agriculture within the regional economy, environment and society.

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Thomas Dax, Dachang C Zhang

Strategien der Berggebietsentwicklung im Alpengebiet und im Berggebiet Chinas, Analyse von Lernprozessen der lokalen Entwicklung[1]

Abstract

The direction and approaches of the transition in mountain areas of Southwest China are of particular concern for regional development, addressing the multiple challenges for sustainable development of Chinese mountain areas. The region of Bijie is exemplary for the situation of mountain regions in China because it has been working as "Experimental Region" for 24 years. Being the poorest region within the poorest province of China it is characterized by the situation of weak economic development and backward agriculture. This paper presents main features of regional change and the persistent challenges for economic, social and environmental development in this area. The fundamental changes in the Chinese socio-cultural context over the last decades led to an increased demand for learning from developments and experiences of comparable mountain regions in other parts of the world. Consequently cooperation with Alpine countries highlights available experiences and transfer potential that could serve as lessons for the future development in these mountain regions. The specific focus is on discussing the relevance of transferring experiences of regional governance and policy development from Alpine to mountain regions in China and priorities for action in the study area.

Zusammenfassung

Die weitreichenden Veränderungen in den Berggebieten Chinas haben bedeutende Auswirkungen auf die Regionalentwicklung und die vielfältigen Herausforderungen für die Nachhaltige Entwicklung in diesen Gebieten. Als Referenz für die Situation und Entwicklung

[1] Die Studie wurde vom Wissenschafts- und Technologiedepartment der Provinz Guizhou (Internationales Kooperationsprojekt, G-2011-7043) finanziert. Die Autoren bedanken sich für die Unterstützung durch zahlreiche Experten und Institutionen im Rahmen der Erhebungsarbeiten in den Alpenregionen im Jahr 2012. Insbesondere sei die Unterstützung durch die Alpenkonvention, das Wirtschaftsministerium in Liechtenstein, die Städte und Gemeinden Wildpoldsried und Sonthofen (Deutschland), Val di Fiemme (Italien), Annecy (Frankreich), St. Stefan im Gailtal, Sonntag und Eisenerz (Österreich), Brig-Glis und Lavaux, UNESCO-Welterbe (Schweiz) und Diskussionen mit den Experten des Österreichischen Wirtschaftsforschungsinstitutes (WIFO), des Institutes AlpS und des Österreichischen Alpenvereins (OEAV) erwähnt.
Die Arbeitsergebnisse dieses Beitrages wurden an der IAMO (Leibniz-Institut für Agrarentwicklung in Mittel- und Osteuropa) Konferenz 2013 „Rural areas in transition: Services of general interest, entrepreneurship and quality of life" in Halle (Saale), Deutschland, 19.-21. Juni 2013 präsentiert und werden in Englisch in einem chinesischen Journal publiziert. Spezifische Themen der Berggebietsentwicklung und der Kooperation des Alpengebietes mit dem chinesischen Berggebiet in Guizhou werden in einer Serie weiterer vertiefender Fachbeiträge bearbeitet.

der Berggebiete in China wurde die Region Bijie, in der Provinz Guizhou, als Fallstudie ausgewählt, da sie seit 24 Jahren als „Experimentelle Region“ Erfahrungen zur Anpassung der regionsspezifischen Aktivitäten von Berggebieten sammelt. Als wirtschaftlich besonders gering entwickelte Region ist sie ein Musterbeispiel für eine Region mit Entwicklungsrückstand und Aufholbedarf in der landwirtschaftlichen und gesamtwirtschaftlichen Entwicklung. Trotz der zahlreichen Initiativen der Experimentellen Region in den vergangen Jahrzehnten zeigen aktuelle Indikatoren die unverändert beträchtlichen regionalen Herausforderungen für die wirtschaftliche, soziale und Umweltentwicklung dieses Gebietes. Die grundlegenden Änderungen in den polit-ökonomischen Ansätzen Chinas haben auch zu einem verstärkten Interesse an Lernprozessen und Erfahrungsaustausch mit anderen Berggebieten geführt. Im Zuge der Kooperation mit den Alpenländern sollen insbesondere Schlüsselelemente der Entwicklungsprozesse lokaler Entwicklung für die zukünftige Entwicklung der Berggebiete in China zugänglich gemacht werden. Dieser Beitrag konzentriert sich daher auf die Synthese der relevanten Erfahrungen regionaler Entwicklungsprozesse in den Alpenländern, die Einschätzung der Übertragbarkeit dieser Ansätze und die Eruierung von Schwerpunktbereichen für Entwicklungsprogramme in der Studienregion in China. Er soll jedoch gleichzeitig auch die gemeinsame Basis an grundlegenden Themen, Prozessen und Entscheidungsmustern der Regionalentwicklung für einen integrativen Ansatz in unterschiedlich strukturierten und entwickelten Bergregionen und für die strategische Entwicklung herausarbeiten.

Einleitung

In den letzten Jahrzehnten wird die Situation der Berggebiete immer stärker als „geographisches Gebiet mit spezifischen Charakteristika“ (EC 2008, 8f) gekennzeichnet, das unserer besonderen Aufmerksamkeit bei der Politikentwicklung bedarf. Diese Schwerpunktsetzung auf Fragen der Berggebiete ist auf globaler Ebene insbesondere in Zusammenhang mit der Einbeziehung des Aspektes der Sicherung einer „Nachhaltigen Berggebietsentwicklung“ im Dokument der Rio-Konferenz (1992) unter dem Titel Agenda 21 zu sehen. Eine wachsende Zahl an bergspezifischen Initiativen in allen Teilen der Welt hat seither die politische Relevanz einer umfassenden Berücksichtigung der spezifischen Bedingungen der Berggebiete unterstrichen und insbesondere auf ihre Bedeutung für die globale Umweltentwicklung und die Lebensbedingungen auch in anderen Gebieten der Erde (Flachlandgebiete) hingewiesen. Die Zusammenhänge der Entwicklung der Umweltressourcen und der Bedarf für eine stärkere Kooperation in den Berggebieten führen

zu intensivierten Bemühungen umfassende Entwicklungskonzepte in den Berggebieten zu verankern (Messerli 2012).

Während in den Regionen Europas und insbesondere in den Alpengebieten, das Bewusstsein um die Förderung der internen Stärken und Entwicklungschancen stark ausgeprägt ist (EC 2009), stehen viele Berggebiete in anderen Teilen der Welt vor beträchtlichen Entwicklungsproblemen (Mountain Agenda 2002). Weltweite Netzwerke und Partnerschaften, wie z.B. die Initiative „Sustainable Agricultural Rural Development in Mountainous areas“ (SARD-M) der FAO (2009) sind darum bemüht, Erfahrungen aus good practice Beispielen zu sammeln und geeignete Kriterien für Entwicklungsprozesse (Wang et al. 2012) allgemein zugänglich zu machen. Das Alpengebiet wird dabei immer wieder als Referenzregion herangezogen, das aufgrund der Vielzahl der Aktivitäten und der hohen Qualität der Initiativen gleichsam als „Laboratorium“ für andere Berggebietsregionen fungieren sollen. In Ergänzung zum Erfahrungstransfer hin zu anderen europäischen Berggebieten (v.a. Karpaten, Balkanländer), aber auch außereuropäischen Bergmassiven (insbesondere Kaukasus) stoßen die methodischen und prozesshaften Überlegungen aus dem Alpengebiet auch auf das Interesse der Verantwortlichen der Berggebietsentwicklung in ferneren Regionen, wie Japan und China. Nachdem Japan die Förderung der Berglandwirtschaft nach dem Vorbild der europäischen Unterstützungsmechanismen umgestaltet hat (vgl. Hashiguchi 2010), ist zuletzt auch China an diesen Erfahrungen, und insbesondere auch an der österreichischen Umsetzung, interessiert. Im Zuge einer solchen Kooperation wurden die spezifischen, vielfältigen Aspekte der Berggebietsentwicklung in den Alpen vom chinesischen Forscher (D. Zhang) besichtigt. Der folgende Bericht ist die Zusammenfassung dieser Erhebungsarbeiten, welche insbesondere auf Schlussfolgerungen für Entwicklungsoptionen und –prozesse in chinesischen Berggebieten abzielen.

Dabei zeigt sich, dass in der Beispielsregion in China, mit der Einrichtung der Experimentellen Region Bijie in der Provinz Guizhou seit dem Jahr 1988 eine Schwerpunktregion zur Verfügung steht. Aus dem Blickwinkel dieser Region sollen die Erfahrungen und Strategien der Alpenländer bewertet und auf ihren generellen Nutzen für die Bergregionen Chinas bewertet werden. Eine solche Aufgabe verlangt nicht nur nach einer iterativen Vorgangsweise, der durch die wiederholte Gegenüberstellung der Sichtweisen und Bewertungen zu einem kontinuierliche Lernprozess führen soll, sondern erfordert auch von Seiten der Regionen der Alpenländer eine kritische Auseinandersetzung mit ihren Projektergebnissen und „Erfolgen“. Im Vordergrund des Erfahrungsaustausches steht demnach die Entwicklung von Governance Strukturen, die institutionellen

Veränderungen und die Anpassungsfähigkeit der Entscheidungsstrukturen in den Bergregionen.

Erfahrungen aus der Alpenregion

Die reiche Erfahrung der Alpengebiete mit vielfältigen Fragen der Berggebietsentwicklung ist unumstritten. Sie stellen zweifelsohne jene Gebiete dar, die innerhalb Europas die berggebietsspezifischen Herausforderungen und Entwicklungsüberlegungen am deutlichsten thematisiert haben. Nach vielen vereinzelten Initiativen über mehrere Jahrzehnte konnte hier im Jahr 1991 erstmals ein internationales Abkommen, die Alpenkonvention, mit dem Ziel der Kooperation aller Regionen des Alpengebietes vereinbart werden. Mit der Abfassung thematischer Dokumente (8 Protokollen) und der sukzessiven Zustimmung der beteiligten Alpenstaaten (Alpine Convention 2011) wurde die „Konvention verbreitet als erfolgreiches Beispiel der regionalen Kooperation (von Berggebieten) verwendet“ (Price 2000, 192; Übersetzung durch den Autor). Gleichzeitig ist auch festzustellen, dass die trans-regionalen Kooperationsschritte weit über die Aktivitäten der Alpenkonvention hinausgehen und dieses internationale gesetzliche Rahmeninstrument ergänzen. So haben sich ausgehend von der jahrzehntelangen Arbeit einschlägiger NGOs, insbesondere der CIPRA, die für die Etablierung der Alpenkonvention selbst einen maßgeblichen Einfluss hatte, spezifische Gemeindenetzwerke bzw. Akteursnetzwerke mit thematischen Zielsetzungen der trans-nationalen Kooperation gebildet. Dieser Prozess wurde insbesondere durch das Alpenraumprogramm der EU-Kommission im Rahmen des Interreg IIIB-Programms seit 2000 durch gezielte Aktivitäten in den Schwerpunktbereichen „Wettbewerbsfähigkeit und Attraktivität“, „Erreichbarkeit und Zugang“ sowie „Umwelt und Risikoprävention“ vertieft. Bewertungsstudien am Ende der mehrjährigen Programmperioden haben insbesondere die strategische Ausrichtung gemeinsamer Aktivitäten erörtert (Bausch et al. 2005, Gloersen et al. 2012) und zur alpenweiten Diskussion und interdisziplinären Ausrichtung der Arbeiten beigetragen. Im Zuge der großräumigen strategischen Ausrichtung der EU-Regionalpolitik gewinnt die Zusammenarbeit dieses Berggebietes spezifische Bedeutung und die Überlegungen zur Vorbereitung einer Makroregionalen Strategie der Alpenregionen immer stärker an Gewicht (Europäisches Parlament 2013).

In einem Hintergrundpapier für die Konferenz „Planet under Pressure“, einer Vorbereitungskonferenz für die Rio+20 Konferenz im Jahr 2012 wurde der langfristige Prozess und der breite Rahmen dieser Aktionen im Alpenraumgebiet, die Bedeutung einer kohärenten Strategie und Wirkungsanalyse und die Chancen für den Erfahrungsaustausch

mit anderen Berggebieten hervorgehoben (Dax 2012). Dabei wird insbesondere auf die vielfältigen Netzwerkaktivitäten und die Konzentration auf lokale Initiativen verwiesen, welche ihre spezifischen Stärken als Entwicklungsimpulse nutzen. Wichtige good practice Beispiele sind:

(1) thematische Netzwerke (z.B. Allianz in den Alpen, Alpenstädte, Alpenperlen, Agenda 21 etc.)
(2) Konzentration auf die spezifische Attraktivität (insbesondere der Kulturlandschaft) und die lokalen und regionalen Stärken, unter Berücksichtigung der ökologischen Sensibilität
(3) Beispiele der Nutzung des kulturellen Erbes und von innovativen Ansätzen (vgl. Permanent Secretariat of the Alpine Convention 2011)
(4) Projekte zur nachhaltigen Ressourcennutzung (z.B. „sanfte Mobilität" – Alpenperlen; „Bergsteigerdörfer" – Initiative der Alpenkonvention)
(5) Forcierung qualitativ hochwertiger Nahrungsmittel durch die Berglandwirtschaft (EU-label „Berggebietsprodukte", Plattform Berglandwirtschaft der Alpenkonvention und Schweizer Label „Berg-„ und Alpprodukte").

In der Bewertung der Nützlichkeit der Erfahrungen des Alpengebietes für andere Berggebietsregionen verweisen Price et al. (2011) auf die erfolgreiche Bewusstseinsbildung und den weitreichenden politischen Prozess. Besonders der umfassende Ansatz, die ökonomischen Erfolge und die zahlreichen wissenschaftlichen Untersuchungen in diesem Gebiet ziehen immer wieder Interessenten anderer Berggebiete an. Trotzdem sind weitere Anstrengungen zur erhöhten Zielerfüllung erforderlich und Programmüberlegungen und strategische Konzeptarbeiten (wie die Makroregionale Strategie) unterstreichen diese Bemühungen. Hauptanknüpfungspunkte für andere Bergregionen könnten sich auf folgende Schwerpunktaufgaben beziehen:

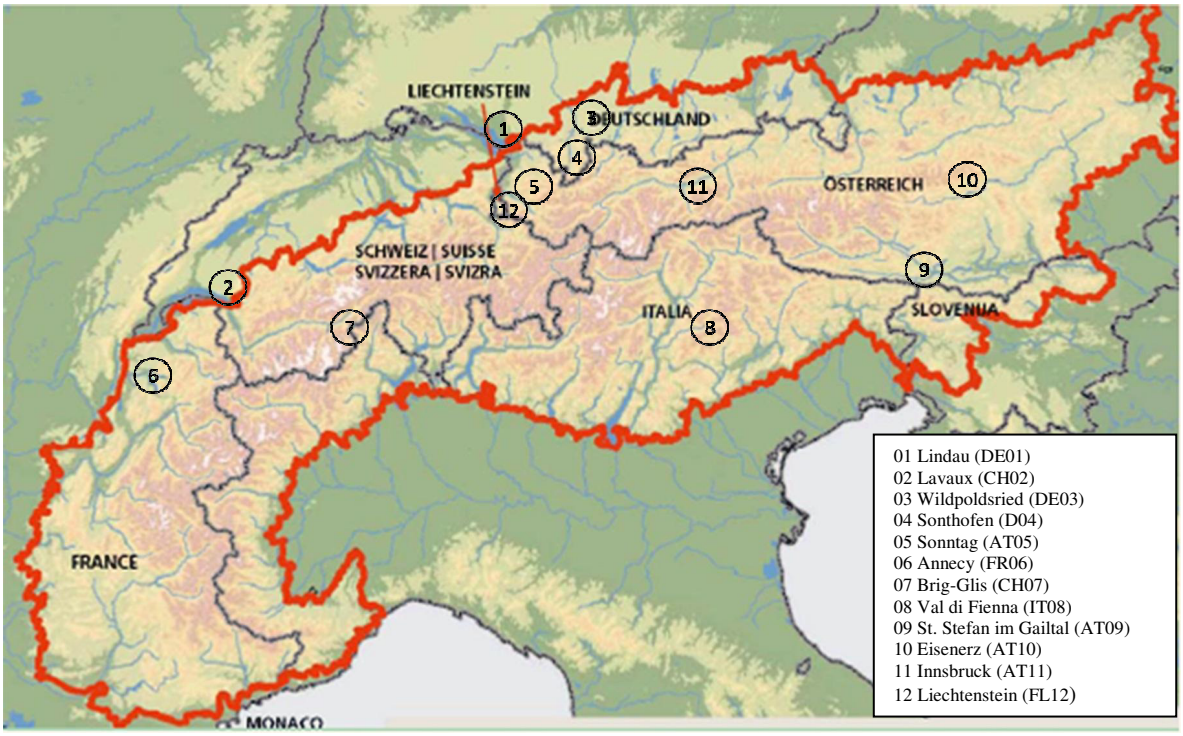
- einen gemeinsamen strategischen Rahmen zu erstellen;
- von kleinregionalen Einzelinitiativen hin zu einem grenzüberschreitenden Ansatz zu gelangen;
- auf ein vertieftes Verständnis regionaler Prozesse und grenzüberschreitender Kooperation hinzuarbeiten;
- lokales Wissen stärker zu nutzen und von „good practice" Beispielen zu lernen;
- die unterschiedlichen Aspekte der Berggebietsentwicklung wissenschaftlich zu untersuchen und Optionen für nachhaltige Entwicklungswege aufzuzeigen; und
- sich aktiv in den Erfahrungsaustausch mit anderen Bergregionen einzubringen.

Die verstärkte Auseinandersetzung mit Fragen der Umsetzung und der Suche nach good practice Beispielen hat auch Überlegungen zur Wirkungsanalyse und strategischen Konzeptbildung gefördert. In diesem Sinn ist die aktuelle Diskussion der Makroregionalen Strategie der Alpen und die gesamtstaatlichen Abstimmungen strategischer Überlegungen bzgl. der künftigen EU-Programme von hoher Signifikanz. Die Diskussion mit anderen Berggebieten, wie in diesem Beispiel den Berggebieten Chinas, könnte auch dazu Anlass geben, die institutionellen Prozesse verstärkt zu reflektieren und Zukunftsoptionen der Alpen in umfassender Weise zur Diskussion zu stellen.

Erfahrungen aus Fallstudien in den Alpen

In einem mehrwöchigen Studienaufenthalt (von D. Zhang) wurden eine Reihe beispielhafter Aktivitäten und ExpertInnen der Berggebietsentwicklung hinsichtlich wichtiger Kriterien einer „erfolgreichen“ nachhaltigen räumlichen Entwicklung befragt. Die Beispiele sind in der Karte des Alpengebietes verortet (Abb. 1) und unterstreichen den weiten Rahmen dieser Erhebungsarbeiten.

Abbildung 1: Das Gebiet der Alpenkonvention und die Erhebungsgemeinden.



Quelle: Karte der Alpenkonvention, Lage der Feldstudiengemeinden (Zhang 2012)

Inhaltlich wurden die dabei erfassten Themenschwerpunkte den folgenden Bereichen zugeordnet:

1. Schutzmaßnahmen im Bereich der Umweltentwicklung
2. Ökologische Entwicklungsmaßnahmen
3. Innovative Wirtschaftsentwicklung
4. Spezifische Maßnahmen der Berggebietsentwicklung

Die Übersicht zeigt, dass größtes Interesse auf die Vermittlung von Entwicklungsinitiativen und die Bedeutung der Nutzung der natürlichen Ressourcen gelegt wird. Dies fokussiert jedoch nicht auf die Optimierung der Produktion, sondern bezieht sich insbesondere auf Aspekte der institutionellen Entwicklung der Verfahrens- und Entscheidungsprozesse sowie der Unterstützung innovativer Prozesse. Hinsichtlich der Verwendung dieser Erfahrungen für Schlussfolgerungen zur Entwicklung der Bergregion Bijie in China ist die Diskussion möglicher Anwendungsgebiete von besonderem Interesse (vgl. letzte Zeile in Tabelle 1). Dies unterstreicht die Bedeutung innovativer Ansätze bzgl. der Entwicklungsanforderungen in Berggebieten Chinas.

Tabelle 1: Schwerpunktbereiche in den Alpen und Relevanz für Berggebiete in China

Ort, Region (Land)	**1. Umwelt-schutz**	**2. Ökologische Entwicklung**	**3. Innovative Wirtschaftsent-wicklung**	**4. Berggebiets-entwicklung**	**Kontextbe-dingungen**
Lindau, Schwaben - Bayern (DE01)		Gestaltung der Obstgärten, Bewässerungs-system und Maßnahmen gegen Bodenerosion.	Ersatz von Hochstamm- durch Niedrigstammarten, gärtnerische Verbesserungsmaß nahmen		Ortsspezifische Anpassungen der Dauerkul-turen; Kultur-landschaften
Lavaux, canton Vaud (CH02); UNESCO World Heritage site		Weingärten und Bewässerungssyste m; Vermeidung von Bodenerosion.	Weinbau auf Steilflächen; Tourismusent-wicklung.		Landschaftswirk ungen (UNESCO Welterbe) mit Relevanz auf Tourismus.
Wildpoldsried, Oberallgäu, Bayern (DE03)	Abwasser-kontrolle und biologische Kläranlage		Alternativenergie-entwicklung (Wind, Sonne, Biomasse und Wasserkraft)	Nationale Strategien zur alternativen Energienutzung	Kenntnis und Anwendung alternativer Energien, auch im Berggebiet
Sonthofen, Oberallgäu, Bayern (DE04)	Abwasser-kontrolle	Umweltfreundliches System der Wasserbevorratung	Verbindung von Landwirtschaft, Ökologischen Verfahren und Tourismus; Biomasse	Anpassungen in Industrie (einschließlich KMU) an ökologische Herausforderungen	Verbindung von Landwirtschaft und Alternativenergie und Einkommens-bedeutung
Sonntag, Vorarlberg (AT05), UNESCO Biosphärengebie t		Schutz vor Bodenerosion und Schneerutschungen	Mechanisierte Bodenbearbeitung, Innovationen in der Tierhaltung und Milchwirtschaft; Waldwirtschaft, Bergsport, Wasser-kraft und Tourismus		Pilotprojekt zur Verknüpfung von Umweltschutz, Wirtschaft und Bewusstseins-arbeit (Biosphärenpark)

Annecy, Haute-Savoie, Rhône-Alpes (FR06,)	Wasserschutz und -management		Milchwirtschaft, Tourismus und Bergsport	Bäuerliche Direktvermarktung (Land-Stadt Verknüpfung)	Schwerpunktthemen: Wasser und Land-Stadt Beziehungen
Brig-Glis, Kanton Valais (CH07)		Grünland-Wald Ausgleich, Rückbau von Fluss-regulierungen	Mechanisierte Grünlandbewirtschaftung, Viehhaltung und Waldwirtschaft; Skigebiet (Tourismus), Wasserentwicklung und Ansiedlungs-strategien	Beschäftigung in Industrie, kulturelles Erbe	Vielfältige und aktive Region; Verknüpfung von Beschäftigung und kultureller Entwicklung.
Val di Fiemme, Provinz Trentino (IT08)		Grünland-Wald Ausgleich,	Mechanisierte Grünlandbewirtschaftung, Viehhaltung und Waldwirtschaft; Skigebiet (Tourismus),	Kooperative Weidesysteme, kulturelles Erbe	Entwicklung der Almen, erhebliches Tourismuspotenzial.
St. Stefan im Gailtal, Kärnten (AT09)	Abwasserkontrolle und biologische Kläranlage, Hochwasser-schutz		Wasserbewirtschaftung, Wasserkraft, Ansiedlungsstrategie	Demographische Probleme (Überalterung, Abwanderung)	Sozio-ökonomische Entwicklung und demographische Veränderungen
Eisenerz, Steiermark (AT10)			Wasserentwicklung	Demographische Probleme (Strategien bei Bevölkerungs-verlusten)	Region, die mit Bevölkerungsabnahme zurechtkommt.
Innsbruck, Tirol (AT11)	Frühwarnsystem bei geologischen Risiken		Bergsport, Tourismus, landwirt. Beratung	Position des Österreichischen Alpenvereins (OEAV)	Bedeutung Innsbrucks als Tourismus-zentrum, Landbewirtschaftung etc..
Liechtenstein (FL12)			Dienstleistungen, Hochwertige Industriesparten, Tourismus	Erziehung und Ausbildung, Beteiligung, Innovation und Unternehmensgründungen	spezielle Kenntnisse und gutes Ausbildungsniveau.
Bijie, Guizhou (China)	Produktion von Kohle, ein wichtiger Zweig für Landwirte; aber durch niedrig entwickelte Techniken starke Wasserverschmutzung	▪ Auflagen bei Abholzung und Wiederaufforstung, ohne wirtschaftliche Nutzungsmöglichkeiten für betroffene Landwirte. ▪ Geringe Motivation /Initiative von Bergbauern. ▪ Ausgleich zwischen Weide- und Forstnutzung; Einkommensverbesserung für Viehhaltung; Abstimmung mit Umweltanforderungen.	▪ Landwirtschaft (LW): Produktionsnachteile, geringe Wertschöpfung, technolog. Schwächen; Steilflächen (hohe Arbeitsintensität) ▪ Bedarf an Innovation in LW: Produktivitätserhöhung, Arbeitsreduktion, Viehhaltung, Obstanlagen ▪ Dienstleistungen, Tourismus, Bergsport, Wasser und Energie ▪ Industrie und Bergbau	▪ Fehlen einer Strategie der Nachhaltigen Entwicklung, stattdessen, unausgeglichene, Einzelmaßnahmen, kurzfristige Ziele (ökonomische oder ökologische) ▪ Forstnutzung für Landwirte sichern ▪ Abwanderung junger Landwirte, steigende Arbeitsbelastung für verbleibende (ältere) Bevölkerung. Urbanisierung und Industrialisierung	▪ Produktionserschwernisse und wirtschaftliche Schwächen überwinden. ▪ Strategische Überlegungen und Nutzen der Erfahrungen. ▪ Sozio-ökonomische Veränderungen mit Wirkungen auf Aktivitäten und Beteiligung ▪ Konzepte zur Stärkung des Bewusstseins und des lokalen Engagements.

Quelle: Zhang 2012, Fallstudien (Mai – Juli 2012)

Die Studienregion Bijie

Die Experimentelle Region Bijie wurde insbesondere aufgrund ihres Konzeptes der Nachhaltigen Entwicklung als Studienregion ausgewählt. Im Jahr 1988 eingerichtet, wurde beabsichtigt durch kombinierte Aktivitäten zur Verringerung der lokalen Armut und zur Verbesserung der ökologischen Situation beizutragen, um so nachhaltige Entwicklung und innovative Aktivitäten in den Berggebieten der Provinz Guizhou in Südwest-China (beispielhaft) zu verwirklichen.

Mit der Unterstützung der Vereinten Nationen ist der Schutz der Waldflächen in dieser Provinz zu einem Schwerpunkt geworden. Mit dem Programm „Keeping the mountain green and the water clear“ (Die Berge grün und das Wasser sauber erhalten) wurden zwar Erfolge in der Aufforstung erzielt, der wirtschaftliche Fortschritt in der Region ist aber immer noch sehr langsam.

Während es im Nicht-Karstbereich der Berggebiete von Bijie gelingt, durch die Anlage von Terrassenfeldern Reisanbau zu sichern und dadurch auch sehr ansprechende Kulturlandschaften entstehen (Abb. 2), sind in den Steillagen der Karstgebiete solche Anbaumethoden bzw. eine vergleichbare Produktvielfalt nicht möglich. Auch die Waldbewirtschaftung ist für die Landwirte auf Grund der gesetzlichen Nutzungsbeschränkungen eingeschränkt, sodass die Motivation für ökologische Schutzmaßnahmen schwindet. Dies führt zu widersprüchlichen Ergebnissen hinsichtlich der Unterstützung von Schutzmaßnahmen. Verkarstungserscheinungen und zunehmende Wasserknappheit sind daher zu Schlüsselproblemen für die Wirtschaftsentwicklung in der Provinz geworden.

Zurzeit wird in China, und auch in der Provinz Guizhou, das Hauptaugenmerk auf Industrialisierung und Urbanisierung gelegt. Die praktische Umsetzung dieser Prozesse wird dabei die Auswirkungen für ländliche Gebiete ganz wesentlich bestimmen. In der Vergangenheit lief die Entwicklung für verschiedene Regionen Chinas ganz unterschiedlich ab. Vielfach erfolgte die ökonomische Entwicklung auch auf Kosten der Umweltentwicklung. Ein solcher Trend ist insbesondere für ein Gebiet wie das Berggebiet der Provinz Guizhou bedrohlich, da er die naturräumlichen Vorzüge der Provinz in ihren Unterstützungserfordernissen außer Acht lässt. Aufgrund des hohen wirtschaftlichen Aufholbedarfs der Region werden aber Alternativen zu dieser Position in vielen Fällen nicht erkannt. So beschränken sich die regionalen Strategien oft auf die Nutzung der reichen mineralischen Rohstoffe, was aber wiederum erhebliche Risiken für die Umweltentwicklung impliziert, sofern keine geeigneten Steuerungsmaßnahmen zum Umweltschutz eingerichtet werden (CIRN 2013). In dieser Situation ist es für chinesische Provinzen von höchster Relevanz, Erfahrungen aus Ländern mit einschlägigen Programmen nutzen zu können. Das

Beispiel der Berggebiete der Alpenländer wird daher als Referenz herangezogen, um Umweltschäden zu vermeiden und auch eine sozial ausgewogene Entwicklung sicherzustellen. Dabei ist es zentral das Verständnis für Grundprinzipien der Entwicklungsprozesse zu vermitteln. Sie sind insbesondere durch die sehr langfristige Beteiligung zahlreicher Akteure auf den unterschiedlichen Ebnen und das Erfordernis, den Abstimmungsprozess für eine ausgeglichene und nachhaltige Entwicklung laufend zu moderieren, geprägt.

Wie für die Alpengebiete haben für die chinesischen Berggebiete die (grenzüberschreitenden) Wirkungen zu den Flachlandgebieten höchste Bedeutung. Mit den Einzugsgebieten der beiden großen Flüsse Yangtze und Pearl River, die in den Bergregionen von Guizhou ihr Quellgebiet haben, reichen die Wirkungen weit in benachbarte Regionen und ins Flachlandgebiet und erstrecken sich damit auf weite Bereiche Südchina. Dabei kommt den Aspekten der Verfügbarkeit von Wasserressourcen, des Schutzes der Wasserqualität, so wie in den Alpenregionen mit den benachbarten Regionen (vgl. Permanent Secretariat of the Alpine Convention 2009) erhebliche Bedeutung zu.

Abbildung 2: Reisterrassen in Südost Guizhou

Quelle: (http://www.360doc.com/content/13/0116/09/836715_260449757.shtml , download on 20/11/2012)

Kennzeichen der regionalen Entwicklung in der Studienregion Bijie

Als eine der ärmsten Regionen Chinas ist die Studienregion Bijie durch ein unterdurchschnittliches Wirtschaftsniveau und eine „rückständige“ Landwirtschaft geprägt (zur regionalen Einordnung im nationalen Kontext siehe die Regionsübersichten im Prüfungsbericht der OECD 2009, S. 71-75). Neben dieser ökonomischen Entwicklungsschwäche beinhaltet die Region weitere Herausforderungen hinsichtlich der Nachhaltigen Entwicklung:

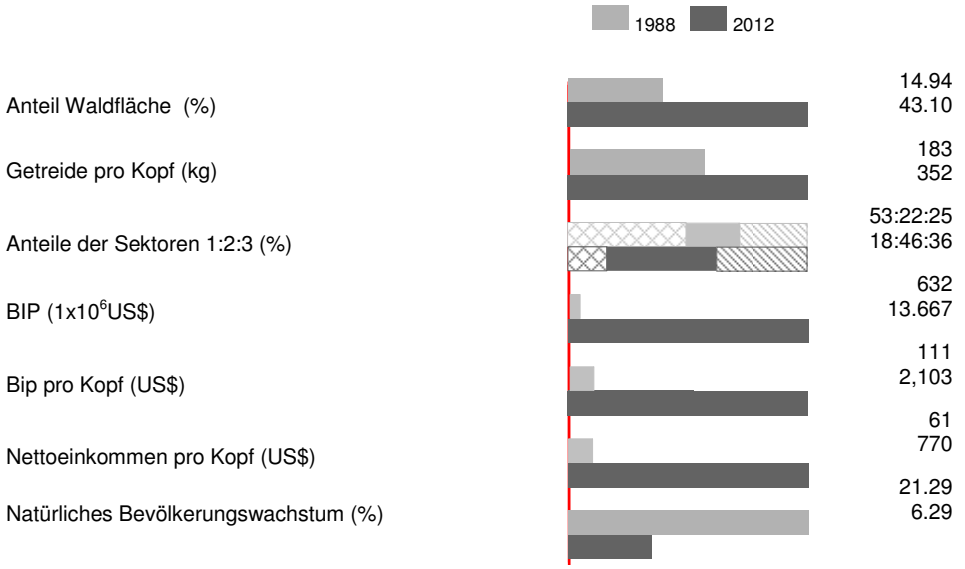
- Die klimatischen, geologischen und topographischen Bedingungen des Berggebietes ergeben ein äußerst sensibles Ökosystem, das insbesondere für Auswirkungen des Klimawandels sehr anfällig ist.
- Die Gefahr von Nahrungsmittelengpässen hat zu massiver Abholzung geführt, was im labilen Ökosystem der Region negative ökologische Wirkungen zur Folge hat. Bodenerosion ist weitverbreitet und das Gebiet der Desertifikation bezieht sich auf 24% der Regionsfläche.
- Desertifikation, anhaltender Wassermangel und rückständige Landwirtschaftssysteme, zusammen mit einer kleinbetrieblichen und schwach entwickelten Wirtschaftsstruktur, machen die regionalen Bemühungen zur Verbesserung des Lebensstandards weitgehend zunichte. Das Pro-Kopf Einkommen in der Region ist noch immer weit unterdurchschnittlich (mit 660 Dollar/Jahr, 2011).
- Die hohe Bevölkerungsdichte erschwert die Umweltsituation und führt zu Problemen der Überbevölkerung (Siedlungsbereich, Nahrungsmittelversorgung, Übernutzung der Ressourcen).

Abbildung 3: Lage der Fallstudie Bijie (Experimentelle Region Bijie), Guizhou, China

Source: Zhang 2012: 4

Die regionalen Bemühungen der letzten Jahrzehnte haben aber auch positive Wirkungen gezeigt. In Folge des internationalen Programms der Vereinten Nationen (1988) wurden eine Reihe von nationalen Aktionen und regionalen Entwicklungsprogrammen erstellt. Nach 24 Jahren Entwicklungsarbeit ergibt sich für die Region Bijie eine deutliche Ausweitung des industriellen Sektors und Verbesserung in der lokalen Infrastruktur. Dies wird durch eine starke Wandungsbewegung zwischen ländlichen und städtischen Teilen der Region (und Provinz) unterstrichen.

Abbildung 4: Veränderungen regionaler Indikatoren der Studienregion Bijie, 1988-2012



Quelle: Bijie Bureau of Statistics 2013; Zhang 2012: 9

Tabelle 2: Kennziffern für die Studienregion Bijie, Österreich, Liechtenstein und die Schweiz

	Bijie*	Österreich**	Liechtenstein***	Schweiz***
Fläche	26,853 km^2	83,857 km^2	160 km^2	41,285 km^2
Anteil Berggebiet	93.3% Berge 74.4% verkarstet	74% Berge, 64% Alpengebiet	66% Berge	40% Berge
Klima	Subtropisch warm und feucht	Kontinental	Kontinental	Kontinental / Übergang
Bevölkerung	8.6 Mio. （ständig 6.5 Mio.）	8.4 Mio.	0.036 Mio.	7.8 Mio.
Bevölkerungsdichte	242 pro km^2	100 pro km^2	226 pro km^2	189 pro km^2
BIP pro Kopf	$2,103 k	$45 k	$134 k	$61 k
Landwirtschaft	18,2% des BIP	1,5%	6%	1%
Industrie	46,2%	29,2%	36%	29%
Dienstleistungen	35,5%	69,3%	58%	70%

Quelle: Bijie Bureau of Statistics 2013, Zhang 2012

Strategien der Berggebietsentwicklung

Die für die Provinz Guizhou gewählten Strategien (Feng and Liao 2012) gehen sowohl auf die Schwächen wie auf die Stärken und Entwicklungschancen für die Berggebiete ein. Die Bewertungsstruktur verwendet Zugänge, wie sie sich in Studien zur Berggebietsentwicklung in Europa finden, und bewertet spezifische Herausforderungen und Potenziale der Region. Das gewählte Konzept legt Prioritäten für den Infrastrukturausbau fest, erhöht das Schwergewicht für die Entwicklung der Humanressourcen und schlägt neue Ansätze für die Aufteilung der Verwaltungsaufgaben vor. Obwohl die größten Entwicklungshemmnisse nach wie vor in den ungünstigen natürlichen Bedingungen gesehen werden, macht das Konzept deutlich, dass der Mangel an qualifizierten Arbeitskräften und die unzureichend wirksamen Politikmaßnahmen bzw. institutionelle Mängel Haupthindernisse für die Regionalentwicklung des Gebietes sind. Andrerseits beinhaltet diese jüngste strategische Ausrichtung ein erhebliches Potenzial zur Nutzung der Vielfalt der natürlichen Ressourcen. Damit steigen auch die Chancen, Maßnahmen zur Sicherung der Umweltsituation zu verankern und durch Konzepte wie „Grüne Ökonomie“ angepasste Technologien und Systemansätze zur Anwendung zu bringen.

Der Staatsrat der Volksrepublik China (The State Council of the People’s Republic of China 2012) hat diese strategischen Überlegungen weiter ergänzt und Vorschläge zur Regionsentwicklung in der Provinz Guizhou erarbeitet. Mit der Festlegung prinzipieller Vorgangsweisen in einer Grundsatzerklärung argumentiert er, dass „der Beschleunigung bei der Verbesserung der Lebenssituation eine wichtige Rolle (zukommt), soziale Ausgewogenheit zu unterstützen ist und die Umweltentwicklung in den stromaufwärts gelegenen Gebieten des Yangtse und Pearl Rivers zu verstärken sind, wobei die Fähigkeit zur Nachhaltigen Entwicklung zu verbessern ist“ (Übersetzung durch den Autor). Dieses politische Dokument umfasst eine umfangreiche Liste von Entwicklungszielen mit mehr als 30 verschiedenen Aktivitäten in allen Wirtschafts- und sozio-ökonomischen Entwicklungsbereichen. Von konkreten Infrastrukturzielen, über die Verbesserung der Wasserversorgung und Umweltschutzmaßnahmen, die Entwicklung der Energieressourcen, die Modernisierung von Dienstleistungs- und Tourismuseinrichtungen, Maßnahmen der Dorferneuerung, die Anpassung der Agrarstrukturen und Maßnahmen zur Armutsbekämpfung, zur ländlichen Ausbildung und Verbesserung in der Gesundheitsversorgung, Ausbau der Kultureinrichtungen bis hin zu Steuerfragen werden das komplette Set an Aufgaben eines integrierten Ansatzes zur Berggebietsentwicklung

behandelt. Viele dieser Aspekte können in ihrer Umsetzung aus beispielhaften Initiativen aus anderen Berggebieten wertvolle Ansatzpunkte ableiten.

Dieser aktuelle Ansatz in der Regionalpolitik Chinas erscheint sehr interessant für die Zukunft der Berggebiete. Dennoch bestehen noch immer eine Reihe von Unsicherheitsfaktoren, die zu Rückschlägen und Problemen in der Politikanwendung führen können. So ist in der aktuellen Richtlinie der regionalen Umsetzung in Guizhou nach wie vor eine Präferenz der Wirtschaftsentwicklung über die Umweltbelange verankert (CIRN 2013). Die Konsequenzen aus dem sehr raschen Urbanisierungsprozess erfordern zweifelsohne eine besondere wirtschaftspolitische Aufmerksamkeit; gleichzeitig ist jedoch auf die geringe Auseinandersetzung mit den ökologischen Folgen und den sozialpolitischen Konsequenzen im Sinne einer umfassenden Politikbewertung hinzuweisen.

Anwendbarkeit der Erfahrungen aus der Alpenregion

In der vergleichenden Studie wird insbesondere auf die besondere Rolle der Berglandwirtschaft bei der Sicherung von spezifischen Stärken und attraktiven Faktoren des Berggebietes Bezug genommen (Dax 2009). Diese Herausforderung ist für chinesische Berggebiete genauso wie für die Alpengebiete gegeben (wenn auch auf einem deutlich unterschiedlichen Wirtschaftsniveau). In den Alpen wird seit Jahrzehnten die (wirtschaftliche) Entwicklungsfähigkeit und die Umweltentwicklung eng miteinander in Beziehung gesetzt. Dies führte zu einer Vielzahl an Initiativen und schließlich abgestimmten Programmen, die den „Wert“ der Kulturlandschaften des Alpengebietes, weit über den ökonomischen Wert hinaus, als zentralen Aspekt der Zukunft dieses Gebietes sehen (OECD 1998). Darin kommt ein allgemein geteiltes Verständnis der Einzigartigkeit der Kulturlandschaften der Berggebiete zum Ausdruck, das wesentliche Optionen für die Regionalentwicklung eröffnet.

Aus den spezifischen regionalen Erfahrungen sind insbesondere jene Lernprozesse für Außenstehende von beispielhaftem Interesse, die Zugänge und Abläufe bei der Konzeption und Verwirklichung der Aktivitäten im Sinne einer „nachhaltigen Entwicklung“ (Schremmer et al. 1998) beschreiben und die Veränderung und Institutionalisierung im Alpenraum erfassen. Dies erfordert ein langfristiges Engagement der Akteure und der betroffenen Verwaltungen. Insbesondere war es über Jahrzehnte lang nötig, das Bewusstsein für eine alpenweite Perspektive der Umweltanliegen des Alpengebietes zu schärfen (Lolive and Tricot 2004) und abgestimmte Entwicklungsanforderungen zu entwickeln. Gerade aufgrund der positiven Ergebnisse in diesem „governance“ Prozess wird die Kooperation der Alpenregionen gern

als Hintergrund für die Diskussion von Berggebietskonzepten in anderen Teilen der Welt gewählt (Debarbieux and Rudaz 2008). Es gab auch andere regionale Kooperationsbemühungen von Bergregionen im Laufe des letzten Jahrhunderts, die Alpenkonvention war aber mit der Beschlussfassung im Jahr 1991 das 1. internationale Abkommen, das die Anforderungen des Umweltschutzes und der nachhaltigen Entwicklung für ein auch aus der Außensicht so bedeutendes Berggebiet verankert hat (Balsiger 2008). Mit einer Reihe von offiziellen thematischen „Protokollen" wurde sie zur weltweit bekanntesten internationalen Berggebietspolitik. Durch die Vielzahl an lokalen und regionalen Aktivitäten, insbesondere die Bildung spezifischer Netzwerke und grenzüberschreitender Programme sind darüber hinaus zahlreiche Interessengruppen in kooperativer Weise aktiv geworden (Dax 2012). Auch dafür sind in der Regel lange Vorbereitungszeiten und Ausdauer der Akteure erforderlich, die auch „erhebliche Schwierigkeiten (überwinden müssen), welche hauptsächlich auf die vorherrschenden institutionellen Rahmenbedingungen und die einzelbetriebliche Sicht der Wirtschaftsakteure zurückzuführen ist" (Übersetzung d. Autors; Dax 2001, 234).

Aus der Analyse von Entwicklungsfaktoren für die nachhaltige Entwicklung in Berggebieten wurden insbesondere folgende Erfahrungen abgeleitet (Dax 2001 und Fleury et al. 2006):

- Nachhaltige Berggebietsentwicklung kann als umfassender Ansatz verstanden werden, der die verschiedenen Aspekte der sozialen, ökonomischen und ökologischen Entwicklung der Regionen in einer gemeinsamen Entwicklungsstrategie behandeln muss. Dieser Prozess kann nicht in einem konfliktfreien Raum stattfinden, sondern erfordert die Abstimmung der Interessen unterschiedlicher Stakeholder und die Sicherung einer möglichst umfassenden Beteiligung lokaler Akteure.
- Das Hauptaugenmerk ist auf die Sicherung der natürlichen Ressourcen, die Entwicklung der Kulturlandschaft und den Umweltschutz als zentrale Stärken für die Entwicklungsfähigkeit der Berggebiete zu legen. Dabei kommt dem kleinräumigen, örtlichen Bereich immense Bedeutung zu.
- Modernisierungsmaßnahmen und innovative Aktivitäten sind wichtige Schritte um regionsspezifische Stärken zu nutzen. Gleichzeitig ist auf die Langfristigkeit der Veränderungs- und Entwicklungsprozesse hinzuweisen.
- Die erforderlichen Entwicklungsprozesse beziehen sich nicht in erster Linie auf technologische Veränderungen, sondern betreffen insbesondere Fragen der Erkenntnis und Beteiligung. Die Begleitung der Prozesse ist auch deshalb so wichtig, um die oft schwer zu realisierende Verlagerung von Einzelprojekten zu kooperativen Aktionen zu realisieren.

Schlussfolgerungen

Aufgrund der umfassenden Entwicklungsanforderungen ist es ein zentraler Aspekt eines jeden Erfahrungstransfers zwischen Berggebieten, eine umfassende Sichtweise an Einflussfaktoren zu berücksichtigen und insbesondere die dabei zugrundeliegende institutionelle Entwicklung zu analysieren. Häufig werden in der Beobachtung regionaler Situationen lokale Besonderheiten und Unterschiede hervorgehoben und die allgemeinen Prinzipien von Entwicklungsdynamiken nicht erkannt. Aufgrund der zentralen Bedeutung der regionalen Prozesse der wirtschaftlichen und sozialen Veränderungen ist der Schwerpunkt darauf zu legen, wie Kompetenzen zur Aktivierung in Berggebieten erhöht werden können. Erfahrungen mit den Institutionalisierungsprozessen der Berggebietspolitiken in Europa (Debarbieux et al. 2013) legen allgemeingültige Schlussfolgerungen nahe, die auch für Berggebiete in China von Relevanz sind. Die Diskussionen zur Veränderung der ländlichen Entwicklungspolitik, ausgehend von einer sektoralen hin zu einer raumbezogenen Politik, haben auch für die Berggebiete Chinas bereits begonnen (Li et al. 2013). Es erschient wichtig auf die Möglichkeiten dezentraler Programmaktivitäten zu verweisen und die Notwendigkeit, Aktionen auf der lokalen Ebene zu setzen zu unterstreichen. Die Betonung des gesamthaften Ansatzes und die Koordination der verschiedenen Bereiche ländlicher Entwicklungspolitiken ist für jedes Einzelprojekt, insbesondere auch für die in diesem paper vorgestellten Beispiele, wichtig.

Die Vermittlung von Erfahrungen hängt nicht so sehr an den einzelnen Themen, sondern bezieht sich viel stärker auf die Gewichtung und strategische Position der Berggebietspolitiken. Dies erfordert einen integrierten Ansatz, der einen aktiven Austausch zwischen den unterschiedlichen Wirtschaftsakteuren der Berggebiete vorsieht. Eine Voraussetzung dafür ist, die Fähigkeit innovativ zu handeln zu erweitern und neue Konzepte und Kooperationsaktivitäten in diesen Gebieten zu ermöglichen. Diese Erfahrungen beziehen sich insbesondere auf den Bereich der Entwicklung und der Lernens im Verhalten der lokalen Akteure. Das Besondere für die Umsetzung in den Berggebieten Chinas ergibt sich aus der dichten Besiedelung und der großen Zahl der von diesen Entwicklungen betroffenen Bevölkerung.

Auch wenn die alpenspezifischen Erfahrungen daher nicht direkt nach China transferiert werden können, so sind die Schlussfolgerungen aus den Entwicklungsprozessen, der Wahl der Strategien und der Lernprozesse wichtige auch dort relevante Erkenntnisse. Auf jeden Fall sind sie bei der Diskussion der Überwindung von Hindernissen und

Umsetzungsproblemen maßgeblich. Andererseits stellen die raschen Veränderungen, strategischen Auseinandersetzungen und regionalen Abstimmungsverfahren in den Berggebieten Chinas interessante Rückkoppelungen für die Bewertung im Alpengebiet dar. Ihre neuen, regionsangepassten Antworten für spezifische Entwicklungsherausforderungen der Berggebiete sind für die in den letzten Jahren wieder intensivierte strategische Diskussion (Gloersen et al. 2012) des Alpenraumes von erheblichem Interesse.

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